

## MAGOOSH 589 QUANT PRACTICE QUESTIONS

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If A, B and C represent different digits in the multiplication,  
then  $A + B + C =$

$$\begin{array}{r} A \ A \ B \\ \times \ \ \ \ B \\ \hline C \ B \ 5 \ B \end{array}$$

9

12

14

15

17

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**Title**  
Product with variable digits  
\*\*\*

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
3:11

**Others' Pace**  
3:42

For numbers p, q, and r,  $(p \times q \times r) < 0$

and  $\frac{(p \times q)^2}{r} < 0$

Column A

$$p * q$$

Column B

$$0$$



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
For numbers p, q, and r

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:00

**Others' Pace**  
1:04

Having received his weekly allowance, John spent  $\frac{3}{5}$  of his allowance at the arcade. The next day he spent one third of his remaining allowance at the toy store, and then spent his last \$0.80 at the candy store. What is John's weekly allowance?

\$2.40

\$3.00

\$3.20

\$3.60

\$4.80

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**Title**  
John's Allowance

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:07

**Others' Pace**  
2:41

For positive numbers p and q,  $\frac{p-q}{p+q} = \frac{2}{3}$

Column A

$$p + q$$

Column B

$$5$$

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
For positive numbers  $(p - q)/(p + q)$

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:00

**Others' Pace**  
1:33

A certain barrel is  $\frac{1}{5}$  full. When  $k$  liters of liquid are added to the barrel, it becomes  $\frac{2}{3}$  full. In terms of  $k$ , what is the capacity of the barrel, in liters?

$\frac{3}{8}k$

$\frac{7}{15}k$

$\frac{15}{7}k$

$\frac{7}{3}k$

$\frac{8}{3}k$

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**Title**  
Liquid in a barrel

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:07

**Others' Pace**  
1:53

Column A

Column B

The product of integers  
from -87 to -36 inclusive

The product of integers  
from -58 to -34 inclusive



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the  
information given

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Title

Products of lots of negative  
numbers

Your Result

Correct

Difficulty

Hard

Your Pace

0:04

Others' Pace

0:59

If  $a$ ,  $b$ , and  $c$  are real numbers, and  $a \neq 0$ , which of the following must be true?

$a*(b + c) = a*b + a*c$

$a*(b - c) = a*b - a*c$

$(b + c)/a = b/a + c/a$

$(b - c)/a = b/a - c/a$

$a/(b + c) = a/b + a/c$

$a/(b - c) = a/b - a/c$

$(b + c)^a = b^a + c^a$

$(b - c)^a = b^a - c^a$

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**Title**  
If  $a$ ,  $b$ , and  $c$ , Distributive

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:22

**Others' Pace**  
1:06

In the below addition A, B, C, D, E, F, and G represent the digits 0, 1, 2, 3, 4, 5 and 6. If each variable has a different value, and E ≠ 0, then G equals

$$\begin{array}{r} \text{A} \quad \text{B} \\ + \quad \text{C} \quad \text{D} \\ \hline \text{E} \quad \text{F} \quad \text{G} \end{array}$$

2

3

4



5

6

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**Title**  
Finding sum \*\*\*

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:50

**Others' Pace**  
2:49

For a certain event, 148 people attended. If all 148 had paid full admission price, the total revenue would be three times the cost of sponsoring the event. (Admission price was the only source of revenue.) As it happens, only 50 paid the full admission price, and the others paid nothing.

Column A

the total revenue

Column B

the cost of sponsoring the event



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
For a certain event

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:04

**Others' Pace**  
1:58

Set K consists of all fractions of the form  $x/(x+2)$  where  $x$  is a positive even integer less than 20. What is the product of all the fractions in Set K ?

1/20

1/10

1/9

1/2

8/9

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**Title**  
Set K, product of fractions

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:06

**Others' Pace**  
2:13

The decimal  $r = 2.666666$  continues forever in that repeating decimal pattern. When written as a fraction in lowest terms,  $r = \frac{a}{b}$ , where  $a$  and  $b$  are positive numbers.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

$$a + b$$

Column B

$$10$$

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**Title**  
The decimal  $r = 2.666666$

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:15

**Others' Pace**  
1:17

The value of  $\frac{(1.3333)(0.6666)(1.125)}{(0.75)(0.8)(0.8333)}$  is closest to

1/2

2/3

3/2

2

3

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**Title**  
Evaluation, 3 decimals  
over 3 decimals

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:09

**Others' Pace**  
2:10

$\frac{1}{3} + \frac{2}{5} = p$ , and, in lowest terms,  $p = a/b$ , where  $a$  and  $b$  are positive integers.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

$b$

Column B

10

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**Title**  
 $\frac{1}{3} + \frac{2}{5} = p$

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:09

**Others' Pace**  
1:00

Which of the following, when rounded to the nearest integer,  
are rounded to 3?

3.4

3.445

3.494

3.499

3.501

3.61

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**Title**  
Which of the following  
when rounded integer

**Your Result**  
**Correct**

**Difficulty**  
Easy

**Your Pace**  
0:14

**Others' Pace**  
0:27

$$2 - [1 - (1 - [2 - 3] - 2) + 3] =$$

 -4 -2 0 2 4[Back to Results](#)

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**Title**  
Order of operations

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:03

**Others' Pace**  
0:55

For positive numbers p and q,  $\frac{p+q}{p} = \frac{10}{7}$

Column A

$$\frac{p-q}{q}$$

Column B

$$\frac{5}{3}$$

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
For positive numbers p  
and q,  $(p + q)/p$

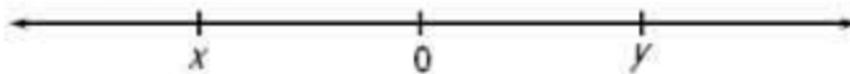
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:05

**Others' Pace**  
1:32

Note: Figure not drawn to scale



If  $x$  and  $y$  are numbers on the number line above, which of the following statements must be true?

- I.  $|x+y| < y$
- II.  $x + y < 0$
- III.  $xy < 0$

I only

III only

I and II

I and III

II and III

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**Title**  
Number line with  $x$  &  $y$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:04

**Others' Pace**  
1:08

For positive numbers  $a$ ,  $b$ , and  $c$ ,  $\frac{a \cdot b}{c} = 1$  and  $\frac{c}{a} = 4$

Column A

$b$

Column B

4

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
For positive numbers  
 $(a \cdot b)/c = 1$

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:27

**Others' Pace**  
1:00

If the numbers  $\frac{19}{36}$ ,  $\frac{5}{11}$ ,  $\frac{12}{25}$ ,  $\frac{6}{11}$ , and  $\frac{8}{18}$  were arranged from least to greatest, which number would be in the middle?

$\frac{19}{36}$

$\frac{12}{25}$

$\frac{6}{11}$

$\frac{5}{11}$

$\frac{8}{18}$

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**Title**  
Ordering

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:23

**Others' Pace**  
2:03

The fraction  $\frac{24}{36}$ , when written in lowest terms, is  $\frac{a}{b}$ , where  $a$  and  $b$  are positive numbers.

Column A

$$a+b$$

Column B

$$6$$



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
The fraction 24/36

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:13

**Others' Pace**  
0:39

If  $a$ ,  $b$ , and  $c$  are real numbers, which of the following must be true?



$a + (b + c) = (a + b) + c$

$a - (b - c) = (a - b) - c$



$a * (b * c) = (a * b) * c$

$a / (b / c) = (a / b) / c$

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**Title**  
If  $a$ ,  $b$ , and  $c$ , Associative

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:09

**Others' Pace**  
0:51

If  $\frac{w}{x} = \frac{2}{3}$  and  $\frac{w}{y} = \frac{8}{15}$ , then  $\frac{(x+y)}{y} =$

$\frac{4}{5}$

$\frac{6}{5}$

$\frac{7}{5}$

$\frac{8}{5}$

$\frac{9}{5}$

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**Title**  
 $w x$  and  $y$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:05

**Others' Pace**  
2:01

$$\frac{\frac{a}{b} + 1}{\frac{c}{b}}$$

In the expression above, a, b and c are different numbers and each is one of the numbers 2, 3 or 5. What is the greatest possible value of the expression?

8/3

4

9/2

5

6

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**Title**  
Greatest possible value

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:15

**Others' Pace**  
1:59

$$\frac{1}{1 + \frac{1}{1 - \frac{1}{3}}} =$$



2/5

4/7

2/3

3/4

5/6

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[Previous](#)[Next](#)**Title**  
Fraction within fraction**Your Result**  
Correct**Difficulty**  
Easy**Your Pace**  
0:29**Others' Pace**  
0:59

Which of the following when rounded to the nearest hundredths, are rounded to 4.17?

4.16496

4.16501

4.16849

4.17469

4.17496

4.17501

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**Title**  
Which of the following  
when rounded hundredths

**Your Result**

Correct

**Difficulty**

Easy

**Your Pace**

0:16

**Others' Pace**

0:31

If  $\frac{1}{x} + \frac{1}{3} + \frac{1}{4} = 1$ , then  $x =$

2

$\frac{24}{11}$

$\frac{12}{5}$

5

6

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**Title**  
Equation, Sum of  
Reciprocals

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:42

**Others' Pace**  
1:31

In the Antares Corporation,  $\frac{3}{7}$  of the managers are female. If there are 42 female managers, how many managers in total are there?

18

24

60

66



98

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**Title**  
In the Antares Corporation

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:04

**Others' Pace**  
1:13

If  $a$ ,  $b$ ,  $c$  and  $d$  are different integers between -6 and 10 inclusive, what is the least possible value of the product  $abcd$ ?

-480

-720

-1200

-3600

-4320

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**Title**  
Least possible product

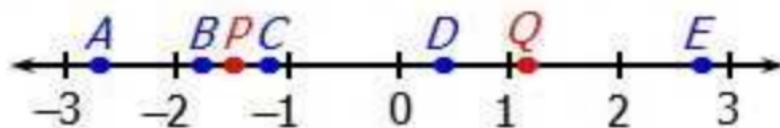
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:11

**Others' Pace**  
1:25

Which of the following best represents the quotient  $\frac{P}{Q}$ ?



A

B

C

D

E

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**Title**  
Number line quotient

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:21

**Others' Pace**  
1:07

Both P and Q are positive numbers, and S is a negative number. Which of the following fractions could be undefined?

$P/(Q + S)$

$Q/(P + S)$

$S/(P + Q)$

$Q/(S - P)$

$S/(P - Q)$

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**Title**  
Both P and Q undefined fractions

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:09

**Others' Pace**  
1:04

If the population of Townville went from 2105 to 1705, then  
the percent decrease in population is closest to



19

21

22

23

24

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**Title**  
Population Decrease

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:13

**Others' Pace**  
1:06

An orchard contains only cherry trees, apple trees and peach trees. The ratio of apple trees to peach trees is 2:3, and the ratio of cherry trees to peach trees is 2:1. There are 33 trees altogether.

Column A

Column B

---

Number of peach trees

8

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Orchard trees

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
2:37

**Others' Pace**  
1:57

After receiving a 25% discount, Sue paid \$180 for a lawnmower. What is the original price of the lawnmower before the discount?

\$215

\$220

\$225

\$240

\$245

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**Title**  
Sue Buys a Lawnmower

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:40

**Others' Pace**  
1:05

Four friends win \$120,000 in the lottery, and they divided the winnings in a 1:2:4:5 ratio.

Column A

Column

B

The difference between the greatest and least share.

\$40,000

The quantity in Column A is greater

The quantity in Column B is greater



The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Lottery winners

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:16

**Others' Pace**  
1:02

Column A

43 percent of 63

Column B

63 percent of 43

The quantity in Column A is greater

The quantity in Column B is greater



The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
43 percent of 63

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:27

**Others' Pace**  
0:35

On Monday, the regular price of a widget was discounted by 25 percent. On Tuesday, the reduced price was discounted by 50 percent. If the final price was \$60, what was the regular price?

\$135

\$150

\$160

\$175

\$180

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**Title**  
Original price of widget

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:14

**Others' Pace**  
1:40

If  $x > 0$ , which of the following expressions are equal to 3.6 percent of  $(5x)/12$ ?

Indicate all such expressions.

3 percent of  $20x$

$x$  percent of  $3/2$

$3x$  percent of  $0.2$

0.05 percent of  $3x$

$(3x)/200$

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**Title**  
3.6 Percent of Fraction

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:12

**Others' Pace**  
1:51

$x$  and  $y$  are positive.

30 percent of  $x$  is  $y$ .

Column A

$x/y$

Column B

3



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
30 percent of  $x$  equals  $y$

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:43

**Others' Pace**  
0:57

Tuk weighs 60 percent more than Kim, Lee weighs 50 percent less than Tuk, and Pat weighs 25 percent more than Lee. If Pat weighs 126 pounds, what is Kim's weight?

126

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**Title**  
Tuk, Kim, Lee and Pat's  
Weights

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:48

**Others' Pace**  
1:46

Column A

Column B

The percent increase from  
11 to 16

The percent decrease from  
16 to 11



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Increase from 11 to 16

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:30

**Others' Pace**  
0:52

The revenue generated by Company X is divided between Doug and Moira in a 6 to 5 ratio respectively.

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A	Column B
Moira's share when the revenue generated by Company X is \$15,700	\$7900

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**Title**  
Dividing company revenue

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:30

**Others' Pace**  
1:28

For positive numbers X, Y, and Z,  $\frac{Z}{Y} = \frac{35}{6}$  and  $\frac{Z}{X} = \frac{35}{8}$

Column A

X

Column B

Y



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
For positive numbers  $Z/Y = 35/6$

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:37

**Others' Pace**  
1:08

Column A

0.05 percent of 4000

Column B

1/200 of 4000

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Point 05 percent

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:32

**Others' Pace**  
0:49

Column A

$\frac{4}{5}\%$

Column B

0.8

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
4 fifths percent

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:30

**Others' Pace**  
0:29

The sales tax at a certain store is 15 percent. The total price of an item, including sales tax, is \$45.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

---

Price of item excluding sales tax

\$39

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**Title**  
15 percent sales tax

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:46

**Others' Pace**  
1:10

The length and width of a rectangular yard are 11 meters and 5 meters respectively. If each dimension were reduced by  $x$  meters to make the ratio of length to width 8 to 3, what would be the value of  $x$ ?

- 1.4
- 1.6
- 1.8
- 2.0
- 2.2

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**Title**  
Yard length and width

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:06

**Others' Pace**  
1:45

Ashley's score was 20% higher than Bert's score. Bert's score was 20% lower than Charles' score.

Column A	Column B
Ashley's score	Charles' score

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Ashley's score was

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:14

**Others' Pace**  
1:22

Cindy invests \$10000 in an account that pays an annual rate of 3.96%, compounding semi-annually. Approximately how much does she have in her account after two years?

- \$10079.44
- \$10815.83
- \$12652.61
- \$14232.14
- \$20598.11

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**Title**  
Cindy invests \$10000

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:15

**Others' Pace**  
2:08

Yesterday, Carl had 40 percent more CDs than Karen had.  
Today, Carl gave 20 percent of his CDs to Karen.

Column A

Column B

---

Number of CDs that Carl  
now has

Number of CDs that Karen  
now has

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the  
information given

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**Title**  
Carls CDs

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:33

**Others' Pace**  
1:47

$wxy \neq 0$

$$3w = 4x, 4y = 3x$$

Column A

The ratio of  $w$  to  $y$

Column B

1



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Ratio of  $w$  to  $y$  vs 1

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:52

**Others' Pace**  
1:20

0.25% =

1/4

1/40

1/400

1/4000

1/40000

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**Title**  
Small percent

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:28

**Others' Pace**  
0:33

Captown is the capital city of Maltania. If the population of Captown is 25 percent of the rest of the population of Maltania, then the population of Captown is what percent of the entire population of Maltania?

6.25

10

12.5

20

25

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**Title**  
25 percent of Maltania

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:14

**Others' Pace**  
1:57

In Townville, the ratio of cats to dogs is 4 to 11.

In Villageton, the ratio of cats to dogs is 3 to 8.

Column A

Column B

The number of cats in  
Townville

The number of cats in  
Villageton

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the  
information given

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**Title**  
Cats and dogs in  
Villageton and Townville

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:10

**Others' Pace**  
0:39

If  $y$  is 80 percent greater than  $x$ , then  $x$  is what percent less than  $y$ ?

20

25

$33\frac{1}{3}$

$44\frac{4}{9}$

80

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**Title**  
Y is 80 Percent Greater  
than X

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:45

**Others' Pace**  
1:48

If 100,000 microns = 1 decimeter, and 1,000,000,000 angstroms = 1 decimeter, how many angstroms equal 1 micron?

0.00001

0.0001

0.001

10,000

100,000

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**Title**  
Decimeters

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:25

**Others' Pace**  
1:29

Yesterday, a certain school had an equal number of boys and girls. Today, 18 boys left the school, and the ratio of the number of boys to girls is now 3 to 4.

Column A

Number of boys in the school now.

Column B

72

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
18 boys left the school

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:11

**Others' Pace**  
1:42

If A is the initial amount put into an account, P is the annual percentage rate of interest, which remains fixed, and the account compounds quarterly, which of the following is an expression, in terms of A and P, for the amount in the account after 5 years?

$4A\left(\frac{P}{100}\right)^5$

$A\left(\frac{P}{400}\right)^{20}$

$A\left(1 + \frac{P}{100}\right)^5$

$A\left(1 + \frac{P}{25}\right)^{20}$

$A\left(1 + \frac{P}{400}\right)^{20}$

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[Previous](#)[Next](#)**Title**  
If A is the**Your Result**  
Correct**Difficulty**  
Hard**Your Pace**  
0:50**Others' Pace**  
1:29

Anne pays 150 percent more for a wholesale widget than Bart pays.

Anne's retail price per widget is 15 percent greater than the wholesale price she paid.

Bart's retail price per widget is 185 percent greater than the wholesale price he paid.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

---

Anne's retail price.

Bart's retail price.

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**Title**  
Buying widgets at 150 percent more

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
2:42

**Others' Pace**  
2:25

This year, Bonnie's annual salary was increased by 15% to \$68,425

Column A	Column B
Bonnie's annual salary last year	\$60,000

- The quantity in Column A is greater  
 The quantity in Column B is greater  
 The two quantities are equal  
 The relationship cannot be determined from the information given

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**Title**  
Bonnie's salary

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
2:20

**Others' Pace**  
1:02

Townville has a population of 1213.

296 people in Townville speak Spanish.

Column A

Column  
B

Percentage of people in Townville who speak  
Spanish

25

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the  
information given

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**Title**  
Percent spanish speakers  
**vs**

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:59

**Others' Pace**  
0:44

A computer can perform  $c$  calculations in  $s$  seconds. How many minutes will it take the computer to perform  $k$  calculations?

$60ks/c$

$ks/c$

$ks/60c$

$60c/ks$

$k/60cs$

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**Title**  
Computer calculations

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:42

**Others' Pace**  
1:30

Column A

43 percent of 207

Column B

85



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
43 percent of 207

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:26

**Others' Pace**  
0:27

Column A

22 percent of  $x$

Column B

$\frac{2}{9}$  of  $x$

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the information given

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**Title**  
22 percent of  $x$

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:13

**Others' Pace**  
0:31

In 2008, the total revenue from movies was 842.1 million dollars. If Rocky XII generated 4.2 million dollars in revenue, approximately what percent of the total revenue was generated by Rocky XII?

0.5%

4%

5%

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**Title**  
Movie Revenue

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:06

**Others' Pace**  
1:14

At the moment there are 54,210 tagged birds in a certain wildlife refuge. If exactly 20 percent of all birds in the refuge are tagged, what percent of the untagged birds must be tagged so that half of all birds in the refuge are tagged?

25

30

$33\frac{1}{3}$



$37\frac{1}{2}$

50

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**Title**  
Tagged Birds

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:20

**Others' Pace**  
2:59

In 2003, the number of girls attending Jefferson High School was equal to the number of boys. In 2004, the population of girls and the population of boys both increased by 20 percent. Which of the following could be the total student population at Jefferson High School in 2004?

4832

5034

5058

5076

5128

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**Title**  
Possible student populations

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:15

**Others' Pace**  
2:44

The numbers  $p$  and  $q$  are both positive. If  $p$  percent of 160 equals  $q$  percent of 40, then  $p/q =$

Cannot be determined

1/4

2/5

5/2

4

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**Title**  
X Percent of 160

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:40

**Others' Pace**  
1:10

If  $y = x/5$ , then what is the ratio of  $2x$  to  $3y$ ?

2/15

3/10

3/2

10/3

15/2

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**Title**  
Ratio  $2x$  to  $3y$

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:35

**Others' Pace**  
1:10

For a long time, the price of a certain console remained the same. Because of new tariffs, the price of this console increased by 50% last week, and stayed at this new level. This week, Amanda purchased the console with a 50%-off coupon. Amanda paid \$240. What was the original price, before the last week's price increase?

90

180

240

320

360

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**Title**  
For a long time price of  
console

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:50

**Others' Pace**  
1:48

A retailer purchases shirts from a wholesaler and then sells the shirts in her store at a retail price that is 80 percent greater than the wholesale price. If the retailer decreases the retail price by 30 percent this will have the same effect as increasing the wholesale price by what percent?

- 26
- 37.5
- 42
- 44
- 50

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**Title**  
Shirt Price

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:22

**Others' Pace**  
1:49

Diana invested \$61,293 in an account with a fixed annual percent of interest, compounding quarterly. At the end of five full years, she had \$76,662.25 in principal plus interest. Approximately what was the annual percent rate of interest for this account?

1.2%

4.5%

10%

18%

25.2%

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**Title**  
Diana invested \$61,293

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:13

**Others' Pace**  
2:34

The ratio of two positive numbers is 3 to 4. If  $k$  is added to each number the new ratio will be 4 to 5, and the sum of the numbers will be 117. What is the value of  $k$ ?

1

13

14

18

21

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**Title**  
Adding K

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:14

**Others' Pace**  
3:32

In a certain town in Connecticut, the ratio of NY Yankees fans to NY Mets fans is 3:2, and the ratio of NY Mets fans to Boston Red Sox fans is 4:5. If there are 300 baseball fans in the town, each of whom is a fan of exactly one of those three teams, how many NY Mets fans are there in this town?

75

80

90

120

133

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**Title**  
In a certain town Mets

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:06

**Others' Pace**  
2:01

If \$5,000,000 is the initial amount placed in an account that collects 7% annual interest, which of the following compounding rates would produce the largest total amount after two years?

- compounding annually
- compounding quarterly
- compounding monthly
- compounding daily
- All four of these would produce the same total

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**Title**  
If \$5,000,000 is the

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:04

**Others' Pace**  
0:45

Increasing the original price of a certain item by 25 percent  
and then increasing the new price by 25 percent is equivalent  
to increasing the original price by what percent?

31.25

37.50

50.00

52.50

56.25

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**Title**  
Increase Followed by  
Increase

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:13

**Others' Pace**  
1:16

A class consists of 24 students. Which of the following CANNOT be the ratio of the number of girls to the number of boys?

1:2

3:5

1:1

4:3

7:5

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**Title**  
Possible Ratios

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:25

**Others' Pace**  
0:55

If  $xy \neq 0$ , and 75 percent of  $x$  equals 125 percent of  $y$ , which of the following is true?

- y is 25 percent of x
- y is 40 percent of x
- y is 60 percent of x
- y is 140 percent of x
- y is  $166\frac{2}{3}$  percent of x

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**Title**  
75 percent of x

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:04

**Others' Pace**  
1:27

If  $xy \neq 0$  and  $2x + 3y$  is equal to 175 percent of  $8x$ , then  $x/y$

=

1/16

3/20

3/16

1/4

3/8

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**Title**  
175 percent of  $8x$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:04

**Others' Pace**  
1:44

In Ophiuchus Corporation, 60% of the total revenue R is devoted to the advertising budget. Five-sixths of this advertising budget was spent on television advertising. Which of the following represents the dollar amount spent on television advertising?

- R/2
- R/3
- $2*R/3$
- $2*R/5$
- $4*R/5$

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**Title**  
In Ophiuchus Corporation

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:35

**Others' Pace**  
1:27

When 12 marbles are added to a rectangular aquarium, the water in the aquarium rises  $1 \frac{1}{2}$  inches. In total, how many marbles must be added to the aquarium to raise the water  $2 \frac{3}{4}$  inches?

16

18

20

22

24

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**Title**  
Aquarium marbles

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:59

**Others' Pace**  
1:42

To reach her destination, Jeanette must drive 90 miles. If she drives 5 miles every 7 minutes, how much time will it take her to reach her destination?

- 2 hours and 2 minutes
- 2 hours and 6 minutes
- 2 hours and 10 minutes
- 2 hours and 12 minutes
- 2 hours and 15 minutes

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**Title**  
Jeanette Drives 90 Miles

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:47

**Others' Pace**  
1:13

In a certain school, there are 160 boys and 240 girls. If 15 percent of the boys are left-handed and 25 percent of the girls are left-handed, what percent of the school's entire student population is left-handed?

18

20

21

23

24

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**Title**  
Left-handed Students

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
2:17

**Others' Pace**  
1:41

On a certain high school athletic team, the ratio of freshmen to sophomores to juniors to seniors is 1:3:4:6. If there are 60 juniors on the team, how many students in total are on the team?

90

140

150

180

210

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**Title**  
On a certain high school  
team

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
2:36

**Others' Pace**  
1:21

In Dewey Elementary School, there are two second-grade classes: class A has 35 students and class B has 45 students. If 40% of the students in class A walk to school, and 80% of the students in class B walk to school, what percent of all the students in the second-grade at Dewey Elementary walk to school?

40%

42.5%

60%

62.5%

75%

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**Title**  
In Dewey Elementary  
School

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
2:38

**Others' Pace**  
1:41

Peter invests \$100,000 in an account that pays 12% annual interest: the interest is paid once, at the end of the year.

Martha invests \$100,000 in an account that pays 12% annual interest, compounding monthly at the end of each month. At the end of one full year, compared to Peter's account, approximately how much more does Martha's account have?

Zero

\$68.25

\$682.50

\$6825.00

\$68250.00

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**Title**  
Peter invests \$100,000

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:16

**Others' Pace**  
2:46

If 24 kilograms of flour are required to make 300 tarts, how many kilograms of flour are required to make 45 tarts?

10/3

32/9

18/5

15/4

64/15

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**Title**  
Making tarts

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:54

**Others' Pace**  
1:27

If 20 percent of  $3k$  is 6, what is 40 percent of  $k$ ?



4

12

24

36

72

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**Title**  
20 percent of  $3k$  is 6

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:47

**Others' Pace**  
0:51

If the sales tax on a \$12.00 purchase is \$0.66, what is the sales tax on a \$20.00 purchase?

\$1.08

\$1.10

\$1.16

\$1.18

\$1.20

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**Title**  
Percent sales

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:21

**Others' Pace**  
1:05

At the close of the market on Monday, the price of a certain volatile stock was exactly \$100.00 per share. By close of the day on Tuesday, the stock was 20% up from its start that day. By the close of the day on Wednesday, the stock was 10% up from its start that day. By the close of the day on Thursday, the stock was 30% down from its start that day. What was the price per share by the end of the day on Thursday?

\$91.00

\$92.40

\$100.00

\$101.07

\$109.89

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**Title**  
At the close of the market

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
2:11

**Others' Pace**  
1:37

In 2004, Cindy had \$4000 in a mutual fund account. In 2005, the amount in the same account was \$5000. If the percent increase from 2004 to 2005 was the same as the percent increase from 2005 to 2006, how much did Cindy have in this account in 2006?

\$5800

\$6000

\$6250

\$7500

\$9000

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**Title**  
In 2004, Cindy had mutual fund

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:35

**Others' Pace**  
1:12

At a certain farm the ratio of pigs to cows to chickens is 7:8:10. If the total number of pigs, cows and chickens is 300, how many chickens are there?

30

90

120

180

200

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**Title**  
Farm Animals

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:54

**Others' Pace**  
1:00

In Aldebaran Corporation, 35% of the managers have an MBA.  
If there are 42 managers with MBA, what is the total number  
of managers?

15

57

84

120

147

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**Title**  
In Aldebaran Corporation

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:14

**Others' Pace**  
0:50

At a certain store, one can buy 6 cans of juice for \$8. How many cans of this same juice could one buy with \$48?

14

36

48

64

96

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**Title**  
At a certain store

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:34

**Others' Pace**  
0:36

If it takes Bill 8 minutes to peel 30 potatoes, how many potatoes can he peel in one hour?

16

120

144

225

240

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**Title**  
Peeling Potatoes

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:58

**Others' Pace**  
0:48

The price of a pair of sneakers was \$80 for the last six months of last year. On January first, the price increased 20%. After the price increase, an employee bought these sneakers with a 10% employee discount. What price did the employee pay?

\$70.40

\$82.00

\$83.33

\$86.40

\$88.00

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**Title**  
The price of sneakers

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:27

**Others' Pace**  
1:03

Sarah invested \$38,700 in an account that paid 6.2% annual interest, compounding monthly. She left the money in this account, collecting interest for three full years. Approximately how much interest did she earn in the last month of this period?

- \$239.47
- \$714.73
- \$2793.80
- \$7,888.83
- \$15,529.61

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**Title**  
Sarah invested \$38,700

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:11

**Others' Pace**  
2:16

A, B, and C are consecutive odd integers such that  $A < B < C$ .

If  $A + B + C = 81$ , then  $A + C =$

52

54

56

58

60

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**Title**  
Consecutive Odd Integers

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:57

**Others' Pace**  
1:44

The Greatest Common Factor (GCF) of 48 and 72 is

4

6

12

24

48

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**Title**  
The Greatest Common  
Factor of 48 and 72

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:39

**Others' Pace**  
0:59

If  $k$  is an integer and  $k = \frac{462}{n}$ , then which of the following could be the value of  $n$ ?

- 4
- 5
- 9
- 13
- 22

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**Title**  
k is an integer

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:23

**Others' Pace**  
1:09

If  $k$  is an odd integer, which of the following must be an even integer?

$k^2 - 4$

$3k + 2$

$2k + 1$

$\frac{12k}{8}$



$\frac{6k}{3}$

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**Title**  
Which must be even

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:47

**Others' Pace**  
1:09

228/494 =

4/7

11/21

 6/13

14/27

9/17

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**Title**  
Simplified

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:50

**Others' Pace**  
2:04

The Greatest Common Factor (GCF) of 18 and 24 is

1

2

3

4



6

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**Title**  
The Greatest Common  
Factor of 18 and 24

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:32

**Others' Pace**  
0:26

When positive integer  $k$  is divided by 5, the remainder is 2.

1

When  $k$  is divided by 6, the remainder is 5. If  $k$  is less than 40, what is the remainder when  $k$  is divided by 7?

2



3

4

5

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**Title**  
Several remainders

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:34

**Others' Pace**  
2:22

If K is the least positive integer that is divisible by every integer from 1 to 8 inclusive, then K =



840

2,520

6,720

20,160

40,320

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**Title**  
Least positive integer

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:11

**Others' Pace**  
1:38

16,000 has how many positive divisors?

32

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**Title**  
Positive Divisors of 16000

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:30

**Others' Pace**  
1:13

When Q is divided by W, the quotient is R and the remainder is E. Which of the following expressions is equal to E?

RW + Q

RW - Q

Q - RW

QW - R

Q/RW

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**Title**  
Quotients and remainders

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:55

**Others' Pace**  
1:14

When positive integer N is divided by 167, the remainder is 35, and when positive integer K is divided by 167, the remainder is 17. What is the remainder when  $2N+K$  is divided by 167?

87

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**Title**  
Remainder with 167

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:37

**Others' Pace**  
2:00

The first six terms of an infinite sequence are 2, 4, 4, 3, 7, 5 and these six terms repeat in the same order. (e.g., 2, 4, 4, 3, 7, 5, 2, 4, 4, 3, 7, 5 . . . )

Column A	Column B
----------	----------

Term 49

Term 50

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Term 49 vs term 50

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:49

**Others' Pace**  
1:15

If  $x$  and  $y$  are integers, and  $w=x^2y+x+3y$ , which of the following statements must be true?

Indicate all such statements.

- If  $w$  is even, then  $x$  must be even.
- If  $x$  is odd, then  $w$  must be odd.
- If  $y$  is odd, then  $w$  must be odd.
- If  $w$  is odd, then  $y$  must be odd.

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**Title**  
Odd Even Truths

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:07

**Others' Pace**  
2:19

The greatest prime factor of 40,002 is x

The greatest prime factor of 80,004 is y

Column A

x

Column B

y

The quantity in Column A is greater

The quantity in Column B is greater



The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Greatest prime divisor of  
40002

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:17

**Others' Pace**  
1:04

$x$  is a positive integer less than 100. When  $x$  is divided by 5, the remainder is 4, and when  $x$  is divided by 23, the remainder is 7. What is the value of  $x$ ?

99

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**Title**  
Remainders 4 and 7

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:23

**Others' Pace**  
2:26

$$y = 5 \times 6 \times 14 \times 15$$

Column A

Remainder when  $y$  is  
divided by 18

Column B

Remainder when  $y$  is  
divided by 40

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the  
information given

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**Title**  
Remainders when divided  
by 40 vs 18

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:22

**Others' Pace**  
1:22

When positive integer  $k$  is divided by 1869, the remainder is 102. What is the remainder when  $k$  is divided by 89?

0

1

13

23

51

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**Title**  
Remainder is 102

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:43

**Others' Pace**  
2:05

$x$  and  $y$  are integers greater than 5.

$x$  is  $y$  percent of  $x^2$

Column A

$x$

Column B

10

The quantity in Column A is greater

The quantity in Column B is greater



The two quantities are equal

The relationship cannot be determined from the information given

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**Title**

$x$  is  $y$  percent of  $x$  squared

**Your Result**

Correct

**Difficulty**

Very Hard

**Your Pace**

0:57

**Others' Pace**

1:41

n is a positive integer.

n is not divisible by 4.

n is not divisible by 5.

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the information given

Column A

Column B

The remainder when n is divided by 4

The remainder when n is divided by 5

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**Title**  
Not divis by 4 or 5

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:50

**Others' Pace**  
1:14

$X$  = sum of the first 31 positive odd integers

$Y$  = sum of the first 30 positive even integers

Column A

$$X - Y$$

Column B

$$30$$



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Odd sum - even sum

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:10

**Others' Pace**  
2:09

$x$  is a positive integer.  $k$  is the remainder when  $x^3 - x$  is divided by 3.

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

$k$

1

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**Title**  
Expression divisible by 3

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:59

**Others' Pace**  
1:36

$x$  is a positive integer.

When  $x$  is divided by 2, 4, 6 or 8, the remainder is 1.

Column A

$x$

Column B

24

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the information given

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**Title**  
Remainder of 1 when  
divide by 2 4 6 etc

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:45

**Others' Pace**  
1:07

If  $x$  is the greatest common divisor of 90 and 18, and  $y$  is the least common multiple of 51 and 34, then  $x + y =$

111

120

213

222

231

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**Title**  
LCM GCD number pairs

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:56

**Others' Pace**  
2:06

Which of the following are divisors of  $1.2 \times 10^{10}$ ?

$2^{11}$

75

$5^{10}$

18

$3^9$

36

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**Title**  
Divisors of  $1.2 \times 10^{10}$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:19

**Others' Pace**  
1:33

A machine is making thermometers at a rate of 135 every 18 minutes. How many thermometers will this machine make in an hour?

450

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**Title**  
A machine is making  
thermometers

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:54

**Others' Pace**  
0:56

$n$  is a positive integer, and  $k$  is the product of all integers from 1 to  $n$  inclusive. If  $k$  is a multiple of 1440, then the smallest possible value of  $n$  is



8

12

16

18

24

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**Title**  
k is mult of 1440

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
3:53

**Others' Pace**  
2:33

$x$  and  $y$  are prime numbers.

$$x + y = 18$$

Column A

$y$

Column B

14

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Prime sum equals 18

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:10

**Others' Pace**  
0:56

Column A

Column  
B

The remainder when positive integer  $x$  is divided by 11

11

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Remainder when divide by  
11

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:25

**Others' Pace**  
0:37

Column A

The number of prime numbers divisible by 13

Column B

The number of prime numbers divisible by 2

The quantity in Column A is greater

The quantity in Column B is greater



The two quantities are equal

The relationship cannot be determined from the information given

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**Title**

Prime numbers divisible by  
13

**Your Result**

Correct

**Difficulty**

Medium

**Your Pace**

0:52

**Others' Pace**

0:35

The greatest prime factor of 144 is x

The greatest prime factor of 96 is y

Column A

x

Column B

y

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Greatest prime divisor of  
144 and 96

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:12

**Others' Pace**  
1:14

Column A

The number of distinct prime factors of  $20^6$

Column B

The number of distinct prime factors of  $32^{10}$



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Distinct prime factors vs

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:09

**Others' Pace**  
1:08

Column A

Number of primes between  
50 and 60

Column B

Number of primes between  
80 and 90

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Number of primes

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:07

**Others' Pace**  
1:15

$x$  and  $y$  are prime numbers and  $x + y = 18$

Column A

$xy$

Column B

70

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the information given

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**Title**  
Primes with sum of 18

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:25

**Others' Pace**  
1:02

## Column A

## Column B

Product of even integers  
from -12 to 6 inclusive.

Product of odd integers  
from -5 to 13 inclusive.



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Even product vs odd  
product

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:16

**Others' Pace**  
1:11

w , x and y are consecutive even integers.

$$wxy = 0$$

$$w < x < y$$

Column A

$$x$$

Column B

$$0$$

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the information given

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**Title**

3 consecutive even integers with product 0

**Your Result**

Correct

**Difficulty**

Hard

**Your Pace**

0:16

**Others' Pace**

0:59

If  $a, b, c, d, e$  and  $f$  are integers and  $(ab + cdef) < 0$ , then what is the maximum number of integers that can be negative?

2

3

4

5

6

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**Title**  
abcdef

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:15

**Others' Pace**  
1:11

M is a positive two-digit number. When the digits are reversed, the number is N. If K = M + N, which of the following is true?

- K must be even
- K cannot be square
- K cannot be divisible by 13
- K must be divisible by 11
- If M is even then K must be even

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**Title**  
k equals m plus n

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:29

**Others' Pace**  
1:44

If  $k$  is an integer, what is the smallest possible value of  $k$  such that  $1040k$  is the square of an integer?

2

5

10

15



65

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**Title**  
Making a square

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:06

**Others' Pace**  
1:48

How many odd, positive divisors does 540 have?

6

8

12

15

24

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**Title**  
Odd positive divisors

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:44

**Others' Pace**  
1:42

2600 has how many positive divisors?

6

12

18

24

48

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**Title**  
Number of divisors

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:37

**Others' Pace**  
1:16

If  $k$  is a non-negative integer and  $15^k$  is a divisor of 759,325  
then  $3^k - k^3 =$

0

1

37

118

513

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**Title**  
 $15^k$  divisor 759325

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:14

**Others' Pace**  
2:10

How many positive integers less than 100 have a remainder of 2 when divided by 13?

6

7

8

9

10

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**Title**  
Remainder of 2

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:20

**Others' Pace**  
1:11

If  $x$  and  $y$  are positive integers, and 1 is the greatest common divisor of  $x$  and  $y$ , what is the greatest common divisor of  $2x$  and  $3y$ ?



Cannot be determined

1

2

5

6

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**Title**  
GCD  $2x$   $3y$

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:13

**Others' Pace**  
1:12

If  $n = 2 \times 3 \times 5 \times 7 \times 11 \times 13 \times 17$ , then which of the following statements must be true?

- I.  $n^2$  is divisible by 600
- II.  $n + 19$  is divisible by 19
- III.  $\frac{n+4}{2}$  is even

I only

II only

III only

I and III



None of the above

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**Title**  
Which must be true

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:05

**Others' Pace**  
1:57

If  $x$  is an odd negative integer and  $y$  is an even integer, which of the following statements must be true?

I.  $(3x - 2y)$  is odd

II.  $xy^2$  is an even negative integer

III.  $(y^2 - x)$  is an odd negative integer



I only

II only

I and II

I and III

II and III

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**Title**  
Odd even

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:39

**Others' Pace**  
1:50

In the game of Dubblefud, red chips, blue chips and green chips are each worth 2, 4 and 5 points respectively. In a certain selection of chips, the product of the point values of the chips is 16,000. If the number of blue chips in this selection equals the number of green chips, how many red chips are in the selection?



1

2

3

4

5

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**Title**  
Colored chips

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:08

**Others' Pace**  
2:32

How many integers from 1 to 900 inclusive have exactly 3 positive divisors?



10

14

15

29

30

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**Title**  
Exactly 3 divisors

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:19

**Others' Pace**  
2:23

If  $2x - y = 10$  and  $x/y = 3$ , then  $x =$

-10

2

4



6

12

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**Title**  
Solve for x - two  
equations, one a ratio

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:01

**Others' Pace**  
1:13

If  $x$  is a number such that  $x^2 + 2x - 24 = 0$  and  $x^2 + 5x - 6 = 0$ , then  $x =$

-6

-4

-3

3

6

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**Title**  
Solve for  $x$  - pair of quadratics

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:53

**Others' Pace**  
1:24

If  $x \neq 2.5$  and  $2x = |15 - 4x|$ , then  $x =$

3.5

4.5

5.5

6.5

7.5

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**Title**  
Equation with Absolute

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:49

**Others' Pace**  
1:32

If  $x/3 + x/4 + 15 = x$ , then  $x =$

18

24

36

48

60

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**Title**  
Equation with Fractions

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:47

**Others' Pace**  
1:29

If  $4x - 3y = 13$  and  $5x + 2y = -1$ , then  $x =$

-3

-1

1

3

5

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**Title**  
System of Equations

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:59

**Others' Pace**  
1:45

If  $ak - b = c - dk$ , then  $k =$

$b + c - a - d$

$\frac{b + c + d}{a}$

$\frac{c}{a} + \frac{b}{d}$

$\frac{b - c}{a - d}$

$\frac{b + c}{a + d}$

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**Title**  
Solve for k

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:28

**Others' Pace**  
0:58

If  $\frac{1}{x} = 0.4$ , then  $\frac{1}{x+2} =$

1/8

1/5

2/9

1/4

2/7

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**Title**  
Fraction decimal

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:59

**Others' Pace**  
1:15

If  $\frac{3x}{2} = y$ , and  $2 - 3y = y + 2$ , then  $x =$

-3

-2



0

2

3

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**Title**  
Two equations

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:21

**Others' Pace**  
1:19

Which of the following inequalities is equivalent to  $12 - 3x < -18$



x > 10

x

x > -10

x

x > 2

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**Title**  
Inequality I

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:27

**Others' Pace**  
0:46

If  $4x = 14$  and  $xy = 1$  then  $y =$

56

7/2



2/7

1/5

1/56

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**Title**  
4x

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:36

**Others' Pace**  
0:40

Which of the following is equivalent to  $\frac{2x^2 + 8x - 24}{2x^2 + 20x - 48}$  for all values of  $x$  for which both expressions are defined?

$\frac{x - 2}{x - 4}$

$\frac{x - 2}{x + 4}$

$\frac{x + 2}{x + 4}$

$\frac{x + 6}{x - 12}$

$\frac{x + 6}{x + 12}$

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**Title**  
Simplification

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:43

**Others' Pace**  
2:00

If  $\sqrt{8x^2 + 17} = 3x - 2$ , what is the value of  $2x$ ?

26

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**Title**  
Roots and Squares, Value  
of  $2x$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:54

**Others' Pace**  
2:15

If  $x \neq -2$ ,  $x \neq 7$  and  $\frac{x-3}{x+2} = \frac{x+3}{x-7}$ , then  $x =$



1

2

3

4

5

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**Title**  
Solve for x - proportion of binomials

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:33

**Others' Pace**  
1:43

If  $x^2 - y^2 = 12$  and  $x - y = 4$ , then  $x =$

1.5

2.5

3.5

4.5

5.5

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**Title**  
Solve for x - difference of  
two squares

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:32

**Others' Pace**  
1:47

If  $x$  is a positive integer and  $x+2$  is divisible by 10, what is the remainder when  $x^2+4x+9$  is divided by 10?

1

3



5

7

9

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**Title**  
Remainder quadratic 10

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:04

**Others' Pace**  
1:38

If  $x + 2 = \frac{x+11}{x+3}$ , then  $x^2 + 4x - 5 =$

-11

-5

0

1

2

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**Title**  
If then

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:43

**Others' Pace**  
1:37

If  $x$  and  $y$  are both positive and  $\sqrt{x^2 + y^2} = 3x - y$ , then  $x/y =$

0

1/4

1/2

3/4

3/2

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**Title**  
Roots squared

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:19

**Others' Pace**  
1:55

If  $x - 5 = \sqrt{2x^2 - 18x + 37}$  then  $x$  could equal

2

3

4

5



6

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**Title**  
Equation with roots

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:13

**Others' Pace**  
2:20

If  $2x - 3y = 6$ , then  $6y - 4x =$

-12

-6

6

12

Cannot be determined

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**Title**  
6y minus 4x

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:16

**Others' Pace**  
0:55

If  $x$  and  $y$  are positive numbers and  $\sqrt{x^2 - y^2} = 3y - x$   
what is the value of  $\frac{x}{y}$ ?

Give your answer to the nearest 0.1

1.7

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**Title**  
Value of  $x$  over  $y$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:12

**Others' Pace**  
1:55

If  $x + y \neq 0$ , which of the following is a solution to the inequality  $\frac{x^2 - y^2 - 1}{x + y} > \frac{-1}{x + y}$ ?

Indicate all solutions.

x=3 and y =7

x=-3 and y =7

x=-11 and y =-9

x=9 and y =-6

x=-20 and y =-24

x=12 and y =9

x=-2 and y =16

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**Title**  
Inequality Possible Pairs

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
4:29

**Others' Pace**  
2:08

If  $3x < 2y < 0$ , which of the following must be the greatest?

2y - 3x

3x - 2y

-(3x - 2y)

-(3x + 2y)

0

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**Title**  
Pick the greatest

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:54

**Others' Pace**  
1:37

If  $\sqrt{2x^2 + 2xy + 13y^2} = x + 3y$ , then  $x =$

$\frac{y}{2}$

$\frac{y^2}{2}$

$2y$

$y - 2$

$y + 2$

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**Title**  
Variables in roots

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:31

**Others' Pace**  
2:32

If  $3xm + 2ym - 2yn - 3xn = 0$  and  $m \neq n$ , then what is the value of  $y$  in terms of  $x$ ?

$-\frac{2x}{3}$

$-\frac{3x}{2}$

$\frac{3x^2}{2}$

$\frac{2x}{3}$

$\frac{3x}{2}$

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Title  
 $y$  in terms of  $x$

Your Result  
Correct

Difficulty  
Medium

Your Pace  
1:49

Others' Pace  
1:59

If  $0.25 + x = y$  and  $y/x = 0.2$ , then  $y =$

-1

-1/2

-1/4

-1/8

-1/16

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**Title**  
25x Plus x Equals y

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:48

**Others' Pace**  
2:21

If  $\frac{6}{11}$  of  $k$  is  $\frac{8}{41}$ , what is  $\frac{3}{11}$  of  $k$ ?

4

41

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**Title**  
Fractions,  $\frac{3}{11}$  of  $k$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:41

**Others' Pace**  
1:15

Which of the following is a root of the equation  $2x^2 - 20x = 48$ ?

-4

2

6

8

12

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**Title**  
Root of a Quadratic

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:28

**Others' Pace**  
1:18

If  $5x - 3y = 7$  and  $2y - 4x = 3$ , then  $2x - 2y =$

-4

4

8

16



20

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**Title**  
Value of  $2x$  minus  $2y$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:10

**Others' Pace**  
1:48

$$x^2 - y^2 < 8$$

$$x + y > 3$$

4

If  $x$  and  $y$  are integers in the above inequalities and  $0 < y < x$ ,  
what is the greatest possible value of  $x$ ?

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**Title**  
Inequalities - Greatest  
Value of  $x$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:10

**Others' Pace**  
2:45

The system of equations has how many solutions?

$$3x - 6y = 9$$

$$2y - x - 3 = 0$$



None

Exactly 1

Exactly 2

Exactly 3

Infinitely many

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**Title**  
Number of solutions

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:39

**Others' Pace**  
1:15

If A, B, C and D are positive integers such that  $4A = 9B$ ,  $17C = 11D$ , and  $5C = 12A$ , then the arrangement of the four numbers from greatest to least is

CDAB

BACD

DCAB

DCBA

BDAC

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**Title**  
Arrangement

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:55

**Others' Pace**  
2:06

$$25,002^2 - 24,998^2 =$$

200000

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**Title**  
25002 Squared Minus  
24998 Squared

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:50

**Others' Pace**  
1:20

If  $\frac{2 + \frac{3}{n}}{3 + \frac{2}{n}} = \frac{5}{4}$ , what is the value of n?

2

7

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**Title**  
Fractional n

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:57

**Others' Pace**  
1:29

If  $\frac{5x^2 + 65x + 60}{x^2 + 10x - 24} = \frac{5x + 5}{x - 2}$ , then which of the following are possible values of  $x$ ?

Indicate all such values.

-60

-12

-1

1

2

5

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**Title**  
Polynomial Fraction,  
Possible Values of X

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:44

**Others' Pace**  
2:08

If  $y - 3x > 12$  and  $x - y > 38$ , which of the following are possible values of  $x$ ?

Indicate all such values.

-60

-30

-6

4

20

40

80

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**Title**  
Inequalities  $y - 3x > 12$   
and  $x - y > 38$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:29

**Others' Pace**  
1:53

If  $6\left|\frac{-k}{3} + 4\right| > 12$ , which of the following could be the value of  $k$ ?

Indicate all values.

-15

-10

-5

0

5

10

15

20

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**Title**  
Inequality with Absolute  
Value

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:51

**Others' Pace**  
2:08

If  $xy = 7$  and  $x - y = 5$ , then  $x^2 + y^2 =$

31

39

41

45

58

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**Title**  
 $xy$  equals 7

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:33

**Others' Pace**  
1:53

When positive integer  $x$  is divided by 11, the quotient is  $y$  and the remainder is 4. When  $2x$  is divided by 8, the quotient is  $3y$  and the remainder is 2. What is the value of  $13y - x$ ?

-4

-2

0



2

4

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**Title**  
Remainders 13y minus x

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:20

**Others' Pace**  
2:39

For all numbers  $a$  and  $b$ , the operation  $\oplus$  is defined by  $a \oplus b = a^2 - ab$ . If  $xy \neq 0$ , then which of the following can be equal to zero?

I.  $x \oplus y$

II.  $xy \oplus y$

III.  $x \oplus (x + y)$

II only

I and II only

I and III only

II and III only

All of the above

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**Title**  
Strange operator

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:19

**Others' Pace**  
2:19

The average (arithmetic mean) of  $y$  numbers is  $x$ . If 30 is added to the set of numbers, then the average will be  $x - 5$ . What is the value of  $y$  in terms of  $x$  ?

$\frac{x}{7} - 5$

$\frac{x}{6} - 6$

$\frac{x}{6} - 5$

$\frac{x}{5} - 7$

$\frac{x}{5} - 6$

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**Title**  
average  $y$  is  $x$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:39

**Others' Pace**  
2:32

If  $\left(\frac{1}{x} + x\right)^2 = 16$ , then  $\frac{1}{x^2} + x^2 =$

4

8

14

16

18

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**Title**  
Square of Binomial

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:20

**Others' Pace**  
1:12

If  $|x + 5| = 3$  and  $|2y - 1|/3 = 5$ , then  $|x + y|$  could equal each of the following EXCEPT

0

6



8

9

15

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**Title**  
Possible sum

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:45

**Others' Pace**  
2:28

If  $xy = 5$  and  $x^2 + y^2 = 12$ , then  $x/y + y/x =$



2  $\frac{2}{5}$

3  $\frac{1}{7}$

5  $\frac{1}{3}$

7

60

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**Title**  
xy Equals 5

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:42

**Others' Pace**  
1:46

If  $f(x) = 12 - \frac{x^2}{2}$  and  $f(2k) = 2k$ , what is one possible value for  $k$ ?

- 2
- 3
- 4
- 6
- 8

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**Title**  
Equation with function

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:20

**Others' Pace**  
1:51

If  $\frac{8-x}{x+1} = x$ , then  $x^2 + 2x - 3 =$

-3

1

2



5

Cannot be determined

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**Title**  
Tricky evaluation, rational expression = x

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:45

**Others' Pace**  
1:26

If  $8^{n+1} + 8^n = 36$ , then  $n =$

1/3

1/2

3/5

2/3

4/5

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**Title**  
Powers of 8

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:05

**Others' Pace**  
1:49

What is the sum of all possible solutions of the equation

$$|x + 4|^2 - 10|x + 4| = 24?$$

-16

-14

-12



-8

-6

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**Title**  
Absolute quadratic

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
4:07

**Others' Pace**  
2:37

$W$ ,  $X$ ,  $Y$  and  $Z$  each represent a different number. If the sum of each column is shown beneath that column, and the sum of each row is shown beside that row, then  $n =$

$X$	$W$	$X$	$Z$	3
$W$	$Y$	$X$	$W$	6
$Z$	$Y$	$X$	$X$	9
$Z$	$Z$	$W$	$Y$	0
-2	7	$n$	5	

6

7

8

9

10

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**Title**  
Rows and columns \*\*\*

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:22

**Others' Pace**  
3:19

If A is the initial amount put into an account, R is the annual percentage of interest written as a decimal, and the interest compounds annually, then which of the following would be an expression, in terms of A and R, for the interest accrued in three years?

A(R)<sup>3</sup>

A(R+R<sup>3</sup>)

A(3R+3R<sup>2</sup>+R<sup>3</sup>)

3A(R)<sup>3</sup>

3A(R+R<sup>2</sup>+R<sup>3</sup>)

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**Title**  
If A is the initial amount

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:03

**Others' Pace**  
2:29

If  $f(x) = 5 - 2x$  and  $f(3k) = f(k + 1)$ , then  $f(k) =$

0.5

1

3

4

6

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**Title**  
Equivalent functions

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:06

**Others' Pace**  
1:30

What is the sum of all possible solutions to the equation  
 $\sqrt{2x^2 - x - 9} = x + 1$ ?

-2

2

3



5

6

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**Title**  
Possible roots

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:06

**Others' Pace**  
1:35

If  $x + |x| + y = 7$  and  $x + |y| - y = 6$ , then  $x + y =$

-1

1

3

5

13

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**Title**  
Equation with absolutes

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:04

**Others' Pace**  
2:57

To create paint with a certain shade of gray, one must combine 2.016 liters of black paint with every one liter of white paint. Approximately how many liters of white paint must be combined with 350 liters of black paint to create the certain shade of gray?



173.6

176.4

347.1

694.4

705.6

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**Title**  
Making Gray Paint

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:36

**Others' Pace**  
1:29

Half of w is x

Half of y is w

$$w + x + y = 28$$

Column A

w

Column B

7



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
x is half of w

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:18

**Others' Pace**  
1:38

Column A

Sum of integers from 1 to 40 inclusive

Column B

800



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Sum of 1 to 40

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:05

**Others' Pace**  
0:52

If a truck is traveling at a constant rate of 90 kilometers per hour, how many seconds will it take the truck to travel a distance of 600 meters?  
(1 kilometer = 1000 meters)

18

24

30

36

48

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**Title**  
Seconds per Meter

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:28

**Others' Pace**  
2:11

Whenever Art Dealer sells a sculpture, he earns a 20 percent commission on the first \$12,000 of the sale price plus 15 percent of the sale price in excess of \$12,000. If Art earned a \$3,900 commission on the sale of a certain sculpture, what was the sale price?

22000

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**Title**  
Art Commission

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:21

**Others' Pace**  
2:16

A certain taxi charges \$0.85 for the first  $\frac{1}{2}$  mile and \$0.25 for every  $\frac{1}{2}$  mile after that.

The total cost of a trip was \$8.85

Column A	Column B
The trip's distance in miles	16



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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Title	Your Result	Difficulty	Your Pace	Others' Pace
Taxi trip - miles traveled vs	Correct	Medium	1:34	1:36

Cleve is 4 times as old as Al. Bob is 3 years younger than Al.  
The sum of their ages is 81.

Column A	Column B
Al's age	13

-   The quantity in Column A is greater  
 The quantity in Column B is greater  
 The two quantities are equal  
 The relationship cannot be determined from the information given

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**Title**  
Ages of Alex Bob and Cleve

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:05

**Others' Pace**  
1:32

Dimitri weighs  $x$  pounds more than Allen weighs. Together, Allen and Dimitri weigh a total of  $y$  pounds. Which of the following represents Allen's weight?

$y - \frac{x}{2}$

$2x - \frac{y}{2}$

$\frac{(y - x)}{2}$

$y - 2x$

$2x - y$

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**Title**  
Dimitri

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:54

**Others' Pace**  
1:32

7 years ago, Samir was 3 times as old as Deepak. In 4 years, Samir will be twice as old as Deepak. What is Deepak's present age?

18

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**Title**  
Deepak's Age

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:32

**Others' Pace**  
2:07

In 12 years, Murray will be 4 times as old as he is now.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A  
Number of years until Murray is 8 times as old as he is now

Column B  
24

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Title  
Murrays age

Your Result  
Correct

Difficulty  
Hard

Your Pace  
1:48

Others' Pace  
1:28

A-town and B-ville are connected by a straight, 420-mile road. At noon, Atu left A-town for B-ville, and Brek left B-ville for A-town. If Atu travels at 56 miles per hour and Brek travels at 49 miles per hour, how many miles apart will Atu and Brek be 1 hour before they meet?

105

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**Title**  
Atu and Brek Before  
Meeting

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:11

**Others' Pace**  
2:11

Gene is 7 years older than Roberta.

6 years ago, Gene was twice as old as Roberta.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

Roberta's current age

12

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Title

Ages of Gene and Roberta

Your Result

Correct

Difficulty

Hard

Your Pace

0:51

Others' Pace

1:48

In order to qualify for the year-end tennis tournament, Sam must win at least 60 percent of his matches this year.

Presently Sam has won 14 of his 18 matches. Of Sam's 13 matches remaining in the year, what is the least number that he must win in order to qualify for the year-end tournament?

4

5

6

7

8

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**Title**  
Qualifying Tournament

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:18

**Others' Pace**  
1:42

The speed of light is approximately  $3 \times 10^5$  kilometers per second.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column  
B

---

Approximate number of kilometers that light can travel in 1 hour.       $1.08 \times 10^8$

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**Title**  
Speed of light

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:23

**Others' Pace**  
1:25

Cam is 20 percent taller than Bea, and Bea is 20 percent taller than Ann.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

Cam's height minus Bea's height.

Bea's height minus Ann's height.

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**Title**  
Heights of Cam Bea and Ann

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:58

**Others' Pace**  
1:42

A shipment of watermelons weighs 899 pounds. If each watermelon weighs at least 15 pounds, what is the greatest number of watermelons that could be in the shipment?

51

52

59

60

61

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**Title**  
Watermelons

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:06

**Others' Pace**  
1:07

In a group of 100 adults, 75 percent of the women are left-handed. If there are 12 right-handed women in the group, how many men are in the group?

48

52

56

60

64

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**Title**  
Left-handed Women

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:47

**Others' Pace**  
1:49

If the sum of three consecutive integers is K , then which of the following is a possible value of K?

199

200

201

202

203

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**Title**  
Possible Consecutive  
Numbers

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:29

**Others' Pace**  
1:28

In a group of 40 people, 15 have visited Iceland and 23 have visited Norway. If 11 people have visited both Iceland and Norway, how many people have visited neither country?

10

11

12



13

14

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**Title**  
Double Matrix

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:57

**Others' Pace**  
1:24

If 3 apples and 4 bananas costs \$1.37, and 5 apples and 7 bananas costs \$2.36, what is the total cost of 1 apple and 1 banana?



\$0.38

\$0.39

\$0.40

\$0.41

\$0.42

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**Title**  
1 apple and 1 banana

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:31

**Others' Pace**  
2:51

Don has  $x$  marbles. If  $y$  marbles are white, what percent of Don's marbles are NOT white?

$\frac{100x}{x - y}$

$\frac{100(x - y)}{x}$

$\frac{x - y}{100x}$

$\frac{x}{100(x - y)}$

$\frac{100y}{x}$

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**Title**  
White marbles

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:24

**Others' Pace**  
1:16

What is the sum of all integers from 45 to 155 inclusive?

10,000

10,100

11,000

11,100

13,200

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**Title**  
Sum of 45 to 155

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:44

**Others' Pace**  
1:42

Solution X is 10 percent alcohol by volume, and solution Y is 30 percent alcohol by volume. How many milliliters of solution Y must be added to 200 milliliters of solution X to create a solution that is 25 percent alcohol by volume?

250/3

500/3

400

480



600

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**Title**  
Alcohol Solutions X and Y

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:12

**Others' Pace**  
2:29

In a certain sequence, the term  $t_n$  is defined as

$t_n = 3t_{n-1} - 2t_{n-2}$  for all  $n > 2$ . If  $t_1 = -2$  and  $t_2 = -1$ , then  $t_4 =$

-10

-8

-3

1



5

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**Title**  
Recursion

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:10

**Others' Pace**  
1:52

David drove to work at an average (arithmetic mean) speed of 45 miles per hour. After work, David drove home at an average speed of 60 miles per hour. If David spent a total of 2 hours commuting to and from work, how many miles does David drive to work?

48

$\frac{256}{5}$

$\frac{360}{7}$

$\frac{105}{2}$

$\frac{160}{3}$

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**Title**  
David commute

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:49

**Others' Pace**  
2:55

Appleton's population is 400 greater than Berryville's population. If Berryville's population were reduced by 900 people, then Appleton's population would be 3 times as large as Berryville's population. What is Berryville's current population?

- 1550
- 1650
- 1750
- 1850
- 1950

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**Title**  
Appleton and Berryville

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:47

**Others' Pace**  
2:41

Seven years ago Bob was  $k$  times as old as Ann. If Ann is now 11 years old, what is Bob's present age in terms of  $k$ ?



7 + 4k

$11/k + 7$

$11 - 7/k$

$11 - k/7$

$4k - 7$

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**Title**  
Past Age's of Bob and Ann

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:26

**Others' Pace**  
1:43

Clyde drove 30 miles in 20 minutes, and then drove an additional 10 miles in 10 minutes.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

Clyde's average speed for the entire trip.

75 miles per hour

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Title

Average speed vs 75mph

Your Result

Correct

Difficulty

Hard

Your Pace

1:27

Others' Pace

1:31

Every day at noon, a bus leaves for Townville and travels at a speed of  $x$  kilometers per hour. Today, the bus left 30 minutes late. If the driver drives  $\frac{7}{6}$  times as fast as usual, she will arrive in Townville at the regular time. If the distance to Townville is 280 kilometers, what is the value of  $x$ ?

66

72

80

84

90

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**Title**  
Driving 280 kilometers

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:33

**Others' Pace**  
3:58

Yesterday, at a certain school, the ratio of boys to girls was 1 to 3. Today, an equal number of boys and girls joined the school. The number that joined was greater than zero and no students left.

Column A	Column B
Ratio of boys to girls now	$\frac{1}{3}$

-   The quantity in Column A is greater  
 The quantity in Column B is greater  
 The two quantities are equal  
 The relationship cannot be determined from the information given

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Title	Your Result	Difficulty	Your Pace	Others' Pace
Ratio of boys to girls vs 1 to 3	Correct	Hard	0:54	1:30

$2x + y$  years ago, Roberto was  $3x + y$  years old. How many years old was Roberto  $x$  years ago?



x

4x + 2y

5x + 2y

6x + 2y

6x + y

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**Title**  
Roberto's age  $x$  years ago

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:28

**Others' Pace**  
1:36

It took Ellen 6 hours to ride her bike a total distance of 120 miles. For the first part of the trip, her speed was constantly 25 miles per hour. For the second part of her trip, her speed was constantly 15 miles per hour. For how many miles did Ellen travel at 25 miles per hour?

 60 62.5  $66\frac{2}{3}$  75 90[Back to Results](#)

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**Title**  
Ellen's Bike Ride

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:35

**Others' Pace**  
3:01

If  $\frac{3}{4}$  of the number of women working at Company X is equal to  $\frac{2}{3}$  of the number of men, what fraction of the employees at Company X are women?

5/12

8/17

1/2

7/12

8/9

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**Title**  
Fraction of Female Employees

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:46

**Others' Pace**  
2:10

2k years ago Frank was 3k years old. In k years Frank's age, in years, will be

4k

5k

6k

7k

8k

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**Title**  
Frank's Age in k Years

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:26

**Others' Pace**  
1:06

It takes 1 pound of flour to make  $y$  cakes. The price of flour is  $w$  dollars for  $x$  pounds. In terms of  $w$ ,  $x$  and  $y$ , what is the dollar cost of the flour required to make 1 cake?

$xy/w$

$y/wx$

$w/xy$

$wx/y$

$wxy$

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**Title**  
Flour and cakes

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:09

**Others' Pace**  
1:58

Gerry is three times as old as Pat.

Column A

Gerry's age 20 years ago

Column B

Pat's age in 12 years

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Pat and Gerry ages

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:06

**Others' Pace**  
1:31

$K$  = sum of the integers from 1 to 500 inclusive that are divisible by 5.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

$K$

Column B

25,000

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**Title**  
Sum of multiples of 5

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:52

**Others' Pace**  
1:43

Working alone, pump A can empty a pool in 3 hours. Working alone, pump B can empty the same pool in 2 hours. Working together, how many minutes will it take pump A and pump B to empty the pool?

- 72  
 75  
 84  
 96  
 108

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**Title**  
Pumps A and B

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:06

**Others' Pace**  
1:44

Working together, 7 identical pumps can empty a pool in 6 hours. How many hours will it take 4 pumps to empty the same pool?

4  $\frac{2}{3}$

9  $\frac{1}{4}$

9  $\frac{1}{3}$

9  $\frac{3}{4}$

  10  $\frac{1}{2}$

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**Title**  
Emptying Pool with  
Identical Pumps

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:50

**Others' Pace**  
1:58

At a certain company, 30 percent of the male employees and 50 percent of the female employees have an MBA. If 40 percent of the employees are female, what percent of the employees do not have an MBA?

38

52

54



62

85

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**Title**  
Employees and MBAs

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
3:00

**Others' Pace**  
2:16

Three friends are buying a gift for a friend. Declan contributes 4 dollars more than  $\frac{1}{4}$  the cost of the gift, Ed contributes 1 dollar less than  $\frac{1}{3}$  the cost of the gift, and Frank contributes the remaining 22 dollars. What is the cost of the gift?

48

54

60

66

72

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**Title**  
Friends Buy a Gift

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:24

**Others' Pace**  
2:44

In a group of 45 children, 60 percent of the children are boys, and 60 percent of the children are left-handed.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

Number of boys who are left-handed

8

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**Title**  
Left-handed boys

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:11

**Others' Pace**  
1:44

A purse contains 5-cent coins and 10-cent coins worth a total of \$1.75. If the 5-cent coins were replaced with 10-cent coins and the 10-cent coins were replaced with 5-cent coins, the coins would be worth a total of \$2.15. How many coins are in the purse?

- 26  
 27  
 28  
 29  
 30

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**Title**  
Dimes and nickles

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
3:02

**Others' Pace**  
3:13

While driving from A-ville to B-town, Harriet drove at a constant speed of 115 kilometers per hour. Upon arriving in B-town, Harriet immediately turned and drove back to A-ville at a constant speed of 135 kilometers per hour. If the entire trip took 5 hours, how many minutes did it take Harriet to drive from A-ville to B-town?

138

148

150

162

168

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**Title**  
Harriet takes a trip

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:32

**Others' Pace**  
3:33

Sue planted 4 times as many apple seeds as she planted orange seeds. 15 percent of the apple seeds grew into trees, and 10 percent of the orange seeds grew into trees. If a total of 420 apple trees and orange trees grew from the seeds, how many orange seeds did Sue plant?

540

600

660

720

760

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**Title**  
Planting Seeds

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:06

**Others' Pace**  
2:48

Andy drove from Townville to Villageton at an average speed of 40 miles per hour. He then drove from Villageton to Townville at an average speed of 60 miles per hour.

Column A

50

The average speed of Andy's entire trip in miles per hour.

Column B



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Andys trip to Villageton

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:54

**Others' Pace**  
1:48

The sum of  $k$  consecutive integers is 41. If the least integer is -40, then  $k$  =

- 40
- 41
- 80
- 81
- 82

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**Title**  
k consecutive integers

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:18

**Others' Pace**  
1:41

In a group of 200 workers, 10 percent of the males smoke, and 49 percent of the females smoke.

Column A	Column B
Total number of workers who smoke	59

The quantity in Column A is greater

The quantity in Column B is greater



The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Workers who smoke

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:05

**Others' Pace**  
1:42

On a certain multiple-choice test, 9 points are awarded for each correct answer, and 7 points are deducted for each incorrect or unanswered question. Sally received a total score of 0 points on the test. If the test has fewer than 30 questions, how many questions are on the test?

Cannot be determined

16

19

21

24

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**Title**  
Sally gets zero on a test

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:54

**Others' Pace**  
2:20

Today, Bill is thirteen times as old as Pete. In nine years, Bill will be four times as old as Pete. How old will Pete be 2 years from today?

3

4

5

6

7

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**Title**  
Future Age's of Bill and  
Pete

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:12

**Others' Pace**  
2:08

Solution Y is 40 percent sugar by volume, and solution X is 20 percent sugar by volume. How many gallons of solution X must be added to 150 gallons of solution Y to create a solution that is 25 percent sugar by volume?

37.5

75

150

240



450

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**Title**  
Combining Sugar  
Solutions

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:25

**Others' Pace**  
2:59

Every person in a certain group is either a Dodgers fan or a Yankees fan, but not both. The ratio of Yankees fans to Dodgers fans is 5 to 3. If 22 Yankees fans change teams to become Dodgers fans, the ratio of Dodgers fans to Yankees fans will be 1 to 1. How many people are in the group?

22

88

128

144



176

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**Title**  
Baseball Fans

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:44

**Others' Pace**  
2:36

If the retail price of a shirt is  $R$  dollars, and the price including sales tax is  $T$  dollars then the sales tax, as a percent, is

$\frac{R(T - R)}{100}$

$\frac{T - R}{100T}$

$\frac{100T - R}{T}$

$\frac{T - 100R}{T}$

   $\frac{100(T - R)}{R}$

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**Title**  
Determine tax

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:10

**Others' Pace**  
1:59

If an object travels 100 feet in 2 seconds, what is the object's approximate speed in miles per hour? (Note: 1 mile = 5280 feet)

3.4

3.8

34

38

340

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**Title**  
100 Feet in 2 Seconds

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:23

**Others' Pace**  
2:22

Machine A can make 350 widgets in 1 hour, and machine B can make 250 widgets in 1 hour. If both machines work together, how much time will it take them to make a total of 1000 widgets?

- 1 hour and 20 minutes
- 1 hour and 24 minutes
- 1 hour and 30 minutes
- 1 hour and 36 minutes
- 1 hour and 40 minutes

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**Title**  
1000 widgets

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:24

**Others' Pace**  
2:06

A container holds 4 quarts of alcohol and 4 quarts of water.  
How many quarts of water must be added to the container to  
create a mixture that is 3 parts alcohol to 5 parts water by  
volume?

4/3

5/3

7/3

8/3

10/3

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**Title**  
Water Alcohol Mixture

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:02

**Others' Pace**  
2:08

For the first 5 hours of a trip, a plane averaged 120 kilometers per hour. For the remainder of the trip, the plane travelled an average speed of 180 kilometers per hour. If the average speed for the entire trip was 170 kilometers per hour, how many hours long was the entire trip?

15

20

25

30

35

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**Title**  
Plane Trip

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:56

**Others' Pace**  
2:54

The  $n$ th term ( $t_n$ ) of a certain sequence is defined as  
 $t_n = t_{n-1} + 4$ . If  $t_1 = -7$  then  $t_{71} =$

273

277

281

283

287

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**Title**  
nth term of sequence

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:08

**Others' Pace**  
1:57

Ben is three times as old as Ron. Ed is 8 years younger than Ben. Ron is 7 years older than Ken. If the sum of the ages of all four people is 161, how many years old is Ron?

15

19

22

24

27

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**Title**  
Ron's Age

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:58

**Others' Pace**  
2:58

At Joe's candy store, the total cost of 1 gumball and 1 lollipop is \$0.74. The total cost of 1 chocolate bar and 1 lollipop is \$0.92. The total cost of 1 gumball and 1 chocolate bar is \$1.24. What is the cost in dollars of 1 chocolate bar?

0.53

0.59

0.63

0.67



0.71

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**Title**  
Joe's candy store

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
3:13

**Others' Pace**  
2:43

In a group of 50 students, 31 are taking French, 17 are taking Spanish, and 10 are taking neither French nor Spanish. How many students are taking both French and Spanish?

4

8

12

14

16

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**Title**  
French and Spanish  
students

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
3:23

**Others' Pace**  
1:32

Nina has exactly enough money to purchase 6 widgets. If the cost of each widget were reduced by \$1.25, then Nina would have exactly enough money to purchase 8 widgets. How much money does Nina have?

\$22

\$24

\$30

\$36

\$40

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**Title**  
Buying Widgets

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:01

**Others' Pace**  
2:11

Noelle walks from point A to point B at an average speed of 5 kilometers per hour. At what speed, in kilometers per hour, must Noelle walk from point B to point A so that her average speed for the entire trip is 6 kilometers per hour?

6.75

7

7.25

7.5

7.75

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**Title**  
Average Speed of Walker

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:22

**Others' Pace**  
2:41

A helicopter company charges \$85 for the first kilometer of a trip and \$5 for every kilometer after that. If the total cost of a trip was \$365, how many kilometers were flown?

55

56

57

58

59

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**Title**  
Helicopter Trip

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:10

**Others' Pace**  
1:02

If the sum of two numbers is 6, and the sum of their reciprocals is  $\frac{15}{8}$ , what is the product of the two numbers?

$\frac{5}{24}$

$\frac{5}{16}$

$\frac{16}{5}$

$\frac{25}{4}$

$\frac{45}{4}$

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**Title**  
Sum of reciprocals

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:31

**Others' Pace**  
1:57

The sum of all the digits of the integers from 18 to 21 inclusive is 24 ( $1+8 + 1+9 + 2+0 + 2+1 = 24$ ). What is the sum of all the digits of the integers from 0 to 99 inclusive?

450

810

900

1000

1100

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**Title**  
Digit sum from 0 to 99

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:13

**Others' Pace**  
3:01

Pump A can empty a pool in A minutes, and pump B can empty the same pool in B minutes. Pump A begins emptying the pool for 1 minute before pump B joins. Beginning from the time pump A starts, how many minutes will it take to empty the pool?

$\frac{A+B-1}{2}$

$\frac{A(B+1)}{A+B}$

$\frac{AB}{A+B}$

$\frac{AB}{A+B} - 1$

$\frac{A(B-1)}{A+B}$

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**Title**  
Empty pool after 1 minute

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:54

**Others' Pace**  
3:09

Walking at a constant rate of 8 kilometers per hour, Juan can cross a bridge in 6 minutes. What is the length of the bridge in meters? (1 kilometer = 1000 meters)

- 480
- 600
- 720
- 750
- 800

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**Title**  
Walking across a bridge

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:29

**Others' Pace**  
1:24

When 6 is multiplied by  $x$ , the result is the same as when  $x$  is added to 9. What is the value of  $x/3$ ?

2/5

3/5

6/5

8/5

9/5

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**Title**  
Changing  $x$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:42

**Others' Pace**  
1:01

A sum of money was distributed among Lyle, Bob and Chloe.  
First, Lyle received 4 dollars plus one-half of what remained.  
Next, Bob received 4 dollars plus one-third of what remained.  
Finally, Chloe received the remaining \$32. How many dollars did Bob receive?

10

20

26

40

52

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**Title**  
Dividing money

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
3:27

**Others' Pace**  
4:14

A certain essay consists of 15 paragraphs. Each paragraph contains at least 110 words but not more than 120 words. Which of the following could be the total number of words in the essay?

1440

1540

1640



1740

1840

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**Title**  
Essay word count

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:09

**Others' Pace**  
1:11

At a certain university, 60% of the professors are women, and 70% of the professors are tenured. If 90% of the professors are women, tenured, or both, then what percent of the men are tenured?

25

37.5

50

62.5



75

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**Title**  
Professors

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:10

**Others' Pace**  
3:16

What is the decimal equivalent of  $(\frac{2}{5})^5$  ?

0.00016

0.00032

0.00256

0.00512



0.01024

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**Title**  
Two fifths

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:52

**Others' Pace**  
1:13

$\sqrt{12 \times 32 \times 54}$

 56  $72\sqrt{2}$  96  $96\sqrt{2}$  144[Back to Results](#)

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**Title**  
Big square root

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:00

**Others' Pace**  
1:41

a, b and c are positive integers. If b equals the square root of a, and if c equals the sum of a and b, which of the following could be the value of c?

Indicate all such values.

 21 30 45 72 100 331[Back to Results](#)

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**Title**  
Square Root and Sum

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:34

**Others' Pace**  
2:52

If  $9^{2x+5} = 27^{3x-10}$ , then  $x =$

3

6

8

12

15

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**Title**  
Determine the exponent -  
I

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:35

**Others' Pace**  
1:11

$$(3 \times 10^{20}) \cdot (8 \times 10^{30}) =$$

$2.4 \times 10^{50}$

$2.4 \times 10^{51}$

$2.4 \times 10^{60}$

$2.4 \times 10^{61}$

$2.4 \times 10^{301}$

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**Title**  
 $(3 \times 10^{20}) * (8 \times 10^{30})$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:59

**Others' Pace**  
0:45

If  $f(x) = x^4 - 3x^3 - 2x^2 + 5x$ , then  $f(-1) =$

-5

-3

-1

1

3

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**Title**  
Evaluating  $f(x)$  at  $x = -1$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:20

**Others' Pace**  
0:54

If  $10^a \times 10^b \times 10^c = 1,000,000$ , and a, b, and c are different positive integers, then  $10^a + 10^b + 10^c =$

1011

1100

1101



1110

1111

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**Title**  
Product and sum

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:07

**Others' Pace**  
1:28

The numbers  $p$  and  $q$  are both positive integers.

Column A

$$\frac{p}{q}$$

Column B

$$\left(\frac{p}{q}\right)^2$$

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
The numbers  $p$  and  $q$   
fraction squared

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:04

**Others' Pace**  
0:33

If  $k \neq 0$ ,  $k \neq \pm 1$ , and  $\frac{(k^3 \times k \times k^4)^2}{k^n \times k} = k^{14}$ , then  $n =$

-1

1

3

49

129

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**Title**

Determine the exponent -  
II

**Your Result**

Correct

**Difficulty**

Medium

**Your Pace**

0:58

**Others' Pace**

1:21

If  $\left(-\frac{1}{2}\right)^N > -8$ , which of the following could be the value of N?

- 10
- 7
- 3
- 0
- 3
- 10

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**Title**  
Exponent Inequality

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:32

**Others' Pace**  
1:36

$$2^n + 2^n + 2^n + 2^n = 4^n + 3$$

Column A

n

Column B

4

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
2 to the power of n etc

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:40

**Others' Pace**  
1:25

$$(1.37 \times 10^{24}) \cdot (2.6 \times 10^{-22}) =$$

356.2

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**Title**  
 $(1.37 \times 10^{24})$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:08

**Others' Pace**  
0:54

Column A

$$0.91^8/0.91^9$$

Column B

$$1$$



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
0point91 to power of 8

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:08

**Others' Pace**  
0:34

$$(2\sqrt{3} + \sqrt{5})(2\sqrt{3} - \sqrt{5}) =$$

 1 7  $4\sqrt{15}$   $12 - 4\sqrt{15}$  17[Back to Results](#)

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[Previous](#)[Next](#)**Title**  
Product with roots**Your Result**  
Correct**Difficulty**  
Medium**Your Pace**  
0:16**Others' Pace**  
0:49

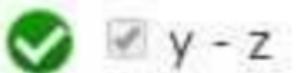
$10^x + 10^y + 10^z = n$ , where x, y, and z are positive integers

Which of the following could be the number of zeroes, to the left of the decimal point, contained in n?

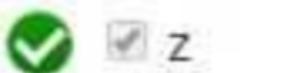
Indicate all such answers



x + y



y - z



z

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**Title**  
 $10^x + 10^y + 10^z = n$

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:24

**Others' Pace**  
1:37

$n$  is a positive integer

Column A

$$(0.99)^n$$

Column B

$$0.01$$

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the information given

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**Title**  
0point99 to power of n etc

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:05

**Others' Pace**  
0:47

If  $\left(\frac{2^{-n}}{3}\right)\left(\frac{3^{-n}}{2}\right) = \frac{1}{36}$ , what is the value of n?

1

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**Title**  
Powers of -n

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:09

**Others' Pace**  
1:17

The population of bacteria doubles every 30 minutes.

At 3:30 pm on Monday, the population was 240.

Column A

Column B

The bacteria population at 2:00 pm on Monday

40

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Bacteria

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:07

**Others' Pace**  
0:54

If  $\sqrt{\sqrt{3x}} = \sqrt[4]{2x}$ , what is the greatest possible value of x?

0.75

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**Title**  
Roots of Roots, Greatest  
Value of X

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:25

**Others' Pace**  
1:52

If  $5^{x+y} = 125$  and  $3^{x-3y} = \frac{1}{9}$ , then  $y =$

- $\frac{5}{2}$

$\frac{1}{4}$

$\frac{1}{2}$

$\frac{5}{2}$



$\frac{5}{4}$

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**Title**  
Two different equations

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:23

**Others' Pace**  
1:41

If  $8^c \times \sqrt{8} = \frac{8^a}{8^b}$  then  $a =$

⚡  $b\left(\frac{1}{2} + c\right)$

⚡  $\frac{bc}{2}$

⚡  $\frac{b+c}{2}$

⚡  $2b+c$

⚡  $\frac{1}{2} + b + c$

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Title  
Powers 8

Your Result  
Correct

Difficulty  
Hard

Your Pace  
1:23

Others' Pace  
1:22

Which of the following are equal to  $\left(\frac{1}{560}\right)^{-4}$ ?

Indicate all correct answers.

$\frac{560^5 - 560^4}{559}$

$\frac{560^{-8}}{560^2}$

$70^4 \left(\frac{1}{8}\right)^{-4}$

$\sqrt{560^{16}}$

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**Title**  
Fraction with -4 Exponent

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:32

**Others' Pace**  
1:22

$10\sqrt{10} = a\sqrt{b}$

Which of the following could be  $a + b$ ?

Indicate all the possible values

45

252

1000

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**Title**  
 $10\sqrt{10} = a\sqrt{b}$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:30

**Others' Pace**  
1:41

If  $f(x) = x^2 + 4$  and  $f(2k) = 36$ , then which of the following is one possible value of  $k$ ?

$\sqrt{2}$

2

4

$2\sqrt{2}$

$\sqrt{14}$

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**Title**  
 $f(2k)$

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:02

**Others' Pace**  
1:14

$$\frac{2+\sqrt{2}}{2-\sqrt{2}} =$$

$2+4\sqrt{2}$

$3+2\sqrt{2}$

$4+\sqrt{2}$

$5+\sqrt{2}$

$8-2\sqrt{2}$

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**Title**  
Rationalize explanation

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:37

**Others' Pace**  
1:30

If  $\left(\frac{1}{2}\right)^{24} \left(\frac{1}{81}\right)^k = \frac{1}{18^{24}}$ , then k =

- 8
- 12
- 16
- 24
- 36

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**Title**  
Determine the exponent -  
III

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:18

**Others' Pace**  
2:03

If  $2^{2n} + 2^{2n} + 2^{2n} + 2^{2n} = 4^{24}$ , then  $n =$

3

6

12

23

24

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**Title**  
4 to the power of 24

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:56

**Others' Pace**  
1:06

For all positive numbers  $x$ ,  $\Delta x$  is defined as the cube root of  $x$ ,  
and  $\nabla x$  is defined as the square root of  $x$ . If  $\nabla(\Delta k) = m^2$ , then  
 $k =$

$m^{12/5}$

$m^6$

$m^{12}$

$m^{36}$

$m^{64}$

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**Title**  
Strange operator - III -  
square & cube roots

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:32

**Others' Pace**  
1:45

$$\sqrt{81 + 81 + 81 + 81 + 81 + 81 + 81} =$$

 18 $\sqrt{2}$  36 $\sqrt{2}$  72 162 $\sqrt{2}$  648[Back to Results](#)

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[Previous](#)[Next](#)**Title**  
Root 81**Your Result**  
Correct**Difficulty**  
Medium**Your Pace**  
0:40**Others' Pace**  
1:04

If  $4^n + 4^n + 4^n + 4^n = 4^{16}$ , then n =

- 1
- 2
- 4
- 12
- 15

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**Title**  
4 powers

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:26

**Others' Pace**  
0:43

$\sqrt{0.00001} =$

$\frac{\sqrt{10}}{100}$

$\frac{1}{100}$

$\frac{\sqrt{10}}{1000}$

$\frac{1}{1000}$

$\frac{\sqrt{10}}{10000}$

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**Title**  
Tiny root

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:52

**Others' Pace**  
1:30

If  $2 \div 2 \div 2 \div 2 \div 2 = 2^x$ , then  $x =$

-16

-8

-5

-4



-3

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**Title**  
Lots of twos

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:42

**Others' Pace**  
1:06

What is the Greatest Common Factor (GCF) of  $25x^2$  and  $16y^4$ ?

0

1

$xy^2$

$x^2y^4$

$400x^2y^4$

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**Title**  
What is the GCF  $25x^2$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:07

**Others' Pace**  
0:50

If a spaceship travels at an average speed of  $6 \times 10^{10}$  kilometers per year, how many years will it take the spaceship to travel  $3 \times 10^{30}$  kilometers?

$5 \times 10^2$

$10^{11}$

$5 \times 10^{19}$

$5 \times 10^{20}$

$5 \times 10^{21}$

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**Title**  
Space travel

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:00

**Others' Pace**  
1:28

What is the units digit of  $18^{47}$ ?

0

2

4

6

8

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**Title**  
18 to the power of 47

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:52

**Others' Pace**  
1:27

If  $p = \frac{1}{\sqrt{14} - \sqrt{13}}$  and  $q = \frac{1}{\sqrt{14} + \sqrt{13}}$  then  $p^2 + 2pq + q^2 =$

26

28

52



56

112

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**Title**  
Simplify me

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:56

**Others' Pace**  
2:24

If  $\frac{8^5 \times 4^6}{16^n} = 32^{1-n}$  then  $n =$



-22

-11

5

11

22

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**Title**  
Exponents equation

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:05

**Others' Pace**  
2:20

If  $72^4$  is the greatest common divisor of positive integers A and B, and  $72^6$  is the least common multiple of A and B, then  
AB=

$72^6$

$72^{10}$

$72^{12}$

$72^{24}$

$72^{4096}$

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**Title**  
Large GCD LCM

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:46

**Others' Pace**  
1:21

For all numbers  $x$  and  $y$ , the operation  $\Phi$  is defined by  $x \Phi y = (x+y)(x-y) + (y-x)(y+x) + xy$ . What is the value of  $\sqrt{12} \Phi \sqrt{3}$ ?



6

12

18

24

36

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**Title**  
Strange operator - II

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:53

**Others' Pace**  
1:46

If  $x$  and  $y$  are both positive then  $\sqrt{72x^3y^{16}}$

$8xy^8\sqrt{2x}$

$6xy^4\sqrt{2x}$

$6xy^8\sqrt{2x}$

$6y^4\sqrt{8x}$

$9xy^8\sqrt{8x}$

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Title  
Simplified explanation

Your Result  
Correct

Difficulty  
Hard

Your Pace  
0:14

Others' Pace  
1:27

If  $2^k = 3$ , then  $2^{3k+2} =$

29

54

81

83

  108

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**Title**  
2 to the power of k equals  
  
3

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:32

**Others' Pace**  
1:24

$$5\sqrt{2} \text{ percent of } \frac{1}{\sqrt{200}} =$$



0.005

0.02

0.05

0.2

0.5

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**Title**  
Percent with Roots

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:32

**Others' Pace**  
1:25

What is the Greatest Common Factor (GCF) of  $18x^8y^{20}$  and  $24x^{12}y^{15}$ ?

$3x^4y^5$

$6x^4y^5$

$3x^8y^{15}$

$6x^8y^{15}$

$72x^{12}y^{20}$

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**Title**

What is the Greatest  
Common Factor ( $18x^8$ )  
( $y^{20}$ )

**Your Result**

Correct

**Difficulty**

Medium

**Your Pace**

0:26

**Others' Pace**

1:02

If  $w = \sqrt{\frac{1}{16}}$ ,  $x = \left(\frac{1}{1000}\right)^{\frac{1}{3}}$  and  $y = \left(\frac{1}{4}\right)^{-2}$  then

$w < x < y$

$x < w < y$

$y < x < w$

$y < w < x$

$x < y < w$

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**Title**  
Comparisons

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:15

**Others' Pace**  
1:24

$k$  is a positive number. If  $k$  is twice its reciprocal, and  $j$  is twice  $k$ , then  $jk =$

$2\sqrt{2}$

$4$

$4\sqrt{2}$

$8$

$8\sqrt{2}$

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**Title**  
Two times

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:17

**Others' Pace**  
1:16

What is the remainder when  $43^{86}$  is divided by 5?

0

1

2

3



4

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**Title**  
43 to the power of 86

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:32

**Others' Pace**  
1:35

Which of the following is the correct ordering  $2\sqrt{13}$ ,  $4\sqrt{3}$ ,  $5\sqrt{2}$   
of and  $3\sqrt{6}$ ?

$2\sqrt{13} < 3\sqrt{6} < 5\sqrt{2} < 4\sqrt{3}$

$3\sqrt{6} < 5\sqrt{2} < 4\sqrt{3} < 2\sqrt{13}$

$4\sqrt{3} < 5\sqrt{2} < 2\sqrt{13} < 3\sqrt{6}$

$5\sqrt{2} < 4\sqrt{3} < 3\sqrt{6} < 2\sqrt{13}$

$2\sqrt{13} < 3\sqrt{6} < 4\sqrt{3} < 5\sqrt{2}$

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Title  
Ordering roots

Your Result  
Correct

Difficulty  
Medium

Your Pace  
0:34

Others' Pace  
1:47

$$\left(\sqrt{5+\sqrt{5}} - \sqrt{5-\sqrt{5}}\right)^2 =$$



$10 - 4\sqrt{5}$



$10 - 2\sqrt{5}$



$20 - 8\sqrt{5}$



$20 - 4\sqrt{5}$



$20 - 2\sqrt{5}$

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**Title**  
Evaluation with roots

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
3:28

**Others' Pace**  
2:09

If  $f(x) = x^3 - 5$  and  $f(k) = 3$  then  $k =$

-22

2

4

6

22

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**Title**  
Function Equation

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:13

**Others' Pace**  
0:42

$$\left(3^{-1} - 2^{-1}\right)^{-1} =$$



-6



-5

 $-1/6$  $1/6$ 

6

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[Previous](#)[Next](#)**Title**  
Negative exponents**Your Result**  
Correct**Difficulty**  
Medium**Your Pace**  
0:39**Others' Pace**  
0:48

For which of the following functions is  $f\left(-\frac{1}{2}\right) > f(2)$ ?

$f(x) = 3x^2$

$f(x) = 3x$

$f(x) = 3 + x^2$

$f(x) = 3 + \frac{1}{x}$



$f(x) = \frac{3}{x^2}$

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**Title**  
Inequal functions

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:02

**Others' Pace**  
1:27

If  $x^4 = y^{16}$ , then  $y =$

$\sqrt[4]{x}$



$x^2$

$x^4$

$x^{12}$

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**Title**  
 $x$  to the power of 4

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:20

**Others' Pace**  
0:55

If  $3x = 2y = 5$ , then  $24xy^2 =$

  250

500

750

1000

1250

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**Title**  
24xy Squared

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:42

**Others' Pace**  
1:31

Which of the following equations is true for all positive values of  $x$  and  $y$ ?

$\sqrt{x} + \sqrt{y} = \sqrt{x+y}$

$\sqrt{x^4 y^{16}} = x^2 y^4$

$(x\sqrt{y})(y\sqrt{x}) = x^2 y^2$

$y\sqrt{x} + y\sqrt{x} = \sqrt{4xy^2}$

$(x^y)(y^x) = (xy)^{2y}$

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**Title**  
Which rule

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:46

**Others' Pace**  
1:22

$$\frac{4^6 - 4^5}{3} =$$

  $\frac{4}{3}$   $4^{4/3}$   $4^4 - 4^{5/3}$   $4^5 - 4^4$   $4^5$ [Back to Results](#)

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[Previous](#)[Next](#)**Title**  
Exponents power**Your Result**  
Correct**Difficulty**  
Medium**Your Pace**  
0:05**Others' Pace**  
0:45

If  $-1 < x < 0$ , which of the following is correct?

$x^{-1} < x^{-2} < x^{-3}$

$x^{-3} < x^{-2} < x^{-1}$

$x^{-1} < x^{-3} < x^{-2}$

$x^{-2} < x^{-3} < x^{-1}$



$x^{-3} < x^{-1} < x^{-2}$

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**Title**  
Ordering negative  
exponents

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:28

**Others' Pace**  
1:30

If  $x = \frac{7}{9} - \frac{15}{18} + \frac{10}{12}$  then  $(1-x)^2 =$

1/9

4/81

25/144

9/16

25/36

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**Title**  
Several fractions

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:08

**Others' Pace**  
2:18

x and y are positive integers such that  $x < y$ . If  $6\sqrt{6} = x\sqrt{y}$ ,  
then xy could equal

36

48

54

96

108

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**Title**  
Root rewrite

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:01

**Others' Pace**  
2:35

$$\sqrt{(49)(137) - (56)(49)} =$$

 53 57 63 67 73[Back to Results](#)

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[Previous](#)[Next](#)**Title**  
Awful root**Your Result**  
Correct**Difficulty**  
Easy**Your Pace**  
0:46**Others' Pace**  
1:12

$$9^k \times 27^{2k} =$$

$3^{5+3k}$

$3^{8k}$

$3^{11k}$

$3^{12k}$

$3^{12k^2}$

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**Title**  
Simplify exponent

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:41

**Others' Pace**  
0:42

If  $k$  is an integer and  $121 < k^2 < 225$ , then  $k$  can have at most how many values?

3

4

5

6

8

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**Title**  
Find  $k$  given range for  $k^2$

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:05

**Others' Pace**  
0:46

If a and b are integers and  $(\sqrt[3]{a} \times \sqrt{b})^6 = 500$ , then a + b could equal

2

3

4

5

6

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**Title**  
Root with exponents

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:06

**Others' Pace**  
2:34

$73^2 + 74^2 =$

10784

10777

10779

10801



10805

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**Title**  
Sum of squares

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:41

**Others' Pace**  
1:04

If  $x$  and  $y$  are positive odd integers, then which of the following must also be an odd integer?

- I.  $x^{y+1}$
- II.  $x(y+1)$
- III.  $(y+1)^{x-1} + 1$



I only

II only

III only

I and III

None of the above

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**Title**  
Must be odd

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:11

**Others' Pace**  
1:23

$$(3 \times 10^{20}) \cdot (3 \times 10^{-5}) =$$

$9 \times 10^{-100}$

$1 \times 10^{-4}$

$9 \times 10^{-4}$

$1 \times 10^{15}$



$9 \times 10^{15}$

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**Title**  
 $(3 \times 10^{20}) \cdot (3 \times 10^{-5})$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:10

**Others' Pace**  
0:29

$$(2xy^2) * (7x^3y^3) =$$

$9x^4y^5$

$14x^4y^5$

$9x^3y^6$

$14x^3y^6$

$14x^6y^6$

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**Title**  
 $(2xy^2) * (7x^3y^3) =$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:16

**Others' Pace**  
0:27

$$\frac{8 \times 10^{40}}{1 \times 10^{10}} =$$

- $2 \times 10^4$
- $8 \times 10^4$
- $4 \times 10^{20}$
- $2 \times 10^{30}$
- $8 \times 10^{30}$

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[Previous](#)[Next](#)**Title**  
 $(8 \times 10^{40})/(1 \times 10^{10})$ **Your Result**  
Correct**Difficulty**  
Easy**Your Pace**  
0:09**Others' Pace**  
0:20

If  $\sqrt{17 + \sqrt{264}}$  can be written in the form  $\sqrt{a} + \sqrt{b}$ , where a and b are integers and  $b < a$ , then  $a - b =$

1

2

3

4



5

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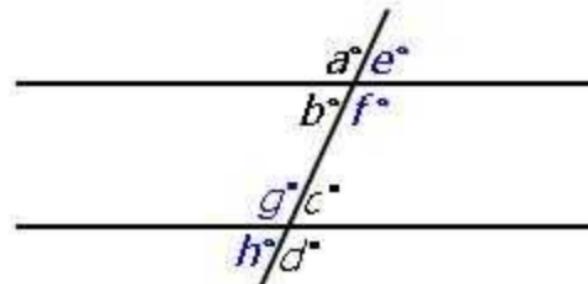
**Title**  
Root a plus root b

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:15

**Others' Pace**  
2:55



Column A

$$a + b + c + d$$

Column B

$$e + f + g + h$$

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
4-angle sum vs 4-angle sum

**Your Result**  
Correct

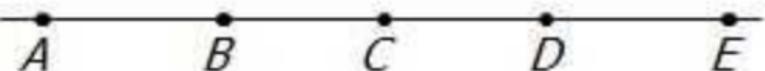
**Difficulty**  
Easy

**Your Pace**  
0:26

**Others' Pace**  
0:36

In the diagram,  $AE = 20$ ,  $AD = 14$ ,  $CD = 6$  and  $EB = 17$ .  
What is the length of line segment  $BC$ ?

Note: Figure not drawn to scale



2

3

4



5

6

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**Title**

Line Segment Lengths \*\*\*

**Your Result**

Correct

**Difficulty**

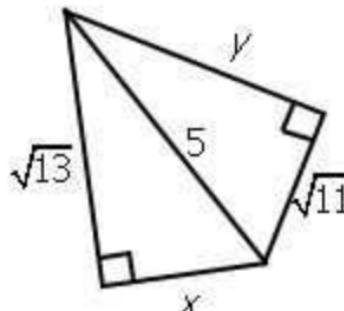
Easy

**Your Pace**

3:30

**Others' Pace**

1:49



Column A

x

Column B

y

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Two right triangles

**Your Result**  
Correct

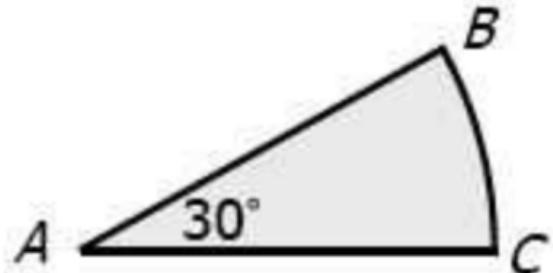
**Difficulty**  
Easy

**Your Pace**  
1:07

**Others' Pace**  
1:15

In the figure below, ABC is a sector with center A. If arc BC has length  $4\pi$ , what is the length of AC?

24



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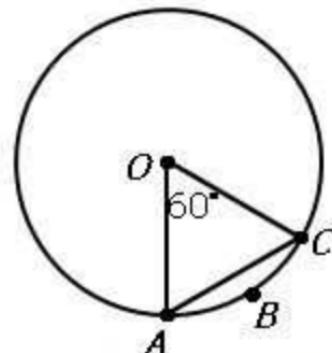
**Title**  
Sector, Length of AC

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:14

**Others' Pace**  
1:30



$O$  is the center of the circle with radius 6.

Column A

Column B

---

Length of arc ABC

6



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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Title  
Circle arc length

Your Result  
Correct

Difficulty  
Medium

Your Pace  
1:11

Others' Pace  
1:03

If  $x > 0$ , and two sides of a certain triangle have lengths  $2x+1$  and  $3x+4$  respectively, which of the following could be the length of the third side of the triangle?

Indicate all possible lengths.

$4x+5$

$x+2$

$6x+1$

$5x+6$

$2x+17$

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**Title**  
Triangle with Variables

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:08

**Others' Pace**  
1:09

Column A

The circumference of a circle  
with diameter  $\sqrt{50}$

Column B

The perimeter of a square  
with side  $\sqrt{50}$

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Circle circ vs square  
perimeter

**Your Result**  
Correct

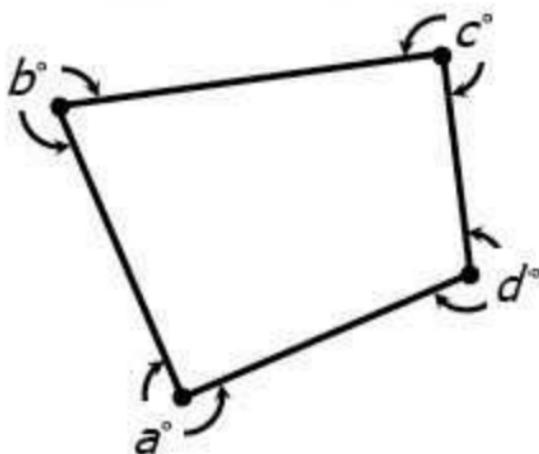
**Difficulty**  
Medium

**Your Pace**  
0:40

**Others' Pace**  
0:56

In the quadrilateral shown here,  $a+b+c+d=$

1080



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**Title**  
Quadrilateral Outer Angles

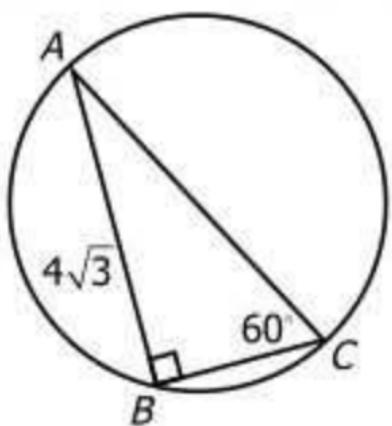
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:18

**Others' Pace**  
1:02

What is the area of the circle?



$9\pi$

$12\pi$

$16\pi$

$24\pi$

$36\pi$

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**Title**  
30-60-90 triangle in circle

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:18

**Others' Pace**  
1:19

Two sides of triangle DEF are equal to 3. Which of the following, taken alone, would be sufficient in finding the area of triangle DEF?

Indicate all such statements.

- The ratio of DE to EF =  $1 : \sqrt{2}$
- The sum of angles DEF and EFD is 135 degrees
- The sum of angles DEF and FDE is 90 degrees

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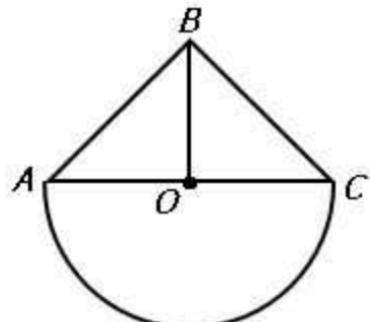
**Title**  
Two sides of triangle

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:31

**Others' Pace**  
1:13



$O$  is the center of the circle.

$$AO = OB$$

Column A

Column B

Area of semicircular region

Area of triangular region ABC



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Area of semicircle vs triangle

**Your Result**  
Correct

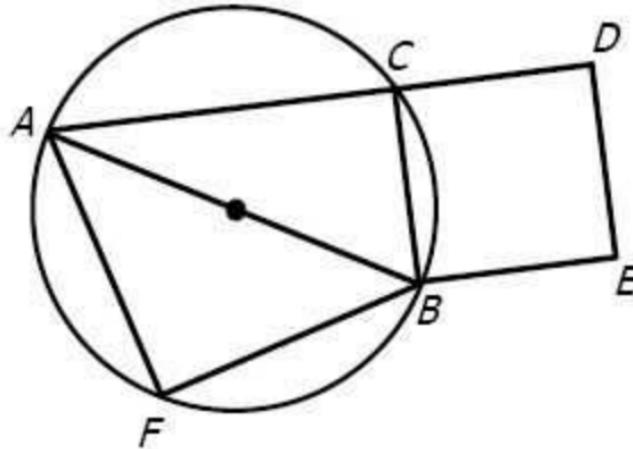
**Difficulty**  
Medium

**Your Pace**  
0:35

**Others' Pace**  
1:21

AB is the diameter of the circle. If  $AF=BF=3\sqrt{2}$  and  $AC=5$ , what is the area of square BCDE?

11



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**Title**  
Area of Square in Circle

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:49

**Others' Pace**  
2:06

Two sides of a triangle have lengths 7 and 4



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

Length of third side of triangle

3

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**Title**  
Length of 3rd triangle side

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:35

**Others' Pace**  
0:42

Three cube-shaped aquariums that are five inches on each side are filled with water to capacity. All of the water from those three aquariums is to be transferred into a larger cube aquarium so that it must be filled to at least 50% of its total capacity without overflowing.

6.9

8.4

9.5

Which of the following could be the length, in inches, of a side of the larger aquarium?

Indicate all possible values?

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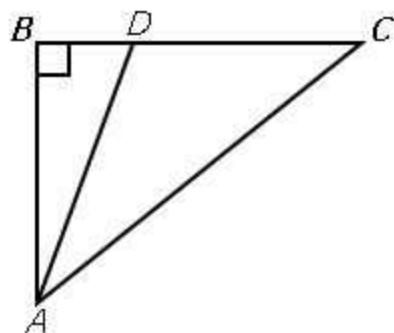
**Title**  
Three cube-shaped  
aquariums

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:18

**Others' Pace**  
2:06



$DC = AB = 9$

$DB < 3$

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

---

Perimeter of triangle ABC

36

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**Title**  
Perimeter of ABC vs 36

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:30

**Others' Pace**  
2:12

Cylindrical tank A has radius  $x$  and height  $y$ .

Cylindrical tank B has radius  $y$  and height  $x$ .

$$x = 2y$$

  The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

---

Volume of tank A

Volume of tank B

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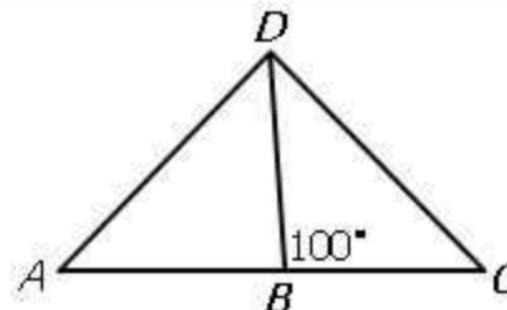
**Title**  
Cylinders with  $x$  and  $y$

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:16

**Others' Pace**  
1:32



Column A

$$AB + AD$$

Column B

$$DC + BC$$

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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[Previous](#)[Next](#)**Title**  
AB plus AD**Your Result**  
Correct**Difficulty**  
Hard**Your Pace**  
0:49**Others' Pace**  
1:20

Column A

Column B

Perimeter of square with  
sides length 5

Length of one side of rectangle  
with perimeter 40



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the  
information given

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**Title**  
Side vs perimeter\*\*\*

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:25

**Others' Pace**  
1:00

If the length and width of rectangle R are each increased by 1, the area of the new rectangle will be 72. If the length and width of rectangle R are each decreased by 1, the area of the new rectangle will be 35. What is the perimeter of rectangle R?

24

37

48

50

51

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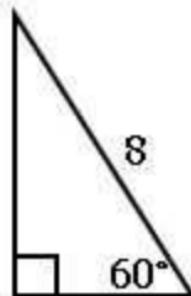
**Title**  
Rectangle R

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:30

**Others' Pace**  
3:15



Column A

Column B

Area of triangle

16

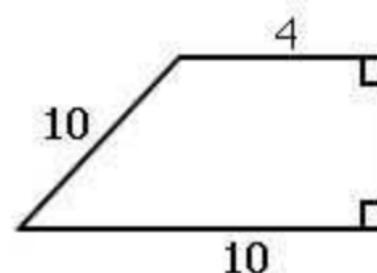
- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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Title	Your Result	Difficulty	Your Pace	Others' Pace
60 degree right triangle	Correct	Medium	1:27	1:26



Column A

Column B

Area of quadrilateral

56

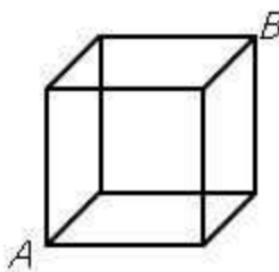
- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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Title	Your Result	Difficulty	Your Pace	Others' Pace
Trapezoid area vs 56	Correct	Hard	1:32	1:17



Each edge of the above cube has length 1.

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

---

Length of diagonal AB

$\sqrt{3}$

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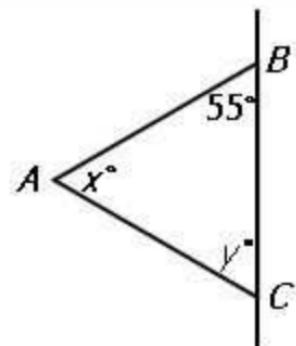
**Title**  
Cube diagonal

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:36

**Others' Pace**  
0:49



AC = BC = 8

Column A

x

Column B

y

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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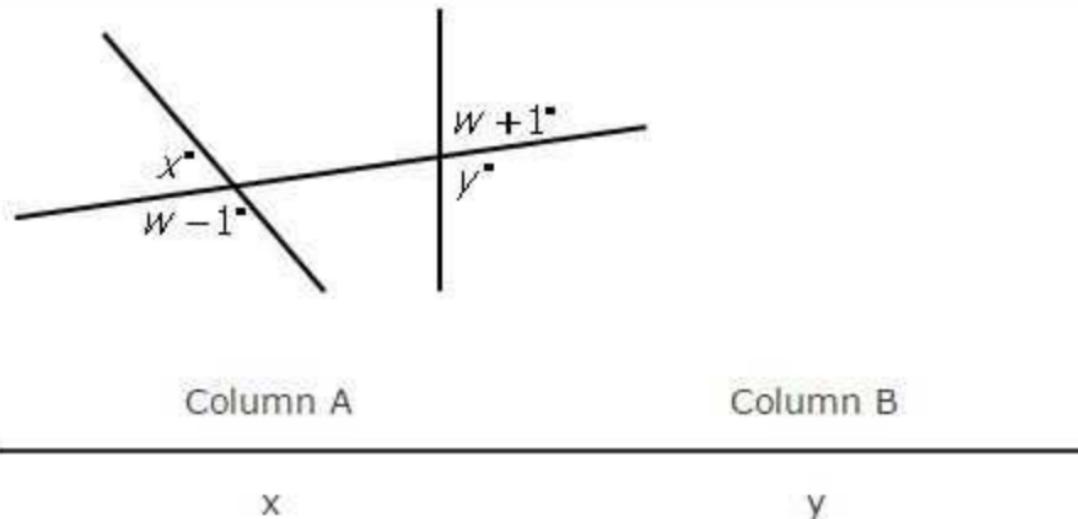
**Title**  
Triangle against a line

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:56

**Others' Pace**  
1:00



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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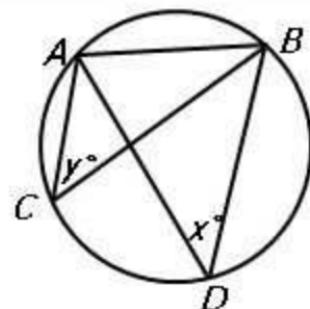
**Title**  
3 intersecting lines

**Your Result**  
**Correct**

**Difficulty**  
Hard

**Your Pace**  
1:17

**Others' Pace**  
1:08



AB = 12, AC = 10, AD = 18

Note: the region above is circular

Column A

Column B

x

y

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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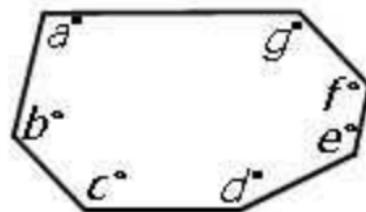
Title  
Inscribed angles

Your Result  
Correct

Difficulty  
Hard

Your Pace  
3:08

Others' Pace  
1:08



Column A

$$a + b + c + d + e + f + g$$

Column B

$$1080$$

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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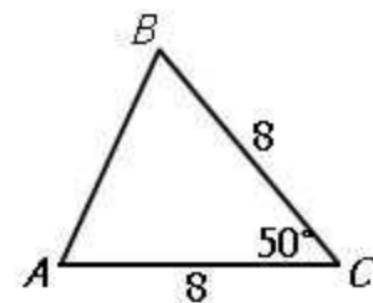
**Title**  
Angle sum of heptagon

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:06

**Others' Pace**  
0:58



Column A

AB

Column B

8

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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[Previous](#)[Next](#)**Title**  
AB vs 8**Your Result**  
Correct**Difficulty**  
Medium**Your Pace**  
0:54**Others' Pace**  
0:59

Column A

Area of circle with radius

$$\sqrt{7}$$

Column B

Area of circle with diameter

$$\sqrt{14}$$



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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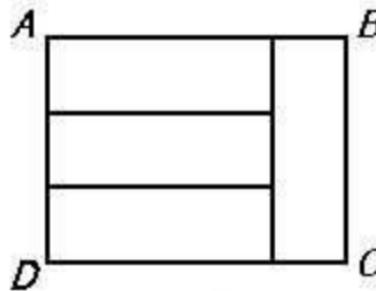
**Title**  
Circle with radius root 7

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:49

**Others' Pace**  
0:55



The four small rectangles have the same dimensions

Column A

Column B

---

DC/BC

4/3

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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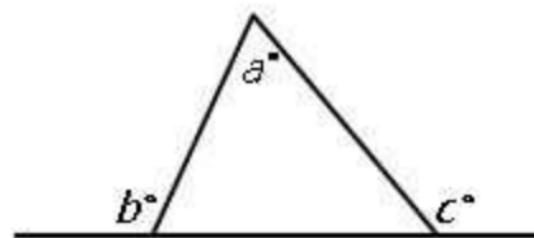
**Title**  
4 rectangles

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:43

**Others' Pace**  
1:15



Column A

$$180 + a$$

Column B

$$b + c$$

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Line-triangle 180 plus a vs  
b plus c

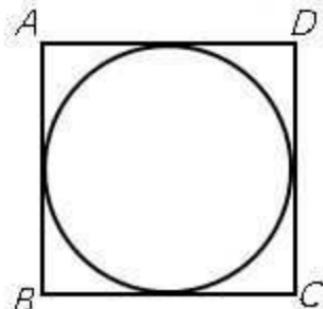
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:12

**Others' Pace**  
1:19

In this diagram, the circle is inscribed in the square.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

ABCD is a square. The circle has radius  $r$ .

Column A

Column B

---

Length of diagonal AC

$\frac{5r}{2}$

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**Title**  
Circle-square 5r over 2

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:37

**Others' Pace**  
1:44

What is the value of w in terms of x and y?

Note: Figure not drawn to scale



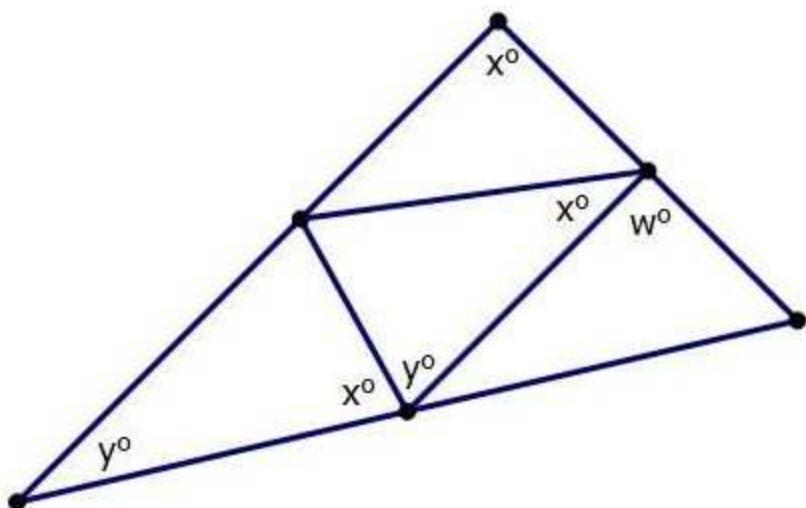
2x + 2y - 180

180 - x - y

360 - 2x - 2y

360 - 2x - 3y

180 + x - 2y



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**Title**  
repeated angles in nested triangles

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:03

**Others' Pace**  
2:42

## Column A

## Column B

The perimeter of a rectangle

Twice the length of the diagonal of the same rectangle



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Diagonal vs perimeter

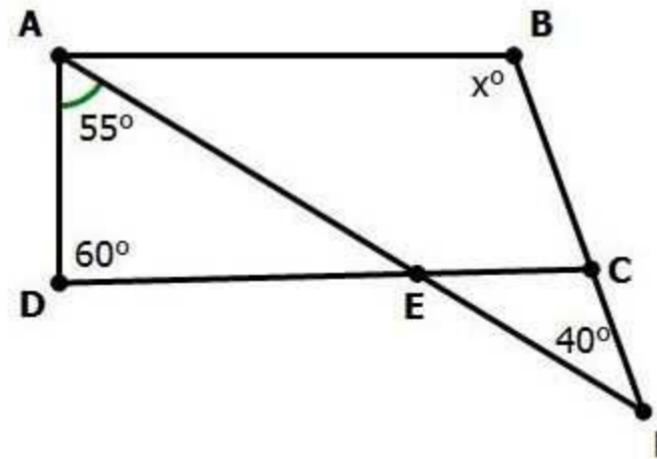
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:11

**Others' Pace**  
1:23

In the figure below,  $\angle ADE = 60^\circ$ ,  $\angle EFC = 40^\circ$ , and  $\angle DAE = 55^\circ$ . If  $AB \parallel CD$ , what is the value of  $x$ ?

 85 95 105 115[Back to Results](#)

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Title  
Parallel Lines

Your Result  
Correct

Difficulty  
Hard

Your Pace  
0:49

Others' Pace  
2:30

If the ratio of the volume of cube A to the volume of cube B is 1 to 8, what is the ratio of the surface area of cube A to the surface area of cube B?

1: $\sqrt{2}$

1:2

1: $2\sqrt{2}$

1:4

1:8

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**Title**  
Cube surface

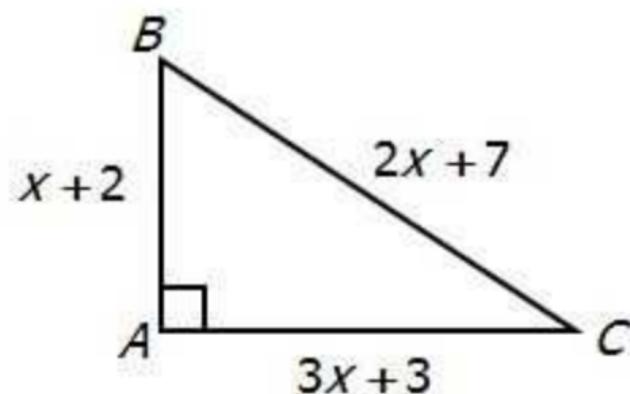
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:49

**Others' Pace**  
1:28

What is the value of  $x$ ?



2

3

4

5

6

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**Title**  
Right Triangle Algebra

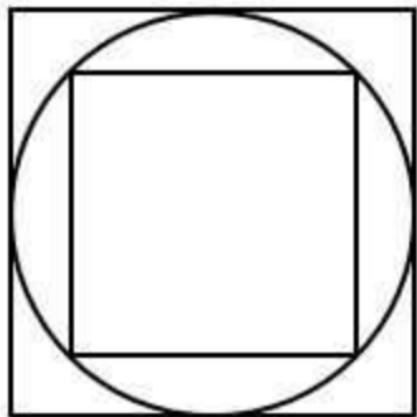
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:35

**Others' Pace**  
2:45

If the area of the outer square is  $4x^2$ , then the area of the inner square is



$\frac{x^2}{2}$

$x^2$

$\sqrt{2}x^2$

$2x^2$

$2\sqrt{2}x^2$

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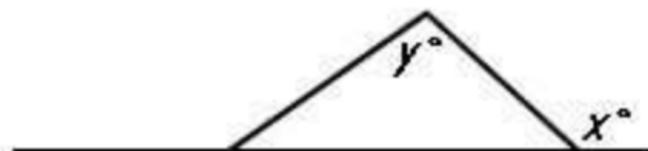
**Title**  
Square in circle

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:37

**Others' Pace**  
2:03



Column A

x

Column B

y

 The quantity in Column A is greater The quantity in Column B is greater The two quantities are equal The relationship cannot be determined from the information given[Back to Results](#)

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**Title**  
Triangle and line - QC

**Your Result**  
Correct

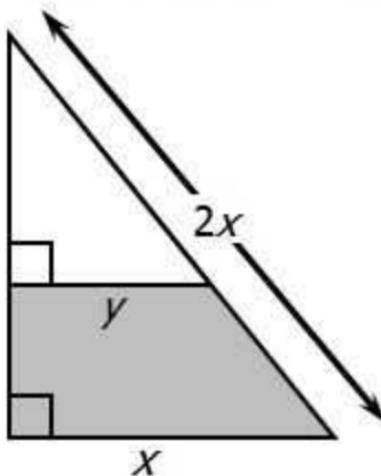
**Difficulty**  
Hard

**Your Pace**  
0:11

**Others' Pace**  
0:49

In terms of  $x$  and  $y$ , what is the area of the shaded region?

Note: Figure not drawn to scale



$x^2 - y^2$

$\sqrt{3}(x^2 - y^2)$

$\sqrt{3}x^2 - y^2$

$\frac{x^2 - y^2}{2}$

$\frac{\sqrt{3}(x^2 - y^2)}{2}$

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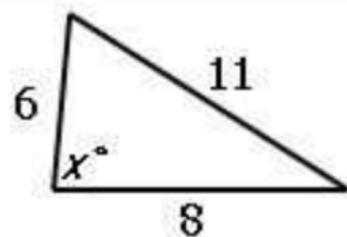
**Title**  
Nested triangle

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
3:43

**Others' Pace**  
2:56



Column A

x

Column B

90

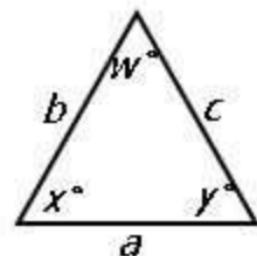


- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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[Previous](#)[Next](#)**Title**  
x vs 90 degrees**Your Result**  
Correct**Difficulty**  
Hard**Your Pace**  
0:04**Others' Pace**  
0:49



$$x + y = 90$$

Column A

$$a^2 + b^2$$

Column B

$$c^2$$



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
a squared plus b squared  
vs

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:42

**Others' Pace**  
1:11

The area of a circle is equal to the area of a square.

Column A

Column B

The circumference of the circle.

The perimeter of the square.

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Circumference vs  
perimeter

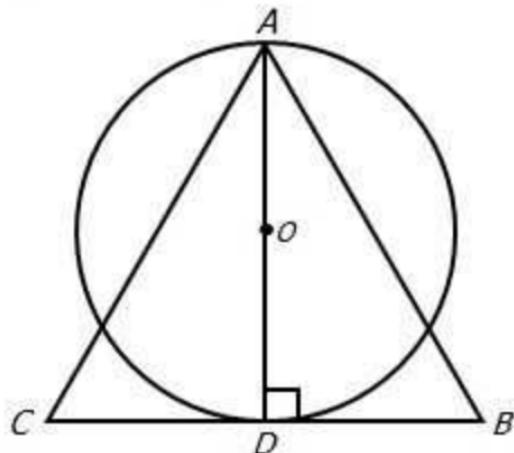
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:03

**Others' Pace**  
1:52

If the circle with center O has area  $9\pi$ , what is the area of equilateral triangle ABC?



$9\sqrt{3}$

18

$12\sqrt{3}$

24

$16\sqrt{3}$

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**Title**

Equilateral triangle,  
altitude is circle's diameter

**Your Result**

Correct

**Difficulty**

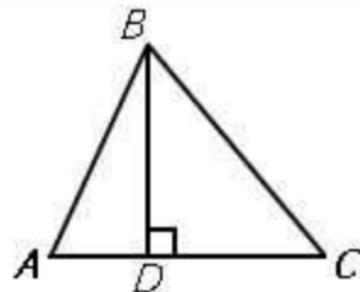
Hard

**Your Pace**

3:17

**Others' Pace**

2:52



Column A

$$\frac{BD}{AB}$$

Column B

$$\frac{BC}{DC}$$

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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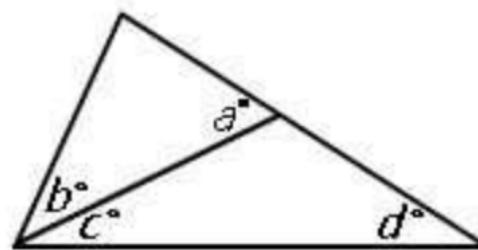
**Title**  
Triangle comparing ratios  
of sides

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:47

**Others' Pace**  
1:13



Column A

$$a + b$$

Column B

$$c + d$$



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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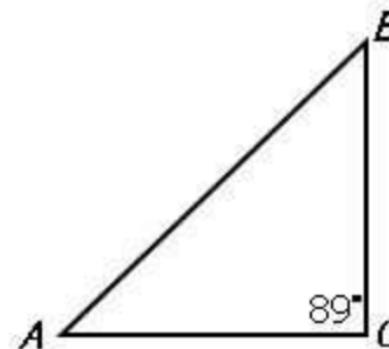
**Title**  
a plus b vs c plus d

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:04

**Others' Pace**  
1:20



Column A

Column B

Length of AB

Length of BC

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Triangle is 89 degree angle

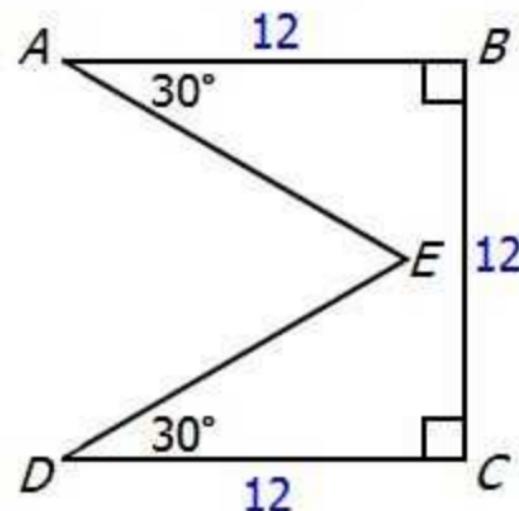
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:03

**Others' Pace**  
0:56

What is the perimeter of ABCDE?



$36 + 6\sqrt{3}$

48

$36 + 8\sqrt{3}$

$36 + 12\sqrt{3}$

60

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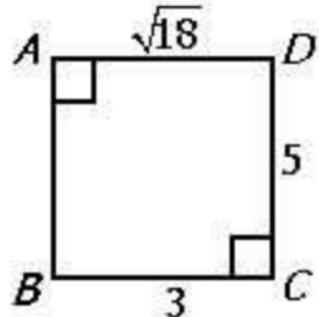
**Title**  
Saw tooth

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:28

**Others' Pace**  
0:58



Column A

Length of AB

Column B

4

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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[Previous](#)[Next](#)**Title**  
Quadrilateral diagonal**Your Result**  
Correct**Difficulty**  
Hard**Your Pace**  
1:11**Others' Pace**  
1:27

Column A

Column B

Area of a rectangle with  
perimeter 20

Area of a triangle with base 5  
and height 10.

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the  
information given

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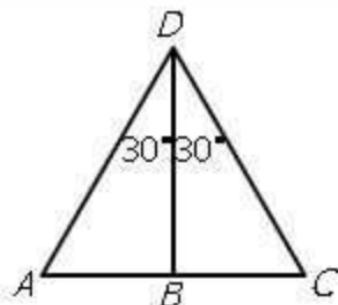
**Title**  
Area of rectangle vs  
triangle

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:09

**Others' Pace**  
1:19



Column A

Column B

AB

BC

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
2 triangles with 30 degrees

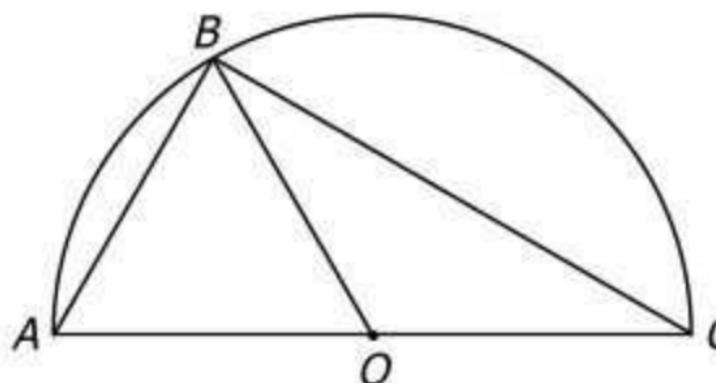
**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:05

**Others' Pace**  
0:42

O is the center of the semicircle. If  $\angle BCO = 30^\circ$  and  $BC = 6\sqrt{3}$ , what is the area of triangle ABO?



$4\sqrt{3}$

$6\sqrt{3}$

$9\sqrt{3}$

$12\sqrt{3}$

$24\sqrt{3}$

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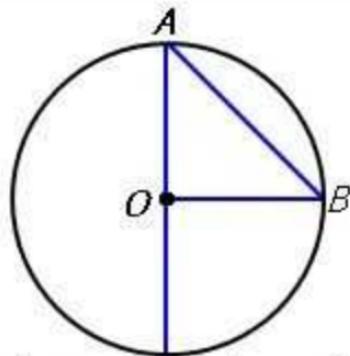
**Title**  
Triangles in a semicircle

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:42

**Others' Pace**  
3:26



$O$  is the center of the circle.

Column A

Column B

---

Length of AO

Length of AB

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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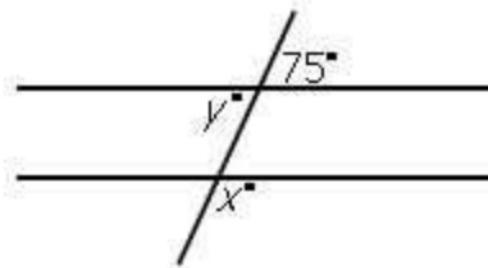
Title  
Circle lengths

Your Result  
Correct

Difficulty  
Very Hard

Your Pace  
0:16

Others' Pace  
0:48



Column A

Column B

x

y

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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Title	Your Result	Difficulty	Your Pace	Others' Pace
3 lines intersecting	Correct	Very Hard	0:35	0:34

Circle A has radius  $x$

Circle B has diameter  $2x$

Column A

Column B

The circumference to  
diameter ratio of circle A

The circumference to  
diameter ratio of circle B

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the  
information given

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**Title**

Circumference to diameter  
ratio

**Your Result**

Correct

**Difficulty**

Easy

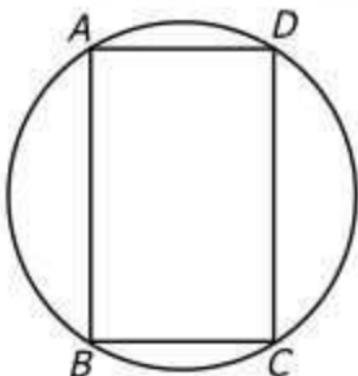
**Your Pace**

0:27

**Others' Pace**

0:45

If ABCD is a rectangle,  $BC = x$  and  $AB = 2x$ , then the circumference of the circle, in terms of  $x$ , is



$\sqrt{3}x\pi$

$\sqrt{5}x\pi$

$\sqrt{3}x\pi$

$\sqrt{5}x\pi$

$5x^2\pi$

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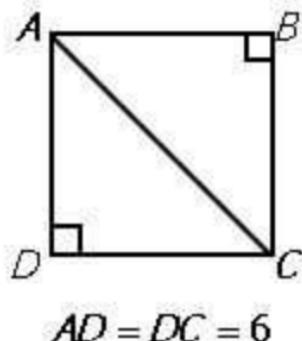
**Title**  
Rectangle in circle

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:10

**Others' Pace**  
1:41



$$AD = DC = 6$$

Column A

Column B

AB

BC

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
AB vs BC

**Your Result**  
Correct

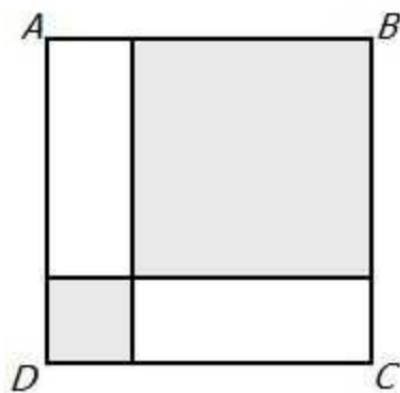
**Difficulty**  
Very Hard

**Your Pace**  
0:14

**Others' Pace**  
1:10

If square ABCD has area 25, and the area of the larger shaded square is 9 times the area of the smaller shaded square, what is the length of one side of the smaller shaded square?

Note: Figure not drawn to scale



3/4

5/4

6/5

4/3

5/3

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**Title**  
4 squares in a square

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
4:08

**Others' Pace**  
2:51

If the hypotenuse of an isosceles right triangle has length of 8,  
then the area of the triangle is

4

$4\sqrt{2}$

8

$8\sqrt{2}$



16

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**Title**  
Area of right isosceles  
triangle

**Your Result**  
Correct

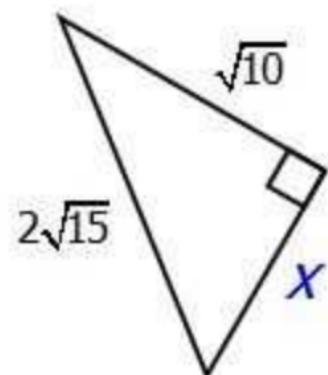
**Difficulty**  
Hard

**Your Pace**  
1:45

**Others' Pace**  
1:34

$x$  is between

Note: Figure not drawn to scale



4 and 5

5 and 6

6 and 7

7 and 8

8 and 9

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**Title**  
Range of lengths

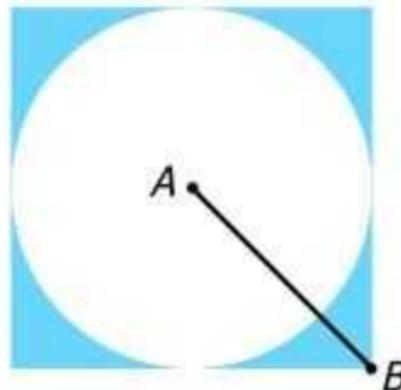
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:05

**Others' Pace**  
1:14

A is the center of the circle, and the length of AB is  $4\sqrt{2}$ . The blue shaded region is a square. What is the area of the shaded region?



$4(4 - \pi)$

$4(8 - \pi)$

$8(2 - \pi)$

$8(8 - \pi)$

$16(4 - \pi)$

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**Title**  
Area of shaded region

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:26

**Others' Pace**  
2:34

If a right triangle has area 28 and hypotenuse 12, what is its perimeter?

20

24

28

32

36

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**Title**  
Right triangle with area 28

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:47

**Others' Pace**  
3:35

If the areas of the 4 squares are 50, 32, 18 and 12, what is the ratio of the small shaded portion to the area of the large shaded portion?

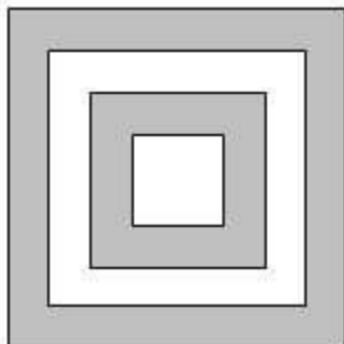
1:8

1:6

1:4

1:3

1:1



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**Title**  
Nested squares

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:12

**Others' Pace**  
1:42

If the length of each side of an equilateral triangle were increased by 50 percent, what would be the percent increase in the area?

75%

100%

125%

150%

225%

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**Title**  
Equilateral Area ratio

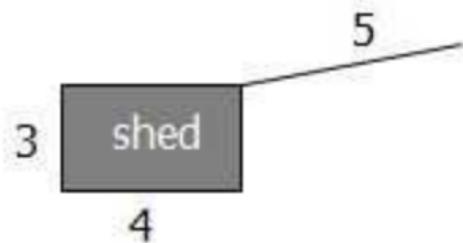
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:44

**Others' Pace**  
1:51

A cow is tethered to the corner of a rectangular shed. If the length of the rope is 5, and the shed has length 4 and width 3, what is the maximum area that is accessible to the cow? (The cow cannot enter the shed).



$12\pi$

$15\pi$

$16\pi$

$18\pi$

$20\pi$

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**Title**  
Cow and rope

**Your Result**  
Correct

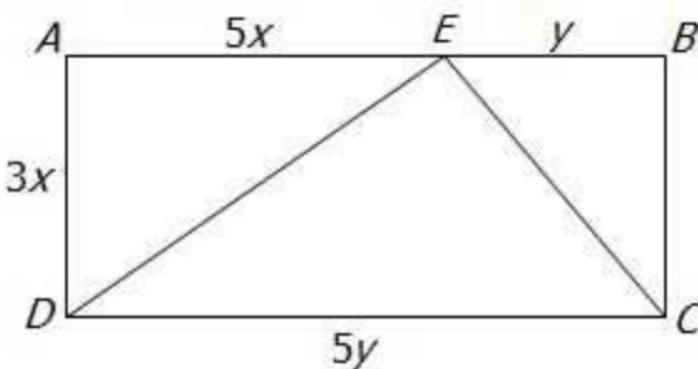
**Difficulty**  
Hard

**Your Pace**  
0:06

**Others' Pace**  
2:52

If  $AD = 3x$ ,  $AE = 5x$ ,  $EB = y$  and  $DC = 5y$ , what is the ratio of the area of triangle DEC to the area of rectangle ABCD ?

Note: Figure not drawn to scale



2:7

1:3

2:5



1:2

3:5

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**Title**  
Ratio of Areas

**Your Result**  
Correct

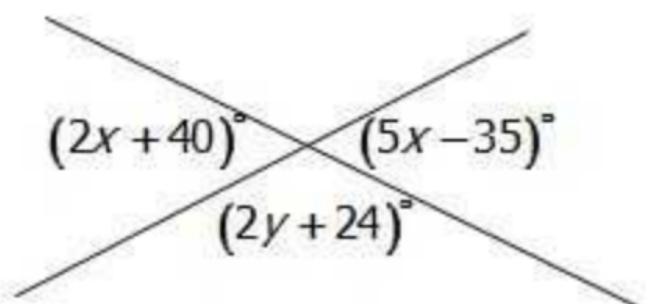
**Difficulty**  
Medium

**Your Pace**  
0:06

**Others' Pace**  
2:09

What is the value of  $y$ ?

Note: Figure not drawn to scale



25

27

29

31

33

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**Title**  
Intersecting Lines

**Your Result**  
Correct

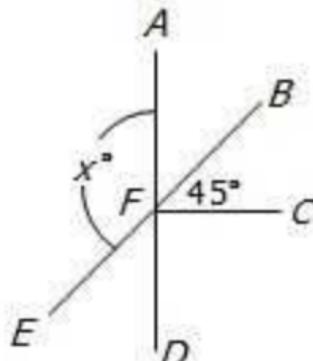
**Difficulty**  
Medium

**Your Pace**  
0:09

**Others' Pace**  
2:09

If  $\angle CFD = 85^\circ$ , then what is the value of  $x$ ?

Note: Figure not drawn to scale



125

130

135

140

145

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**Title**  
Angles at a Point

**Your Result**  
Correct

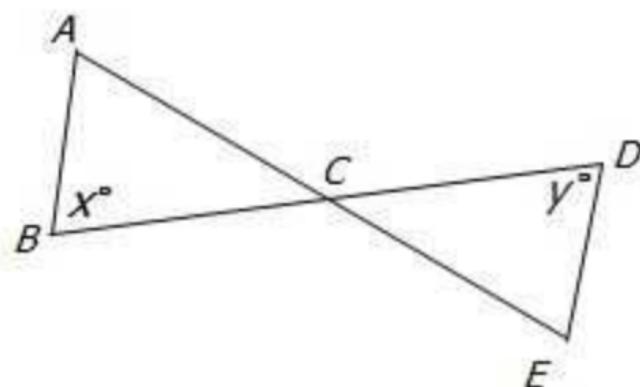
**Difficulty**  
Easy

**Your Pace**  
0:44

**Others' Pace**  
1:20

If  $AC = BC$  and  $CD = DE$  then, in terms of  $x$ , the value of  $y$  is

Note: Figure not drawn to scale



- x
- 180 - 2x
- 90 - 2x
- 4x - 180
- 45 + x/4

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**Title**  
Lines and triangles

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:28

**Others' Pace**  
2:12

Two sides of a triangle have length 6 and 8. Which of the following are possible areas of the triangle?

- I. 2
- II. 12
- III. 24

- I only
- I and II only
- II and III only
- I and III only
- I, II, and III

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**Title**  
Possible Triangle Areas

**Your Result**  
Correct

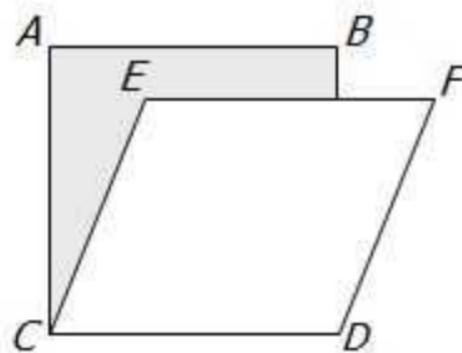
**Difficulty**  
Very Hard

**Your Pace**  
0:14

**Others' Pace**  
1:20

If ABCD is a square with area 625, and CEFB is a rhombus with area 500, then the area of the shaded region is

Note: Figure not drawn to scale



125

175

200

250

275

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**Title**  
Rhombus and square

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
2:20

**Others' Pace**  
2:25

In the  $xy$ -coordinate system, the distance between the point  $(0,0)$  and point  $P$  is  $\sqrt{40}$ . Which of the following could be the coordinates of point  $P$ ?

(4,7)

(4,10)

(5,6)

(6,2)

(20,20)

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**Title**  
Distance root 40

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:41

**Others' Pace**  
1:24

In the xy-coordinate system, line k passes through points  $(-5m, 0)$  and  $(0, 2m)$ . Which of the following is a possible equation of line k?

$y = -\frac{5}{2}x + 2m$

$y = \frac{2}{5}x - 5m$

$y = \frac{5}{2}x + 2m$

$y = \frac{2}{5}x + 2m$

$y = -\frac{2}{5}x - 5m$

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**Title**  
Equation of line k

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:07

**Others' Pace**  
1:39

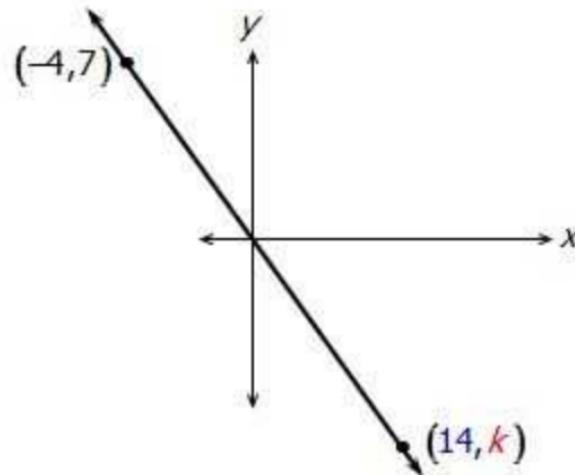
Line k is in the rectangular coordinate system. If line k is defined by the equation  $3y = 2x + 6$ , and line k intersects the x-axis at point  $(a,b)$ , then what is the value of a?

 -2 0 2 3[Back to Results](#)

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[Previous](#)[Next](#)**Title**  
Intersects**Your Result**  
Correct**Difficulty**  
Medium**Your Pace**  
1:24**Others' Pace**  
1:19

If the line passes through the origin, what is the value of  $k$ ?



-8

-12.5

-18

-24.5

-28

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**Title**  
Value of  $k$

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:22

**Others' Pace**  
1:57

In the  $xy$ -coordinate system, line  $k$  has slope  $\frac{1}{2}$  and passes through point  $(0, 5)$ . Which of the following points cannot lie on line  $k$ ?

(-10, 0)

(8, 9)

(3, 6.5)

(-2, 2)

(-8, 1)

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**Title**  
Possible points on a line

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:18

**Others' Pace**  
1:50

If a triangle in the xy-coordinate system has vertices at (-2 , -3), (4, -3) and (28, 7), what is the area of the triangle?



30

36

48

60

65

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**Title**  
Area of triangle

**Your Result**  
Correct

**Difficulty**  
Medium

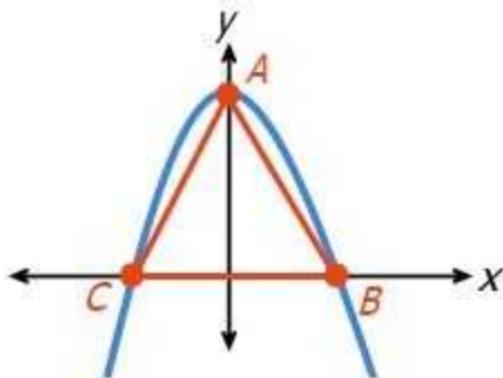
**Your Pace**  
0:18

**Others' Pace**  
2:05

The figure shows the graph of the equation  $y = k - x^2$ , where  $k$  is a constant. If the area of triangle ABC is  $1/8$ , what is the value of  $k$ ?

Give your answer to the nearest 0.01

0.25



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**Title**  
Area of Triangle in  
Parabola

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:42

**Others' Pace**  
2:33

Point A (-4, 2) and Point B (2, 4) lie in the xy-coordinate plane. If point C lies in the first quadrant and contains the coordinates (p, q), where  $p < 2$  and  $q < 4$ , which of the following could be the area of triangle ABC?

Indicate all such numbers

1.1

3.9

11.9

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**Title**  
Point A (-4, 2) and Point B  
(2, 4)

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:17

**Others' Pace**  
2:15

In the  $xy$ -coordinate system, points  $(2, 9)$  and  $(-1, 0)$  lie on line  $k$ . If the point  $(n, 21)$  lies on line  $k$ , what is the value of  $n$ ?

- 6
- 7
- 8
- 9
- 10

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**Title**  
Find the x-coordinate

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:23

**Others' Pace**  
2:03

In the  $xy$ -coordinate system, line  $k$  has  $y$ -intercept 12 and an  $x$ -intercept greater than zero. If the area of the triangular region enclosed by line  $k$  and the two axes is 30, what is the slope of line  $k$ ?

- $-\frac{12}{5}$
- $-\frac{6}{5}$
- $\frac{6}{5}$
- $\frac{3}{2}$
- $\frac{12}{5}$

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**Title**  
Bounded triangle

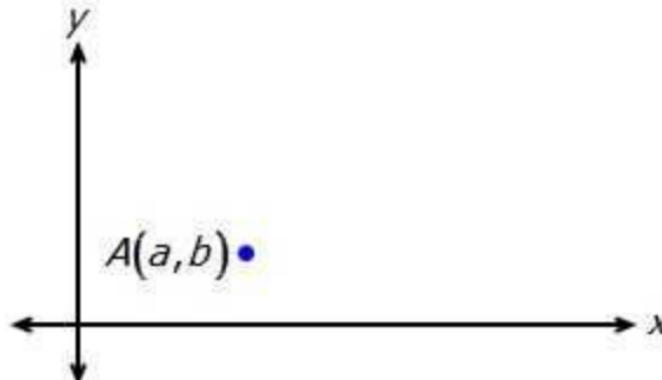
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:23

**Others' Pace**  
1:59

Point A in the xy-coordinate system is shown below. Given two other points B (4a, b) and C (2a, 5b), what is the area of triangle ABC in terms of a and b?



$\frac{7ab}{2}$

$\frac{9ab}{2}$

$\frac{15ab}{2}$

4ab

6ab

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**Title**  
Triangle area

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:21

**Others' Pace**  
2:06

What are the x-intercepts of the parabola defined by the equation  $y = 2x^2 - 8x - 90$ ?

Indicate all x-intercepts.

-10

-9

  -5

-4

4

5

  9

10

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**Title**  
All X-Intercepts of  
Parabola

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:13

**Others' Pace**  
1:25

What is the y-intercept of the graph of the equation  
 $y=2|4x-4|-10$ ?

-2

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**Title**  
Y-Intercept with Absolute  
Value Equation

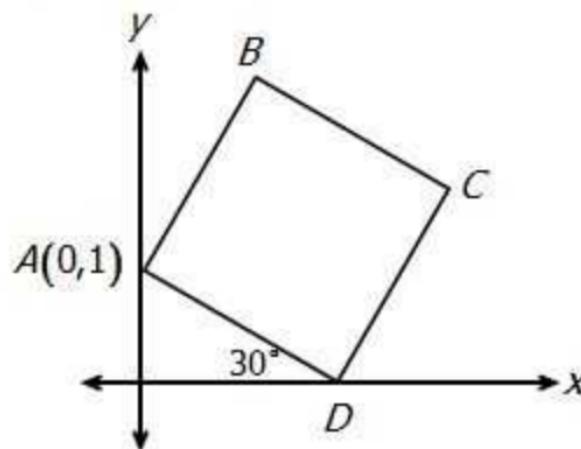
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:07

**Others' Pace**  
0:55

If ABCD is a square, what are the coordinates of C?



$(\sqrt{3}, \sqrt{3})$

$(\sqrt{3}, 1+\sqrt{3})$

$(2\sqrt{3}, \sqrt{3})$

$(1+\sqrt{3}, \sqrt{3})$

$(\sqrt{3}, 2\sqrt{3})$

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**Title**  
Square coordinates

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:58

**Others' Pace**  
2:14

In the xy-coordinate system, a circle with radius  $\sqrt{30}$  and center  $(2,1)$  intersects the x-axis at  $(k,0)$ . One possible value of  $k$  is

$2 + \sqrt{26}$

$2 + \sqrt{29}$

$2 + \sqrt{31}$

$2 + \sqrt{34}$

$2 + \sqrt{35}$

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**Title**  
Circle in Cartesian Plane

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:00

**Others' Pace**  
2:32

Line k is in the rectangular coordinate system. If the x-intercept of k is -2, and the y-intercept is 3, which of the following is an equation of line k?



-3x + 2y = 6

3x + 2y = -6

3x - 2y = 6

2x - 3y = 6

-2x - 3y = 6

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**Title**  
Find equation

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:45

**Others' Pace**  
2:03

How many points  $(x, y)$  lie on the line segment between  $(22, 12 \frac{2}{3})$  and  $(7, 17 \frac{2}{3})$  such that  $x$  and  $y$  are both integers?

4

5

7

8

9

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**Title**  
Integer coordinates

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:12

**Others' Pace**  
2:54

In the  $xy$ -coordinate system, the distance between points  $(2\sqrt{3}, -\sqrt{2})$  and  $(5\sqrt{3}, 3\sqrt{2})$  is approximately

4.1

5.9

6.4

7.7

8.1

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**Title**  
Distance between points

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:08

**Others' Pace**  
1:45

In the coordinate plane, rectangular region R has vertices at  $(0,0)$ ,  $(0,3)$ ,  $(4,3)$ , and  $(4,0)$ . If a point in region R is randomly selected, what is the probability that the point's y-coordinate will be greater than its x-coordinate?

$\frac{7}{12}$

$\frac{5}{12}$

$\frac{3}{8}$

$\frac{1}{3}$

$\frac{1}{4}$

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**Title**  
Region R, geometric probability \*\*\*

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
2:40

**Others' Pace**  
2:33

The points A(0, 0), B(0, 4a - 5) and C(2a + 1, 2a + 6) form a triangle. If  $\angle ABC = 90^\circ$ , what is the area of triangle ABC?



102

120

132

144

156

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**Title**  
Right triangle area

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:18

**Others' Pace**  
3:26

If the average (arithmetic mean) of  $x$ ,  $y$  and 15 is 9, and the average of  $x$ ,  $2y$  and 2 is 7, then  $y =$

5

6

7

8

9

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**Title**  
Value of  $x$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:41

**Others' Pace**  
1:41

w , x , and y are positive integers.

$$w + x + y = 90$$

Column A

Column B

Average (arithmetic mean) of w , x ,  
and y

Median of w , x ,  
and y

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the  
information given

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**Title**  
Mean vs median

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:37

**Others' Pace**  
0:55

In a group of 60 people, the average (arithmetic mean) age of the 40 females is 60, and the average age of the 20 males is 70.

Column A

Column B

Average age of all 60 people

65

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Average age of 60 people

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:26

**Others' Pace**  
1:24

Set  $X = \{a, b, c\}$ , where  $a < b < c$ . If the average (arithmetic mean) of  $a$  and  $b$  is  $3x - 13$ , and the average of  $b$  and  $c$  is  $3x + 11$ , what is the range of set  $X$ ?

48

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**Title**  
Variable Range

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:00

**Others' Pace**  
1:55

In a population of chickens, the average (arithmetic mean) weight is 6.3 pounds, and the standard deviation is 1.2 pounds. Which of the following weights (in pounds) are within 1.5 units of standard deviation of the mean?

Indicate all weights.

 4.4  4.6  5.1  5.2  6.9  7.6  7.7 8.2[Back to Results](#)

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**Title**  
Weight of Chickens

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:17

**Others' Pace**  
1:11

$w + x + y = 21$

Column A

Column B

Average of  $x$  and  $y$ 

7

 The quantity in Column A is greater The quantity in Column B is greater The two quantities are equal The relationship cannot be determined from the information given[Back to Results](#)

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Title	Your Result	Difficulty	Your Pace	Others' Pace
Average of $xy$ vs 7	Correct	Easy	0:05	0:53

Column A

Column B

The average (arithmetic mean) of  $3^2$ ,  $3^4$ ,  $3^6$  $3^4$  The quantity in Column A is greater The quantity in Column B is greater The two quantities are equal The relationship cannot be determined from the information given[Back to Results](#)

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[Previous](#)[Next](#)**Title**  
Average of powers**Your Result**  
Correct**Difficulty**  
Easy**Your Pace**  
0:38**Others' Pace**  
1:07

The average (arithmetic mean) of  $x$ ,  $y$  and 15 is 9.

Column A

Average of  $x$  and  $y$

Column B

6

The quantity in Column A is greater

The quantity in Column B is greater



The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Average of  $x$  and  $y$  vs 6

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:37

**Others' Pace**  
0:44

The average (arithmetic mean) of 3, 3, 5, 6 and  $x$  is 2.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

$x$

Column B

-8

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**Title**  
Mean and  $x$  vs -8

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:40

**Others' Pace**  
0:51

Triangle A has sides with length 5, 5 and 8.

Triangle B has sides with length 8, 8 and 5.

The quantity in Column A is greater

The quantity in Column B is greater



The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

The average (arithmetic mean) measure of the 3 angles of triangle A.

The average (arithmetic mean) measure of the 3 angles of triangle B.

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**Title**  
Average value of angles

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:40

**Others' Pace**  
0:48

Set A:{0.2, 0.4, 0.6, 0.8}

Set B:{2, 4, 6, 8}

Column A

Column B

Standard deviation of set A

Standard deviation of set B

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Standard deviation of 2-4-  
6-8

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:20

**Others' Pace**  
0:46

$$v + w - 4 = x + y - 5$$

Column A

Column B

Average (arithmetic mean)  
of  $v$  and  $w$

Average (arithmetic mean)  
of  $x$  and  $y$

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Average of  $vw$  vs  $xy$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:01

**Others' Pace**  
1:08

If the average (arithmetic mean) of five consecutive negative integers is  $2k - 1$ , what is the difference between the greatest and least of the five integers?

- 4  
 4k  
  $4k + 4$   
  $4 - 4k$   
  $4k^2 - 4k$

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**Title**  
Average of consecutive integers

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:29

**Others' Pace**  
2:06

In a certain set of numbers, 12.5 is 1.5 units of standard deviation above the mean, and 8.9 is 0.5 units of standard deviation below the mean. What is the mean of the set?

Give your answer to the nearest 0.1

9.8

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**Title**  
Mean, Given SD

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:08

**Others' Pace**  
2:16

Set A: { $x, x, x, y, y, y, 3x+y, x-y$  }

40

If the median of set A is 10 and  $0 < x < y$ , what is the range of set A?

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**Title**  
Median 10, What is Range

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:33

**Others' Pace**  
2:10

Set X:{5,6,9}

Set Y:{0,1,4}

Column A

Column B

Standard deviation of set X

Standard deviation of set Y



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
SD of sets X and Y

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:25

**Others' Pace**  
0:57

The sum of 5 consecutive even integers is 0.

Column A

Column B

The product of the 5 integers

0

The quantity in Column A is greater

The quantity in Column B is greater

  The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Sum of 5 consec evens is 0

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:57

**Others' Pace**  
0:50

In a group of children, the average (arithmetic mean) weight of the boys is 60 pounds, and the average weight of the girls is 48 pounds. If the average weight of all of the children in the group is 50 pounds, what is the ratio of the number of boys to the number of girls?

1/12

1/6

1/5

1/4

1/3

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**Title**  
Weights of boys and girls

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:05

**Others' Pace**  
2:13

The average (arithmetic mean) of four numbers is  $4a + 16$ .

When a fifth number is added, the average becomes  $5a + 20$ .

The fifth number is

a - 4

a + 4

4a + 4

4a + 16

9a + 36

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**Title**  
Average is  $4a$  plus 16

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:40

**Others' Pace**  
1:39

$w + x = -4$

$x + y = 25$

$y + w = 15$

Column A

Column B

The average (arithmetic mean) of  $w$ ,  $x$  and  $y$ 

6

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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Title	Your Result	Difficulty	Your Pace	Others' Pace
Average of $wxy$ vs 6	Correct	Hard	0:39	1:30

The average (arithmetic mean) weight of 8 children is 100 pounds.

No child weighs exactly 100 pounds.

Column A

Number of children who weigh more than 100 pounds.

Column B

Number of children who weigh less than 100 pounds.

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the information given

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**Title**  
Average weight is 100 pounds

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:19

**Others' Pace**  
0:58

The average (arithmetic mean) of five numbers is  $3x + 4$ . If one of the numbers is  $7x - 4$ , what is the average of the other four numbers?

$1.6x + 3.2$

$1.6x + 4.8$

$2x + 4$

$2x + 6$

$4x + 8$

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**Title**  
Average is  $3x$  plus 4

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:02

**Others' Pace**  
1:34

Jack has 5 cats and 1 dog. If the dog's weight is 3 times the average (arithmetic mean) weight of the cats, then the dog's weight is what fraction of the total weight of all 6 animals?

1/4

1/3

3/8

3/7

3/5

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**Title**  
Cats and dogs

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:48

**Others' Pace**  
1:59

If  $4/w + 4/x = 4/y$  and  $wx = y$ , then the average (arithmetic mean) of  $w$  and  $x$  is



1/2

1

2

4

8

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**Title**  
Average of W and X

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:08

**Others' Pace**  
1:38

The average (arithmetic mean) of 7 different numbers is 5

The quantity in Column A is greater

Column A

Column B

Median of the 7 numbers

5

The quantity in Column B is greater

The two quantities are equal



The relationship cannot be determined from the information given

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**Title**  
Average of 7 different numbers

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:17

**Others' Pace**  
0:49

Ten students wrote a test, and the distribution of scores is shown on the frequency table. If the average (arithmetic mean) score is 62, what is the value of  $x$ ?

Score	Number of students
40	1
55	2
70	3
$x$	4

62

65

71

76

83

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**Title**  
Test results

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:59

**Others' Pace**  
1:49

Column A

Column B

Average (arithmetic mean)  
of integers from -50 to -1  
inclusive.

Average (arithmetic mean)  
of integers from -50 to 0  
inclusive.

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Mean of -50 to -1 vs

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:03

**Others' Pace**  
1:05

If the average (arithmetic mean) of  $a$  and  $b$  is  $j$ , and the average of  $c$ ,  $d$ , and  $e$  is  $k$ , what is the average of  $a$ ,  $b$ ,  $c$ ,  $d$ ,  $e$  and  $j$  ?

$\frac{2k + 3j}{6}$

$\frac{k + 2j}{3}$

$\frac{k + j}{2}$

$\frac{2k + 3j}{5}$

$\frac{k + 2j}{4}$

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**Title**  
Average of  $a$  through  $e$  and  $j$

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
3:42

**Others' Pace**  
1:55

The median of  $x$ ,  $y$ , 8 and 11 is 19.

Column A

$x$

Column B

23



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Median with  $x$  and  $y$

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:04

**Others' Pace**  
1:32

$a$  ,  $b$  ,  $c$  and  $d$  are different positive numbers.

The average (arithmetic mean) of  $a$  and  $b$  is 30.

The average of  $a$  ,  $b$  ,  $c$  and  $d$  is 40.



- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

Column A

Column B

---

The greatest possible value of  $d$

99

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**Title**  
Greatest value of  $d$  vs 99

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:17

**Others' Pace**  
1:15

If the average (arithmetic mean) of seven consecutive integers is  $k + 2$ , then the product of the greatest and least integer is

- $k^2 - 9$
- $k^2 - 2k + 1$
- $k^2 + 4k - 12$
- $k^2 + 6k + 9$
- $k^2 + 4k - 5$

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**Title**  
Mean is  $k$  plus 2

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:06

**Others' Pace**  
2:18

What is the average (arithmetic mean) of  $(\sqrt{8} + \sqrt{2})^2$  and  $(\sqrt{8} - \sqrt{2})^2$ ?

4

5

8

10

12

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**Title**  
Average with roots

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:04

**Others' Pace**  
1:16

What is the average (arithmetic mean) of all multiples of 10 from 10 to 400 inclusive?

190

195

200

205

210

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**Title**  
Average of 10 to 400

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:51

**Others' Pace**  
1:50

If the mean of list A is 6.8 and the standard deviation is 3.6, then how many elements of list A are within 1 unit of standard deviation of the mean?

$$A = \{2, 9, 2, 6, 9, 10, 7, 4, 5, 14\}$$

3

4

5

6

7

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**Title**  
1 unit of standard deviation

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:11

**Others' Pace**  
1:30

If the average (arithmetic mean) of 3, 8, w, x, and y is 14,  
then the average of w + 2, x - 3, and y + 8 is

11

13.2

17

19.4



22

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**Title**  
Average with variables

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:40

**Others' Pace**  
2:02

Which of the following sets of numbers has the greatest standard deviation?

10, 11, 12

-3, -4, -5

-2, 0, 2

5.1, 5.2, 5.3

20, 22, 22.5

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**Title**  
Greatest standard deviation

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:21

**Others' Pace**  
0:43

If the average (arithmetic mean) of  $b$  and  $c$  is 5, and the average of  $c$  and  $d$  is 10, then  $b - d =$

Cannot be determined

-5

-10

-15

-20

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**Title**  
Value of  $b$  minus  $d$ , given  
means

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:39

**Others' Pace**  
1:00

If the average (arithmetic mean) of 24 consecutive odd integers is 48, what is the median of the 24 numbers?

36

47

48

49

72

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**Title**  
Median of consecutive  
integers

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:09

**Others' Pace**  
1:37

There are 10 employees in an office, not counting the office manager. The table shows how many employees have 0, 1, 2 or 3 pets. If the office manager also were included in the table, the average (arithmetic mean) number of pets per person would equal the median number of pets per person. How many pets does the office manager have?

# of pets	# of employees
0	2
1	3
2	2
3	3

 3 4 5 6 7[Back to Results](#)

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[Previous](#)[Next](#)**Title**  
Pets**Your Result**  
Correct**Difficulty**  
Hard**Your Pace**  
1:05**Others' Pace**  
3:01

If the average (arithmetic mean) of  $x$ ,  $y$ , and 20 is 11, then  
the average of  $2x + 3$ ,  $2y - 4$ , and 8 is

- 11
- 12
- 13
- 14
- 15

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**Title**  
Average with two variables

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:58

**Others' Pace**  
1:55

Set X consists of 100 numbers. The average (arithmetic mean) of set X is 10, and the standard deviation is 4.6. Which of the following two numbers, when added to set X, will decrease the set's standard deviation by the greatest amount?

- 100 and -100
- 10 and -10
- 0 and 0
- 0 and 20
- 10 and 10

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**Title**  
Decreasing standard deviation

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:23

**Others' Pace**  
1:18

Positive integers  $a$ ,  $b$ ,  $c$ ,  $d$  and  $e$  are such that  $a < b < c < d < e$ . If the average (arithmetic mean) of the five numbers is 6 and  $d - b = 3$ , then what is the greatest possible range of the five numbers?

12

17

18

19

20

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**Title**  
Greatest possible range

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
4:05

**Others' Pace**  
2:46

In a certain class,  $x$  students are 10 years old, and the remaining  $y$  students are 11 years old. What is the average (arithmetic mean) age of all students in the class?

$\frac{x+y}{21}$

$\frac{10x+11y}{21}$

$\frac{110xy}{x+y}$

$\frac{110xy}{xy}$



$\frac{10x+11y}{x+y}$

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[Previous](#)[Next](#)**Title**  
X students**Your Result**  
Correct**Difficulty**  
Easy**Your Pace**  
0:29**Others' Pace**  
0:58

The average (arithmetic mean) of 4 different integers is 75. If the largest integer is 90, what is the least possible value of the smallest integer?

1

19

29

30



33

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**Title**  
Minimum value

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:43

**Others' Pace**  
1:49

The average (arithmetic mean) of two numbers is  $4x$ . If one of the numbers is  $y$ , then the value of the other number is

$x - 4y$

$4x + 4y$

$8x - 4y$

$4y - 8x$



$8x - y$

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**Title**  
1 of 2 values is  $y$ , mean is  
 $4x$

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:35

**Others' Pace**  
0:44

$$\frac{10! - 8!}{7!} =$$

232

352

472

552

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**Title**  
Simplifying fractions with  
factorials

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:44

**Others' Pace**  
1:22

Joan is allowed to invite 3 of her friends to join her on a family camping trip. If Joan has 10 friends, in how many ways can she invite 3 of them?

27

120

240

360

720

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**Title**  
Joan's trip

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:50

**Others' Pace**  
0:52

An office has 6 employees. The manager must create a committee consisting of 3 employees.

Column A	Column B
Number of different committees possible.	40

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
3-person committee

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:25

**Others' Pace**  
0:49

From a group of 8 people, it is possible to create exactly 56 different k-person committees. Which of the following could be the value of k ?

Indicate all such values.

 1 2 3 4 5 6 7[Back to Results](#)

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**Title**  
K-Person Committees

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:08

**Others' Pace**  
1:27

A knockoff website requires users to create a password using letters from the word MAGOSH. If each password must have at least 4 letters and no repeated letters are allowed, how many different passwords are possible?

1800

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**Title**  
Magoosh Password Possibilities

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:07

**Others' Pace**  
1:07

$N$  equals the number of positive 3-digit numbers that contain odd digits only.

Column A

$N$

Column B

125

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
3-digits all odd

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:07

**Others' Pace**  
0:58

Joan has 100 candies to distribute among 10 children. If each child receives at least 1 candy and no two children receive the same number of candies, what is the maximum number of candies that a child can receive?

10

34

39

45



55

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**Title**  
Distributing 100 Candies

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:39

**Others' Pace**  
1:43

Hal has 4 girl friends and 5 boy friends. In how many different ways can Hal invite 2 girls and 2 boys to his birthday party?

54

60

72

120

240

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**Title**  
Hal's friends

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:44

**Others' Pace**  
1:09

In a certain sock drawer, there are 4 pairs of black socks, 3 pairs of gray socks and 2 pairs of orange socks. If socks are removed at random without replacement, what is the minimum number of socks that must be removed in order to ensure that two socks of the same color have been removed?

- 4
- 7
- 9
- 10
- 11

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**Title**  
Matching socks

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:39

**Others' Pace**  
1:37

Main course: Chicken, Beef, Tofu

Side dish: Rice, Salad, Soup, Pasta

Dessert: Pie, Cake

A meal at a certain restaurant consists of 1 main course, 2 different side dishes and 1 dessert.

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

Number of different meals possible

36

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**Title**  
Restaurant meal

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:32

**Others' Pace**  
1:06

How many three-digit numbers are there such that all three digits are different and the first digit is not zero?

504

648

720

729

810

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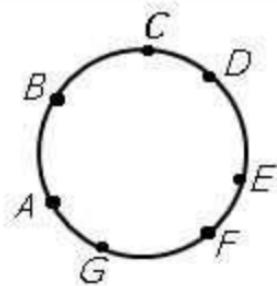
**Title**  
3 digit numbers

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:15

**Others' Pace**  
1:15



Column A

Column  
B

---

Number of different triangles possible using the given points as vertices.

42

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
Counting triangles in a circle

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:11

**Others' Pace**  
1:05

An office has 6 employees; there are 5 female employees and 1 male employee. In how many ways can a 3-person committee be created if the committee must include the male employee?

- 10
- 12
- 15
- 24
- 30

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**Title**  
Committee with one male

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:39

**Others' Pace**  
1:17

Car X can come with any of these 5 additional features: sunroof, stereo, tinted windows, leather seats and cruise control.



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

Number of different combinations possible

25

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**Title**  
Extras on a car

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:22

**Others' Pace**  
1:12

How many multiples of 5 are there between 81 and 358?

54

55

56

57

58

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**Title**  
Multiples of 5

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:54

**Others' Pace**  
1:19

A certain restaurant offers 8 different salads, 5 different main courses, 6 different desserts. If customers choose one salad, one main course and two different desserts for their meal, how many different meals are possible?

120

240

480

600

1200

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**Title**  
Different meals

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:02

**Others' Pace**  
1:21

Kim is taking a math class, and the teacher gives a multiple choice test consisting of 8 questions. If each question has 5 answer choices, and Kim answers every question, in how many different ways can she complete the test?

40

400

$5^8$

$8^5$

$40^{40}$

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**Title**  
Test answers

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:37

**Others' Pace**  
1:06

From a total of 5 boys and 4 girls, how many 4-person committees can be selected if the committee must have exactly 2 boys and 2 girls?

16

24

60

120

240

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**Title**  
Committees

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:42

**Others' Pace**  
1:11

If  $k$  is the greatest positive integer such that  $3^k$  is a divisor of  $15!$  then  $k =$

3

4

5

6

7

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**Title**  
3 $k$  divisor 15 factorial

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:32

**Others' Pace**  
1:25

Sid intended to type a seven-digit number, but the two 3's he meant to type did not appear. What appeared instead was the five-digit number 52115. How many different seven-digit numbers could Sid have meant to type?

10

16

21

24

27

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**Title**  
The missing 3's

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:18

**Others' Pace**  
2:12

In how many different ways can 3 boys and 3 girls be seated in a row of 6 chairs such that the girls are not separated, and the boys are not separated?

24

36

72

144

288

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**Title**  
Children

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:07

**Others' Pace**  
1:18

In how many ways can 16 different gifts be divided among four children such that each child receives exactly four gifts?

$16^4$

$(4!)^4$

$\frac{16!}{(4!)^4}$

$\frac{16!}{4!}$

$4^{16}$

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**Title**  
16 gifts

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:21

**Others' Pace**  
2:16

In how many ways can Ann, Bob, Chuck, Don and Ed be seated in a row such that Ann and Bob are not seated next to each other?

24

48

56

72

96

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**Title**  
Ann and Bob sit apart

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:38

**Others' Pace**  
2:02

In how many different ways can 3 identical green shirts and 3 identical red shirts be distributed among 6 children such that each child receives a shirt?

- 20  
 40  
 216  
 720  
 729

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**Title**  
Children's shirts

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:31

**Others' Pace**  
1:26

How many integers between 1 and  $10^{21}$  are such that the sum of their digits is 2?

190

210

211

230



231

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**Title**  
Sum of digits is 2

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:26

**Others' Pace**  
2:43

There are 10 people in a room. If each person shakes hands with exactly 3 other people, what is the total number of handshakes?

- 15
- 30
- 45
- 60
- 120

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**Title**  
Shake hands with 3 people

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:10

**Others' Pace**  
1:29

How many positive integers less than 10,000 are such that the product of their digits is 210?

24

30

48



54

72

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**Title**  
Digit product is 210

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:18

**Others' Pace**  
1:17

A popular website requires users to create a password consisting of digits only. If no digit may be repeated and each password must be at least 9 digits long, how many passwords are possible?

9! + 10!

2 x 10!

9! x 10!

19!

20!

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**Title**  
Password

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:09

**Others' Pace**  
1:56

A box contains 6 black balls and 4 white balls. If two balls are selected at random without replacement, what is the probability that both balls are white?

$\frac{7}{90}$

$\frac{3}{25}$

$\frac{2}{15}$

$\frac{4}{25}$

$\frac{4}{9}$

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**Title**  
Black and white balls

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:38

**Others' Pace**  
1:17

The probability that event A will occur is 0.5

The probability that event B will occur is 0.4

The probability that event A or B will occur is 0.8

Column A

Column B

Probability that A and B both occur

0.1

The quantity in Column A is greater

The quantity in Column B is greater



The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
P A and B vs 0point1

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:30

**Others' Pace**  
0:48

When a coin is flipped, the probability of getting heads is 0.5, and the probability of getting tails is 0.5

A coin is flipped 5 times

Column A

Column B

Probability of getting exactly  
2 heads

Probability of getting exactly  
3 heads

- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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**Title**  
2 heads vs 3 heads

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:40

**Others' Pace**  
0:56

The probability that event A occurs is 0.4, and the probability that events A and B both occur is 0.25. If the probability that either event A or event B occurs is 0.6, what is the probability that event B will occur?

0.05

0.15

0.45

0.50

0.55

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**Title**  
A or B

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:48

**Others' Pace**  
1:35

A number,  $x$ , is randomly selected from the integers from 42 to 92 inclusive.

Column A                          Column B

---

The probability that  $x$  is odd.

The probability that  $x$  is even.

-   The quantity in Column A is greater  
 The quantity in Column B is greater  
 The two quantities are equal  
 The relationship cannot be determined from the information given

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**Title**  
Probability that  $x$  is odd

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:14

**Others' Pace**  
0:55

If four numbers are randomly selected without replacement from set  $\{1, 2, 3, 4\}$ , what is the probability that the four numbers are selected in ascending order?

$\frac{1}{256}$

$\frac{1}{64}$

$\frac{1}{48}$

$\frac{1}{24}$

$\frac{1}{12}$

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**Title**  
Ascending order

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:47

**Others' Pace**  
1:01

An integer is randomly selected from the integers from 200 to 900 inclusive.

Column A

Column  
B

Probability that the number is either even or prime.

14/13

The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

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**Title**  
Prime or even

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:13

**Others' Pace**  
1:04

Events A and B are independent.

The probability that events A and B both occur is 0.6



The quantity in Column A is greater

The quantity in Column B is greater

The two quantities are equal

The relationship cannot be determined from the information given

Column A

Column B

The probability that event A occurs

0.3

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**Title**  
Prob A and B equals  
0point6

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:02

**Others' Pace**  
0:58

A bag contains  $x$  blue chips and  $y$  red chips. If the probability of selecting a red chip at random is  $\frac{3}{7}$ , then  $\frac{x}{y} =$

$\frac{7}{11}$

$\frac{3}{4}$

$\frac{7}{4}$

$\frac{4}{3}$

$\frac{11}{7}$

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**Title**  
Red and blue chips

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:14

**Others' Pace**  
1:02

A box contains 4 red chips and 2 blue chips. If two chips are selected at random without replacement, what is the probability that the chips are different colors?

$\frac{1}{2}$

$\frac{8}{15}$

$\frac{7}{12}$

$\frac{2}{3}$

$\frac{7}{10}$

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**Title**  
1 red 1 blue

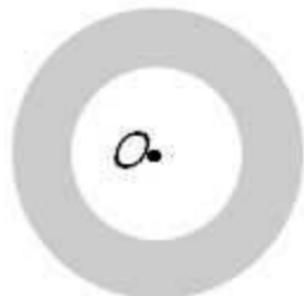
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:01

**Others' Pace**  
2:13

Each circle has center O. The radius of the smaller circle is 2 and the radius of the larger circle is 6. If a point is selected at random from the larger circular region, what is the probability that the point will lie in the shaded region?



$\frac{1}{9}$

$\frac{1}{6}$

$\frac{2}{3}$

$\frac{5}{6}$

$\frac{8}{9}$

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**Title**  
Target probability

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:47

**Others' Pace**  
1:32

The probability is 0.6 that an "unfair" coin will turn up tails on any given toss. If the coin is tossed 3 times, what is the probability that at least one of the tosses will turn up tails?

0.064

0.36

0.64

0.784



0.936

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**Title**  
Unfair coin

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:53

**Others' Pace**  
1:42

A box contains 10 pairs of shoes (20 shoes in total). If two shoes are selected at random, what is the probability that they are matching shoes?

$\frac{1}{190}$

$\frac{1}{20}$

$\frac{1}{19}$

$\frac{1}{10}$

$\frac{1}{9}$

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**Title**  
Select matching shoes

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:32

**Others' Pace**  
1:14

A box contains 10 balls numbered from 1 to 10 inclusive. If Ann removes a ball at random and replaces it, and then Jane removes a ball at random, what is the probability that both women removed the same ball?

$\frac{1}{100}$

$\frac{1}{90}$

$\frac{1}{45}$

$\frac{1}{10}$

$\frac{41}{45}$

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**Title**  
Matching balls

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:35

**Others' Pace**  
0:52

Set A: {1, 3, 4, 6, 9, 12, 15}

If three numbers are randomly selected from set A without replacement, what is the probability that the sum of the three numbers is divisible by 3?

3/14

2/7

9/14

5/7

11/14

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**Title**  
Divisible by 3

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:43

**Others' Pace**  
2:39

A: {71, 73, 79, 83, 87} B: {57, 59, 61, 67}

9/20

If one number is selected at random from set A, and one number is selected at random from set B, what is the probability that both numbers are prime?

3/5

3/4

4/5

1

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**Title**  
Randomly selected prime

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:08

**Others' Pace**  
2:06

When a certain coin is flipped, the probability of heads is 0.5.  
If the coin is flipped 6 times, what is the probability that there  
are exactly 3 heads?

1/4

1/3

5/16

31/64

1/2

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**Title**  
Coin flipped 6 times

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:06

**Others' Pace**  
2:05

If points A and B are randomly placed on the circumference of a circle with radius 2, what is the probability that the length of chord AB is greater than 2?

$\frac{1}{4}$

$\frac{1}{3}$

$\frac{1}{2}$

$\frac{2}{3}$

$\frac{3}{4}$

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**Title**  
Circle probability

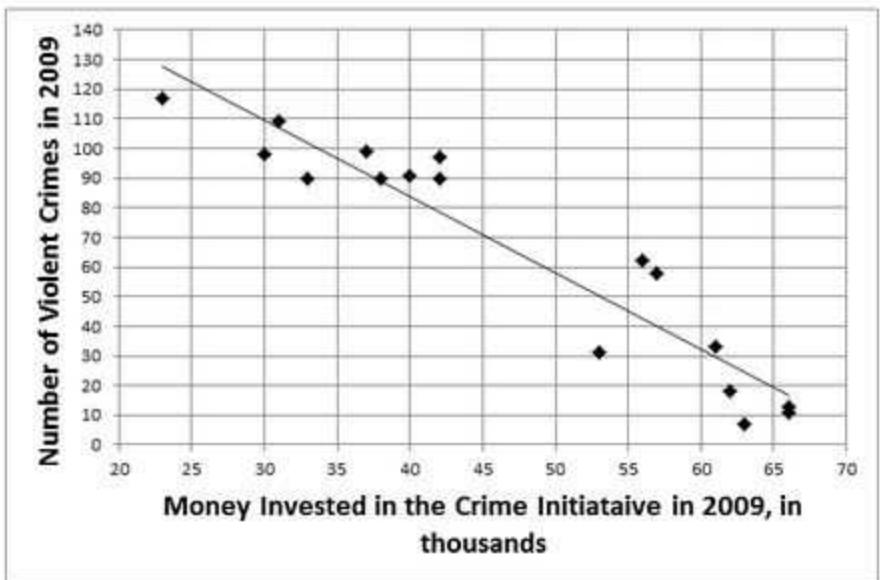
**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
2:19

**Others' Pace**  
2:01

In the final months of 2008, the state legislature of a certain state announced the availability of a new special statewide Crime Initiative, designed to fight violent crimes in the state. Towns and cities throughout the state could decide to invest in this new crime initiative in 2009, at any level up to \$70,000. The graph below shows, for 17 similarly sized towns throughout the state, the money they invested in the Crime Initiative in 2009, and the number of violent crimes that year in that town. A trend line is already displayed on the graph.



Among these 17 towns, the median amount invested in the statewide Crime Initiative is

- \$37,000
- \$42,000
- \$53,000
- \$62,000
- \$90,000

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**Title**  
Crime Initiative Spending

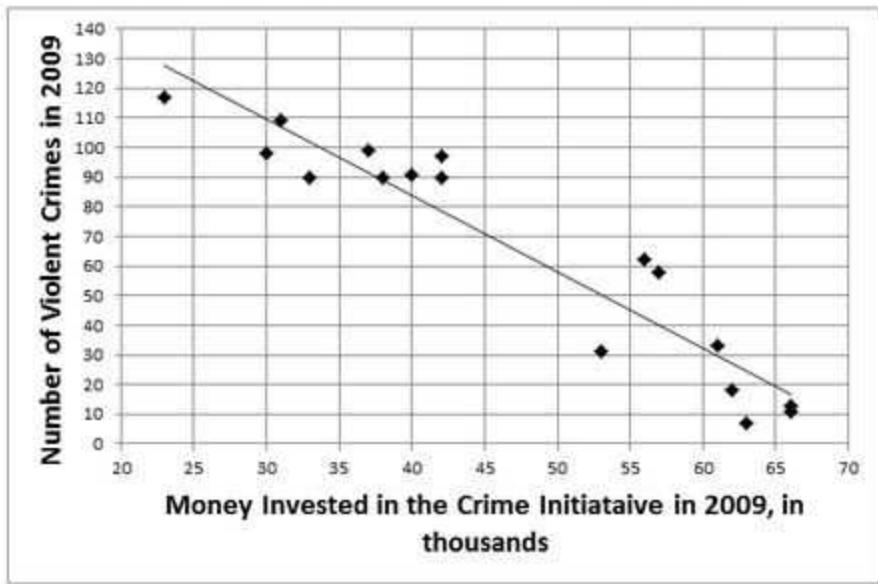
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:47

**Others' Pace**  
1:34

In the final months of 2008, the state legislature of a certain state announced the availability of a new special statewide Crime Initiative, designed to fight violent crimes in the state. Towns and cities throughout the state could decide to invest in this new crime initiative in 2009, at any level up to \$70,000. The graph below shows, for 17 similarly sized towns throughout the state, the money they invested in the Crime Initiative in 2009, and the number of violent crimes that year in that town. A trend line is already displayed on the graph.



The town that spent \$61,000 on the Crime Initiative had a total number of violent crimes that was approximately what percentage of the total number of violent crime of the town that spent \$40,000 on the Crime Initiative?

6.4%

27.3%

34.4%

41.3%

58.7%

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**Title**  
Crime Initiative Spending

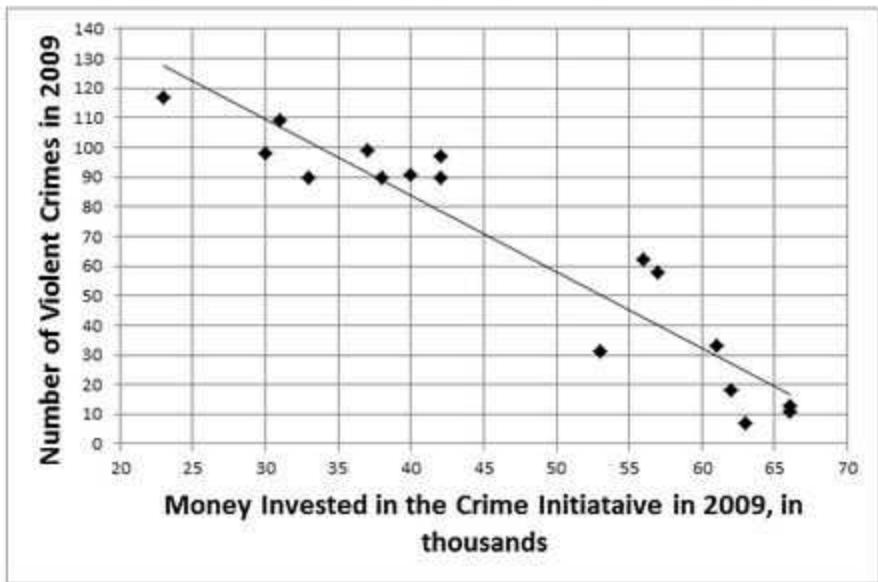
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:29

**Others' Pace**  
1:20

In the final months of 2008, the state legislature of a certain state announced the availability of a new special statewide Crime Initiative, designed to fight violent crimes in the state. Towns and cities throughout the state could decide to invest in this new crime initiative in 2009, at any level up to \$70,000. The graph below shows, for 17 similarly sized towns throughout the state, the money they invested in the Crime Initiative in 2009, and the number of violent crimes that year in that town. A trend line is already displayed on the graph.



Of the four towns shown each with fewer than twenty violent crimes in 2009, the average amount they invested in the statewide Crime Initiative in 2009 is

\$29,250

\$41,000

\$49,500

\$58,750

\$64,250

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**Title**  
Crime Initiative Spending

**Your Result**  
Correct

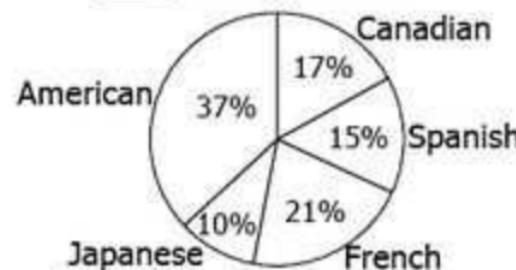
**Difficulty**  
Easy

**Your Pace**  
1:31

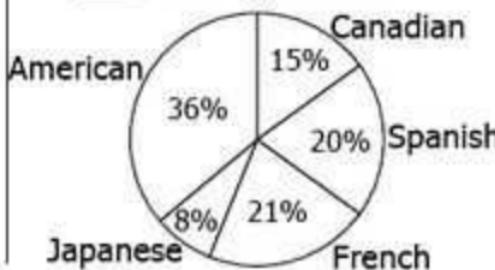
**Others' Pace**  
1:04

DISTRIBUTION OF GRADUATES FROM ABC COLLEGE  
BY NATIONALITY IN 2003 AND 2004

2003: 4800 graduates



2004: 6000 graduates



How many more French students graduated in 2004 than in 2003?

- 0
- 120
- 202
- 222
- 252

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**Title**  
University Graduates

**Your Result**  
Correct

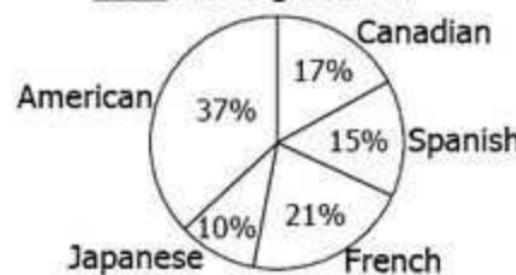
**Difficulty**  
Easy

**Your Pace**  
1:21

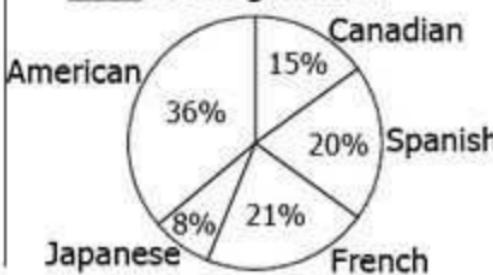
**Others' Pace**  
1:13

DISTRIBUTION OF GRADUATES FROM ABC COLLEGE  
BY NATIONALITY IN 2003 AND 2004

2003: 4800 graduates



2004: 6000 graduates



What was the percent decrease in the number of Japanese graduates from 2003 to 2004?



0

0.2

2

20

25

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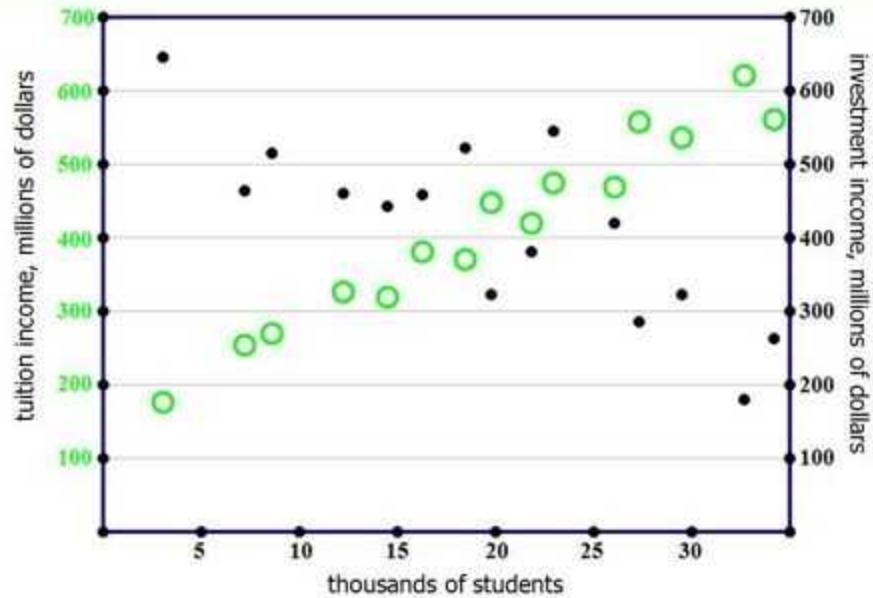
**Title**  
University Graduates

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:16

**Others' Pace**  
0:50



On the above diagram, each of fifteen private colleges is represented by a circle and a dot. The light green circle, read against the green scale on the left, gives the college's annual gross tuition income in 2008; the data point is the very center of the circle. The black dot, directly above or below the center of the green circle and read against the right scale, gives the college's annual income in 2008 from investments such as endowments.

For the 15 colleges shown, the graph supports which of the following statements

- I. tuition income is positively correlated with student enrollment
- II. investment income is negatively correlated with student enrollment
- III. all colleges with over 20,000 student have less than \$500 million in investment income

I only

I and II only

I and III only

II and III only

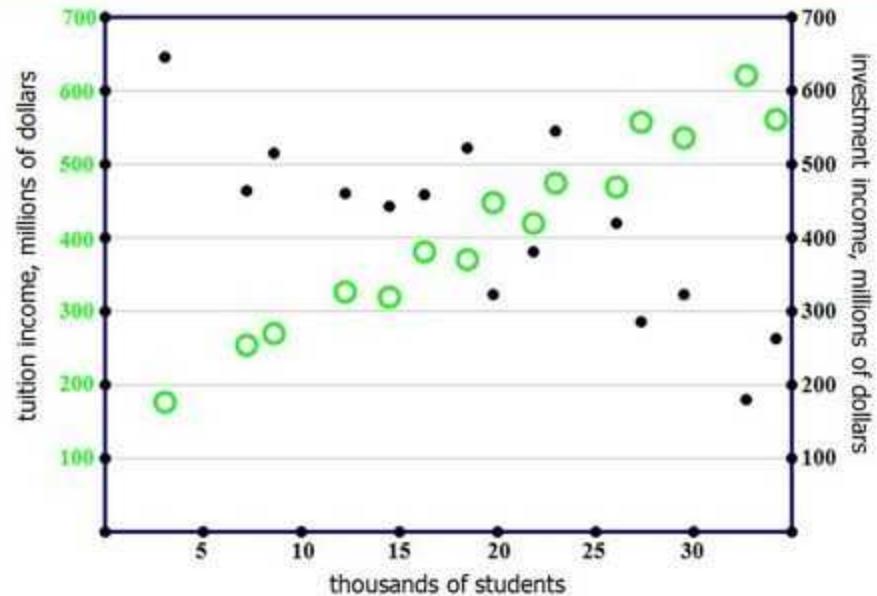
I, II, and III

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The college that is drawing the most investment income in 2008 takes in approximately how much in mean total income per student in 2008? (Total income = tuition + investments)

\$5,600

\$28,000

\$36,000

\$56,000

\$237,000

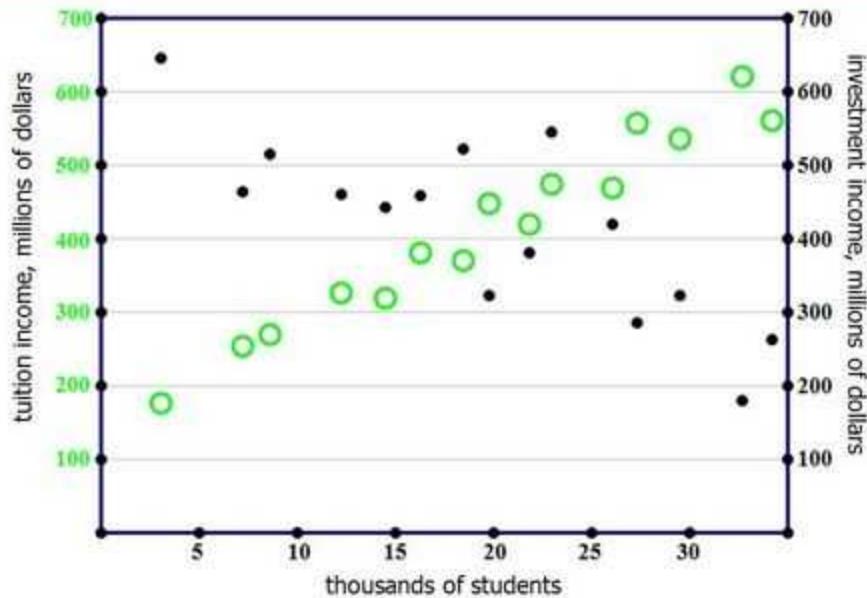
On the above diagram, each of fifteen private colleges is represented by a circle and a dot. The light green circle, read against the green scale on the left, gives the college's annual gross tuition income in 2008; the data point is the very center of the circle. The black dot, directly above or below the center of the green circle and read against the right scale, gives the college's annual income in 2008 from investments such as endowments.

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If the tuition income at a college exceeds its investment income, then that college is said to be "tuition driven." How many colleges shown here were tuition driven in 2008?

four

five

six

seven

eight

On the above diagram, each of fifteen private colleges is represented by a circle and a dot. The light green circle, read against the green scale on the left, gives the college's annual gross tuition income in 2008; the data point is the very center of the circle. The black dot, directly above or below the center of the green circle and read against the right scale, gives the college's annual income in 2008 from investments such as endowments.

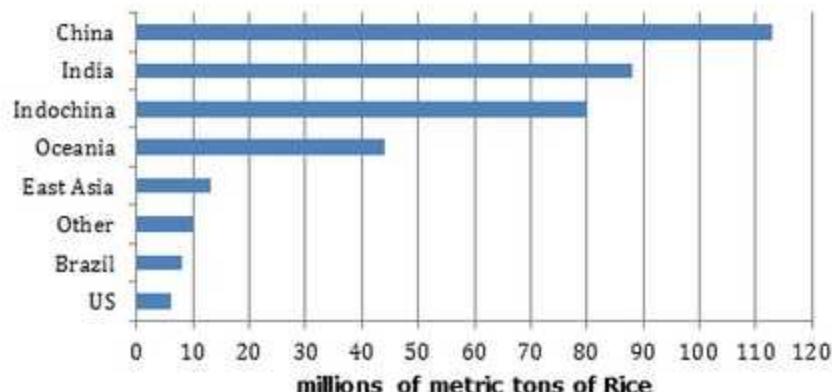
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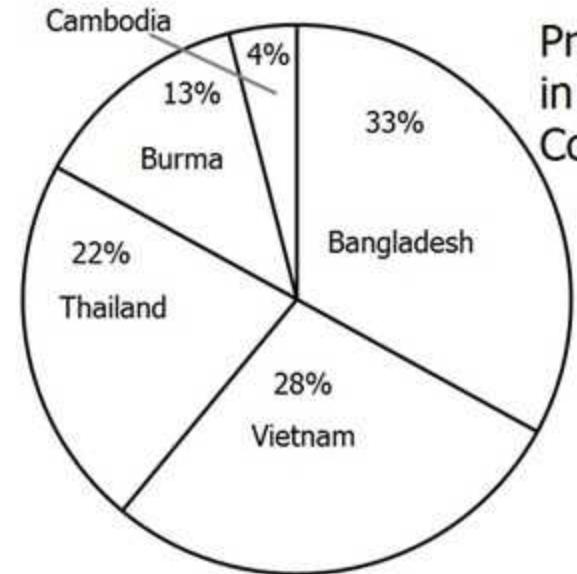
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## World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons.

Production of Rice in Indochina, by Country, in 2004



China accounted for approximately what percent of world rice production in 2004?

9.6%

24.0%

30.7%

40.1%

65.3%

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**Title**  
World Rice Production in  
2004

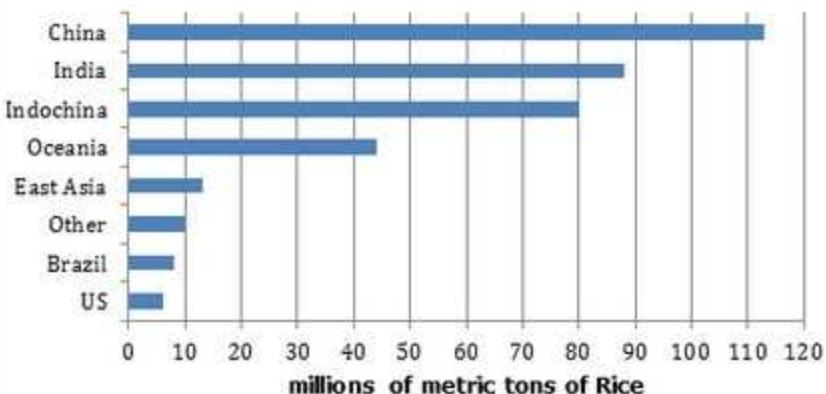
**Your Result**  
Correct

**Difficulty**  
Easy

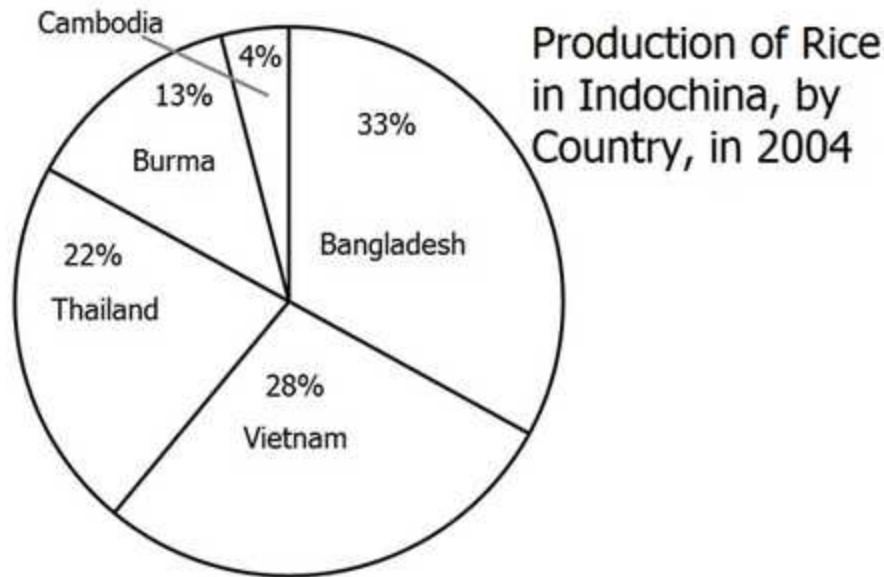
**Your Pace**  
1:20

**Others' Pace**  
1:20

## World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons



Bangladesh accounted for what percent of world rice production in 2004?

- 7.2%

11.6%

33%

47.6%

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### Title

World Rice Production in 2004

### Your Result

Correct

### Difficulty

Medium

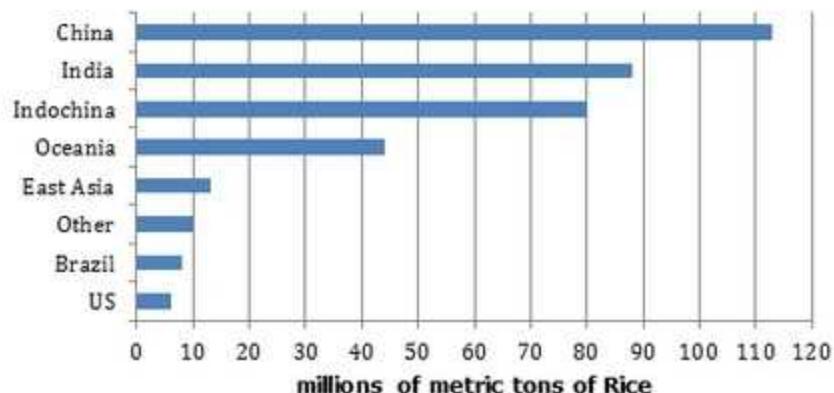
### Your Pace

2:06

### Others' Pace

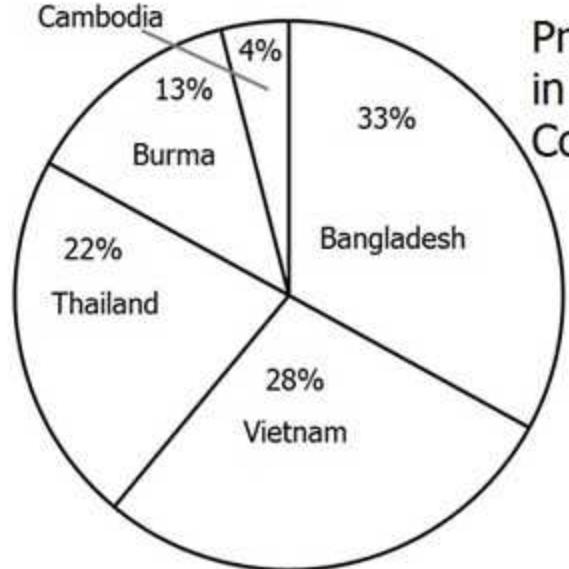
1:33

## World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons

Production of Rice in Indochina, by Country, in 2004



If from 2004 to 2005, Vietnam's rice production increases by 25%, and all the other countries in the "Indochina" group maintain the same levels of production, then the rice production of the Indochina group would increase by what percent?

2.8%

4%

5.6%

7%

12.5%

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**Title**  
World Rice Production in  
2004

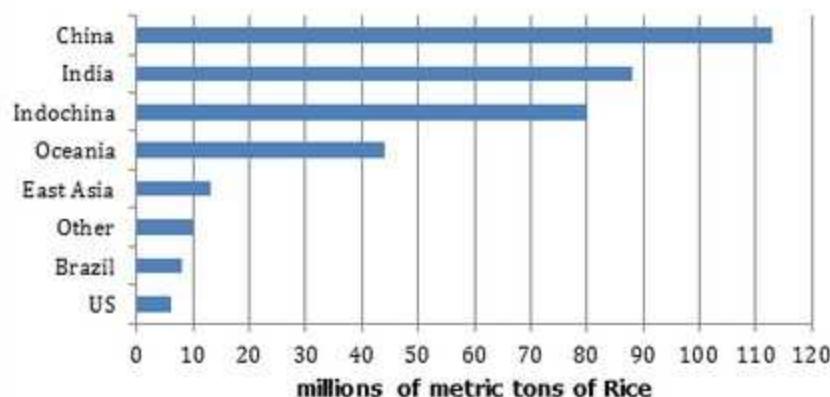
**Your Result**  
Correct

**Difficulty**  
Hard

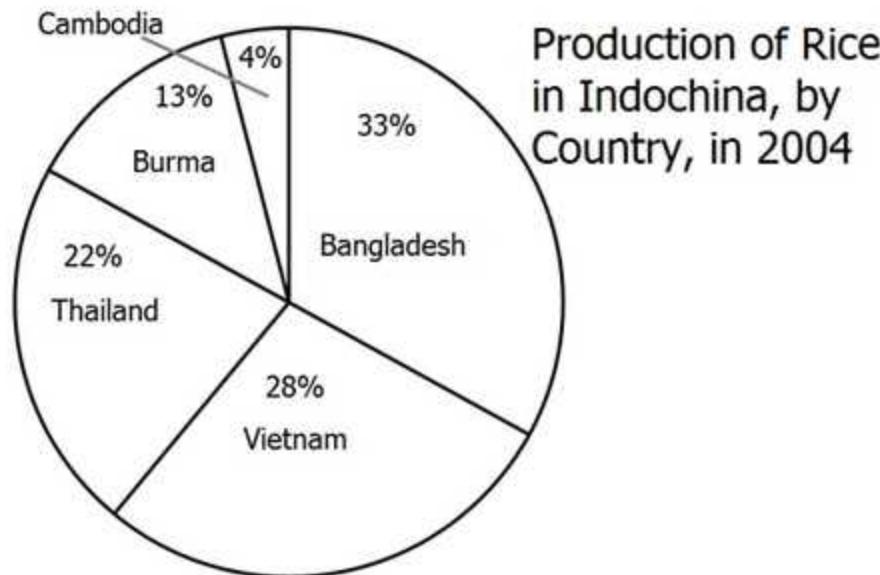
**Your Pace**  
1:52

**Others' Pace**  
2:14

## World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons



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**Title**  
World Rice Production in  
2004

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:28

**Others' Pace**  
0:53

What was the approximate rice production of Vietnam in 2004?

8,400,000

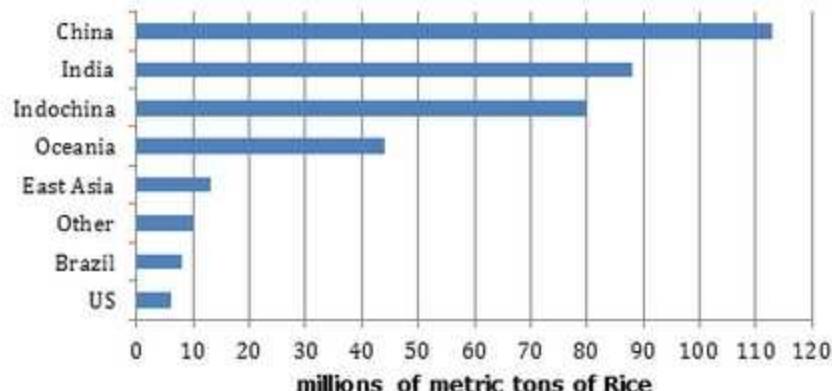
22,400,000

43,700,000

80,000,000

103,060,000

## World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons

Suppose China's production remains more or less constant from 2004 to 2006. Suppose India is able to sustain the same percent increase in both of those years. By what percent would India's rice production have to increase from 2004 to 2005 and again from 2005 to 2006 so that it equaled China in rice production in 2006?

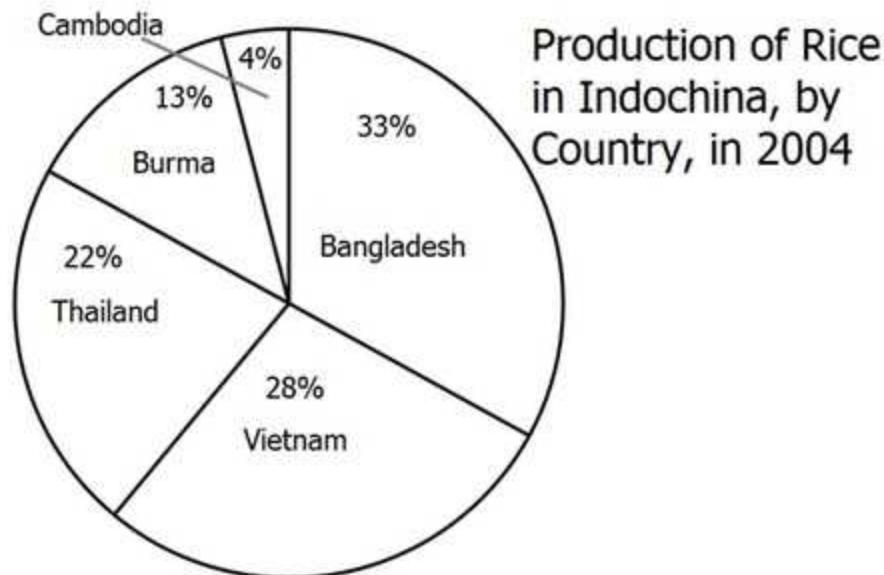
10.0%

12.8%

16.3%

21.5%

27.4%



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**Title**  
World Rice Production in  
2004

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:13

**Others' Pace**  
2:24

Number of televisions	Percent of households
0	16%
1	8%
2	24%
3	20%
4	20%
<b>5 or more</b>	<b>12%</b>

The table identifies the percentage of households in Townville that have a certain number of televisions.

What is the average (arithmetic mean) number of televisions per household?



Cannot be determined

2.1

2.3

2.5

2.7

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**Title**  
Televisions Per Household

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:45

**Others' Pace**  
0:44

Number of televisions	Percent of households
0	16%
1	8%
2	24%
3	20%
4	20%
5 or more	12%

The table identifies the percentage of households in Townville that have a certain number of televisions.

What is the median number of televisions per household?

- Cannot be determined
- 1
- 2
- 2.5
- 3

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**Title**  
Televisions Per Household

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:12

**Others' Pace**  
0:54

Number of televisions	Percent of households
0	16%
1	8%
2	24%
3	20%
4	20%
5 or more	12%

The table identifies the percentage of households in Townville that have a certain number of televisions.

If  $k$  is the number of households with exactly 2 televisions, then the number of households with exactly 4 televisions is

- $k - 4$
- $2k$
- $k/100 - 4$
- $5k/6$
- $500k/6$

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**Title**  
Televisions Per Household

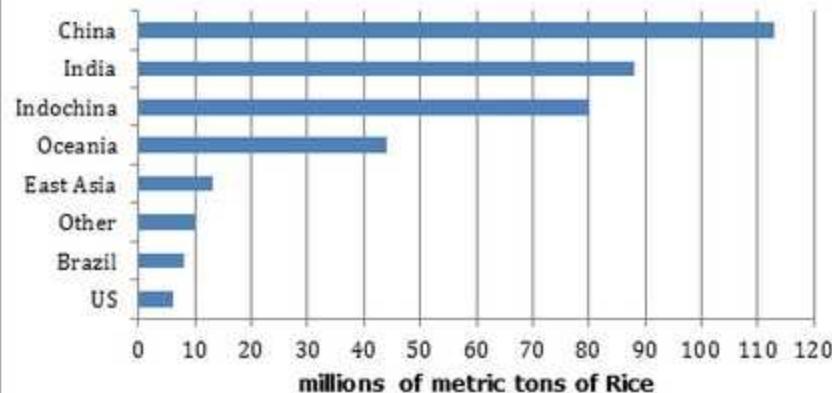
**Your Result**  
Correct

**Difficulty**  
Hard

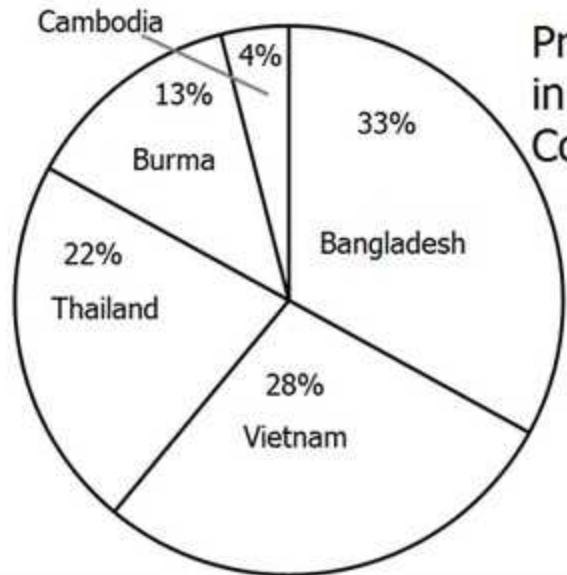
**Your Pace**  
0:30

**Others' Pace**  
1:31

## World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons



Production of Rice  
in Indochina, by  
Country, in 2004

Which bars on the graph, if they increased by 50% from 2004 to 2005, would be equal to or greater than the current 2004 value of the bar immediately above it on the graph?

- India
- Indochina
- Oceania
- East Asia
- Other
- Brazil
- US

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**Title**  
World Rice Production in  
2004

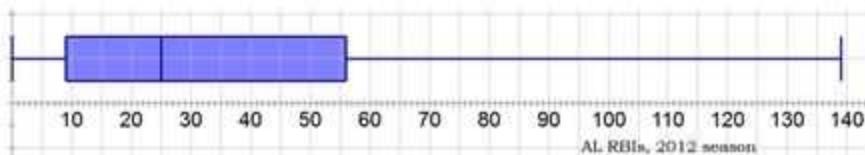
**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:31

**Others' Pace**  
1:25

The following boxplot shows the 2012 season runs batted in (RBIs) of 280 American League (AL) batters (the top 280 batters in terms of number of plate appearances).



Five-Number Summary for AL RBIs in 2012:

Minimum = 0

First Quartile = 9

Median = 25

Third Quartile = 56

Maximum = 139

What is the size of the Interquartile Range (IQR) of this distribution?

25

47

56

83

139

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**Title**  
AL RBIs in 2012

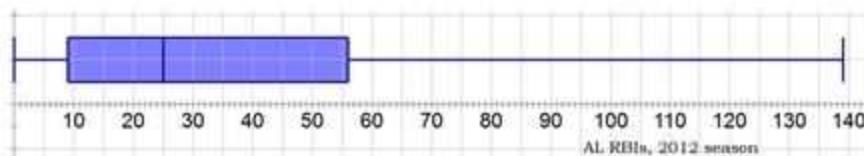
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:32

**Others' Pace**  
1:03

The following boxplot shows the 2012 season runs batted in (RBIs) of 280 American League (AL) batters (the top 280 batters in terms of number of plate appearances).



Five-Number Summary for AL RBIs in 2012:

Minimum = 0

First Quartile = 9

Median = 25

Third Quartile = 56

Maximum = 139

B. J. Upton, who played on the Tampa Bay Rays that season, hit 78 RBIs in 2012; this is the 90th percentile value on this chart. How many players hit more than 56 and less than or equal to 78 RBIs?

14

22

28

34

42

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**Title**  
AL RBIs in 2012

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:19

**Others' Pace**  
1:38

The following tables show the revenues & costs, in thousands of dollars, for a small company in the year 2007.

<b>Revenues</b>	
Sales	753
Investments	53
Subsidiaries	246
<b>TOTAL</b>	<b>1052</b>

<b>Costs</b>	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
<b>TOTAL</b>	<b>749</b>

The costs associated with insurance and the physical plant are what percentage of total costs?

6.8%

16.4%

27.2%

83.6%

90.0%

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**Title**  
Budget of a Small Company

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
1:03

**Others' Pace**  
1:01

The following tables show the revenues & costs, in thousands of dollars, for a small company in the year 2007.

<b>Revenues</b>	
Sales	753
Investments	53
Subsidiaries	246
<b>TOTAL</b>	<b>1052</b>

<b>Costs</b>	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
<b>TOTAL</b>	<b>749</b>

Profit is the difference between revenues and costs. If profits increase 20% from 2006 to 2007, difference between this year's profit and last year's profit is how much?

\$50,500

\$60,600

\$149,800

\$175,330

\$210,400

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**Title**  
Budget of a Small Company

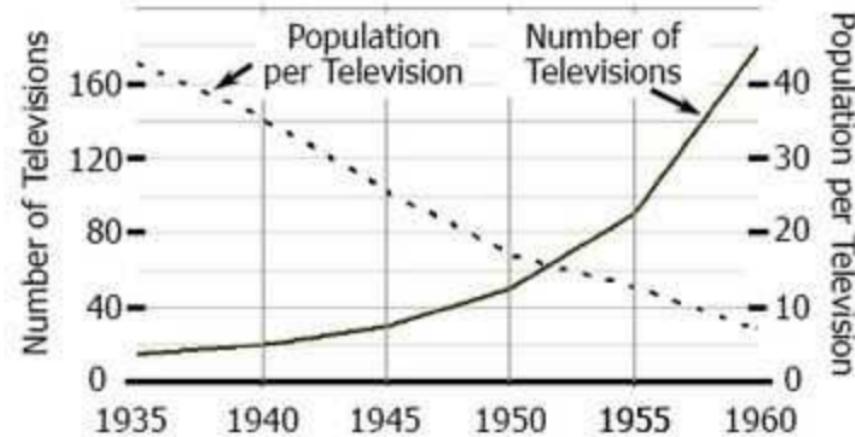
**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
3:27

**Others' Pace**  
1:49

## TELEVISIONS IN TOWN X, AND POPULATION PER TELEVISION



In 1955, the ratio of the number of televisions to the number of people was approximately

- 1 to 13  
 1 to 23  
 1 to 26  
 1 to 50  
 1 to 90

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**Title**  
Population Per Television

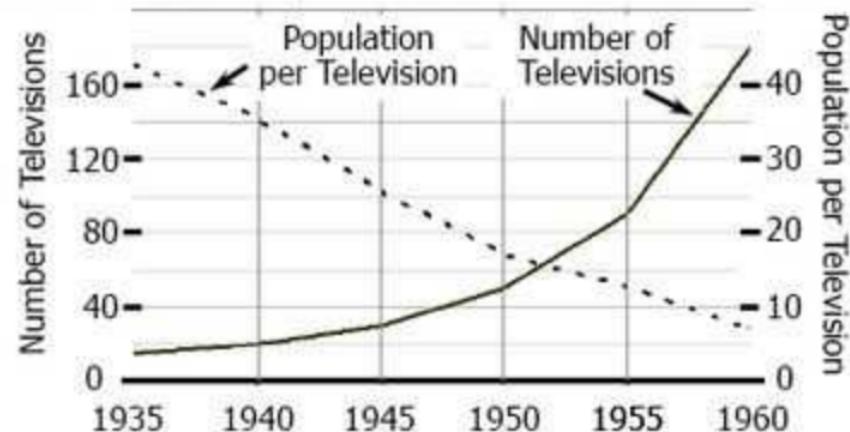
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
2:19

**Others' Pace**  
1:54

## TELEVISIONS IN TOWN X, AND POPULATION PER TELEVISION



From 1940 to 1955, the percent increase in the number of televisions was closest to

- 30
- 130
- 350
- 450
- 650

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**Title**  
Population Per Television

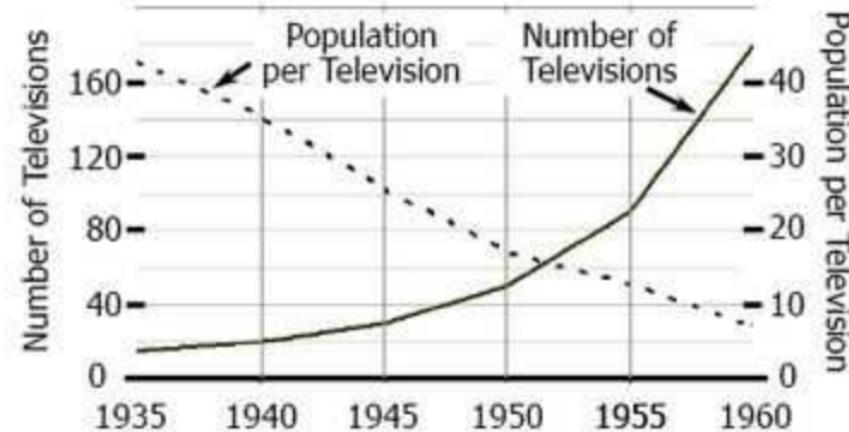
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:57

**Others' Pace**  
1:01

## TELEVISIONS IN TOWN X, AND POPULATION PER TELEVISION



What was the approximate population of Town X in 1945?

- 150
- 750
- 1500
- 3000
- 6000

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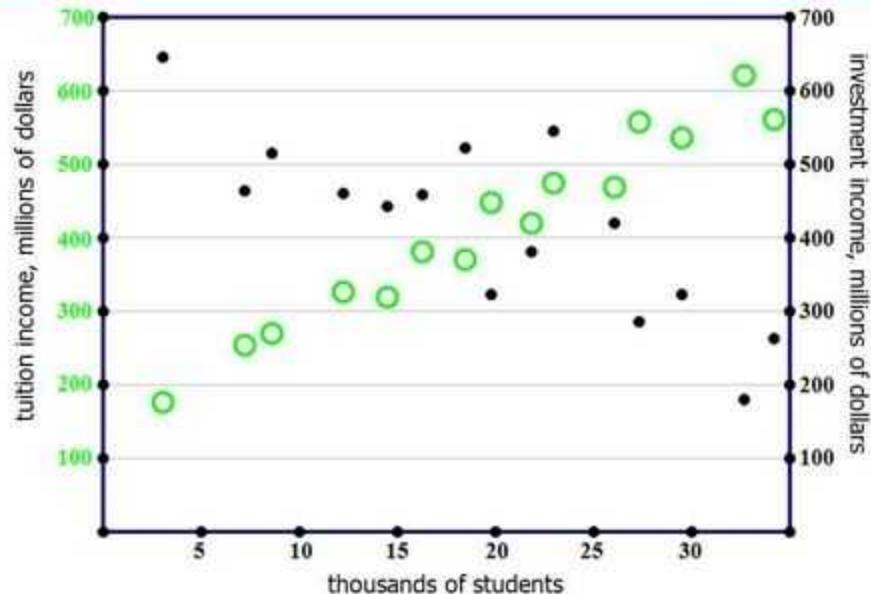
**Title**  
Population Per Television

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:41

**Others' Pace**  
1:07



The college shown with the highest tuition income in 2008 has how much investment income?

\$190 million

\$340 million

\$590 million

\$610 million

\$640 million

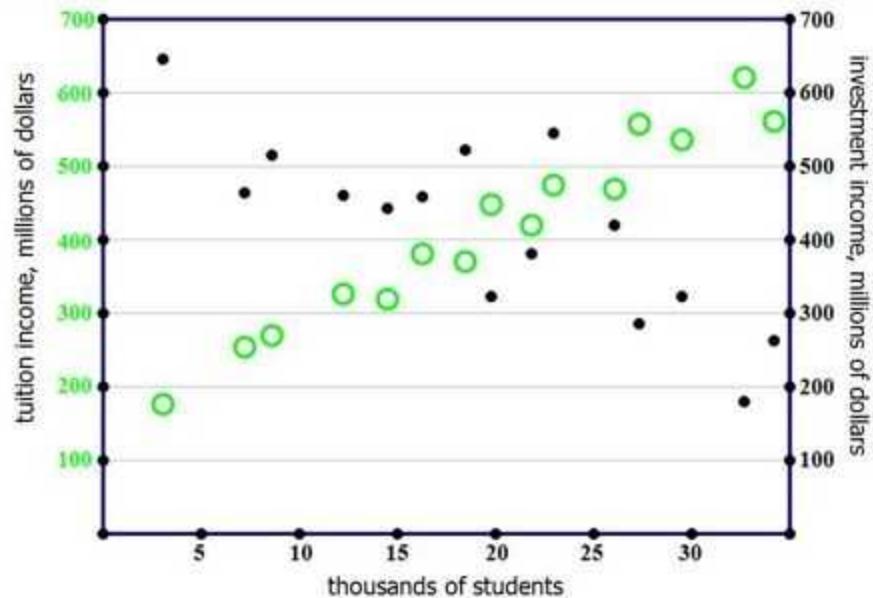
On the above diagram, each of fifteen private colleges is represented by a circle and a dot. The light green circle, read against the green scale on the left, gives the college's annual gross tuition income in 2008; the data point is the very center of the circle. The black dot, directly above or below the center of the green circle and read against the right scale, gives the college's annual income in 2008 from investments such as endowments.

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The college with the highest 2008 mean investment income per student enrolled generates how much annual tuition income in 2008.

\$190 million

\$360 million

\$450 million

\$560 million

\$620 million

On the above diagram, each of fifteen private colleges is represented by a circle and a dot. The light green circle, read against the green scale on the left, gives the college's annual gross tuition income in 2008; the data point is the very center of the circle. The black dot, directly above or below the center of the green circle and read against the right scale, gives the college's annual income in 2008 from investments such as endowments.

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Melpomene High School has 400 students, and Thalia High School has 700 students. The following table shows the percentage breakdown for various groups in each school.

	percentage in Melpomene H.S.	percentage in Thalia H.S.
in band only	11%	8%
on an athletic team only	12%	42%
in honor society only	16%	2%
in band & athletic team only	14%	10%
in honor society & band only	26%	15%
in honor society & athletic team only	10%	8%
in band & athletic team & honor society	4%	2%
in none of these three groups	7%	13%

The total number of people in honor society at Melpomene High School, regardless of other activities, is approximately what percent higher than the total number of people in honor society at Thalia High School, regardless of other activities?

2%

8%

19%

29%

56%

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**Title**  
Student Activities at Two High Schools

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
3:30

**Others' Pace**  
2:30

Melpomene High School has 400 students, and Thalia High School has 700 students. The following table shows the percentage breakdown for various groups in each school.

	percentage in Melpomene H.S.	percentage in Thalia H.S.
in band only	11%	8%
on an athletic team only	12%	42%
in honor society only	16%	2%
in band & athletic team only	14%	10%
in honor society & band only	26%	15%
in honor society & athletic team only	10%	8%
in band & athletic team & honor society	4%	2%
in none of these three groups	7%	13%

The total number of people at Melpomene High School who are involved in band and at least one other group is \_\_\_\_\_.

176

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**Title**  
Student Activities at Two  
High Schools

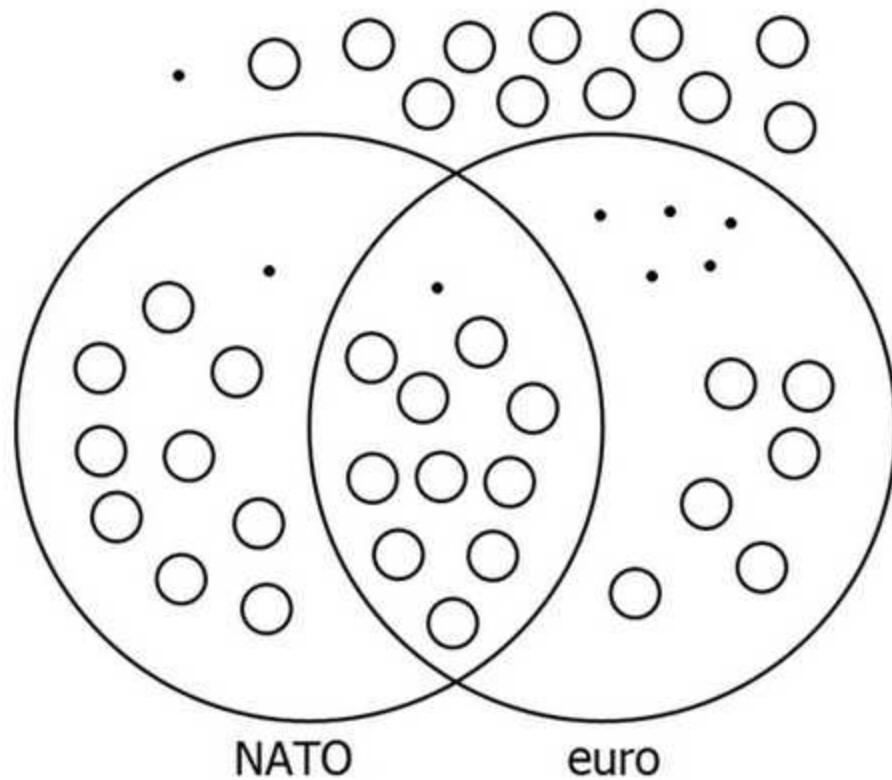
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:01

**Others' Pace**  
0:59

The diagram shows the 44 nations that occupy the continent of Europe. (The diagram excludes Russia, which occupies both Europe & Asia.) Every dot is a smaller nation, with a national population less than 500,000; the circles are nations each with more than half a million people. Those nations in the "NATO" circle, as of 2013, are members of the NATO military alliance. Those nations in the "euro" circle, as of 2013, use the euro as their primary currency.



How many nations in Europe have a population more than 500,000, are members of NATO, and do not use the euro as their primary currency?

9

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**Title**  
European Nations

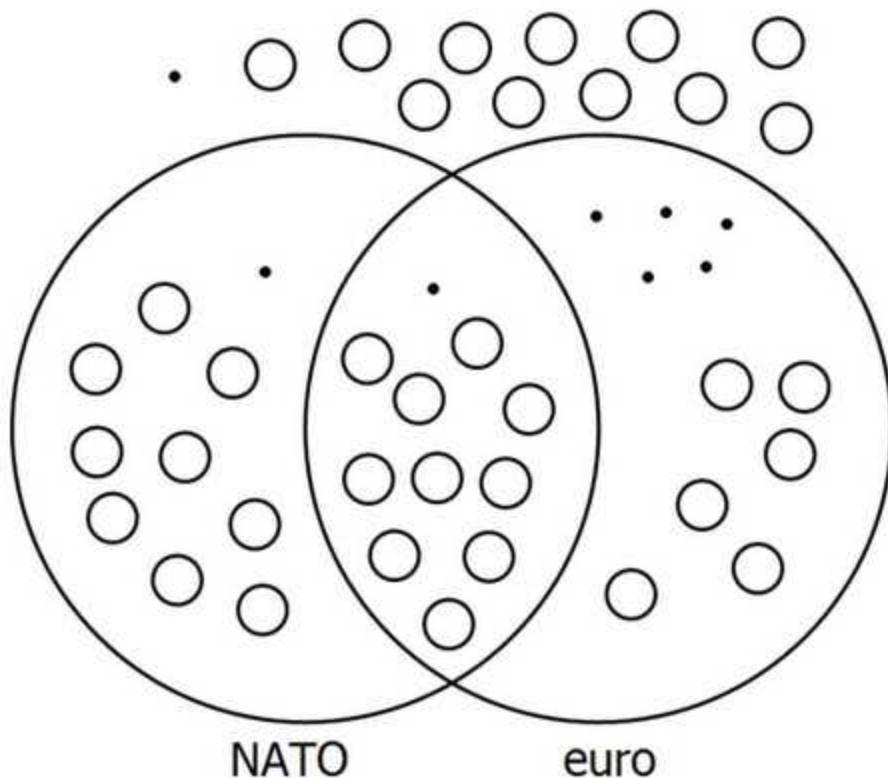
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:02

**Others' Pace**  
0:56

The diagram shows the 44 nations that occupy the continent of Europe. (The diagram excludes Russia, which occupies both Europe & Asia.) Every dot is a smaller nation, with a national population less than 500,000; the circles are nations each with more than half a million people. Those nations in the "NATO" circle, as of 2013, are members of the NATO military alliance. Those nations in the "euro" circle, as of 2013, use the euro as their primary currency.



What is the least number of nations currently not members of NATO that would have to join NATO so that more than 50% of the nations in Europe would be members of NATO?

1

2

3

4

5

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**Title**  
European Nations

**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:25

**Others' Pace**  
1:13

The following tables show the revenues & costs, in thousands of dollars, for a small company in the year 2007.

<b>Revenues</b>	
Sales	753
Investments	53
Subsidiaries	246
<b>TOTAL</b>	<b>1052</b>

<b>Costs</b>	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
<b>TOTAL</b>	<b>749</b>

Investments and Subsidiary revenues combined constitute what percent of total revenue?

5.0%

14.2%

22.6%

28.4%

39.9%

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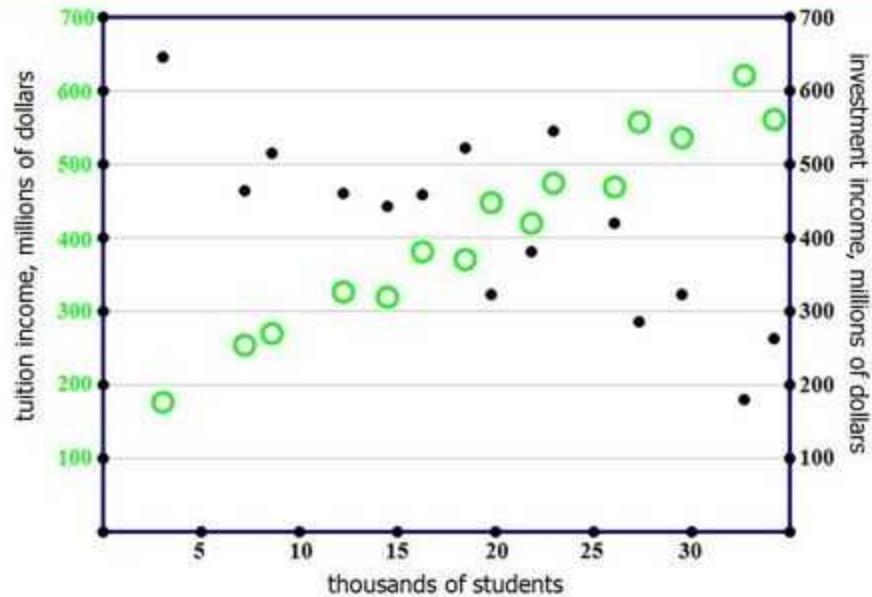
**Title**  
Budget of a Small Company

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:57

**Others' Pace**  
0:44



For how many colleges shown is the investment income in 2008 more than double the same college's tuition income in 2008?

none

one

two

three

four

On the above diagram, each of fifteen private colleges is represented by a circle and a dot. The light green circle, read against the green scale on the left, gives the college's annual gross tuition income in 2008; the data point is the very center of the circle. The black dot, directly above or below the center of the green circle and read against the right scale, gives the college's annual income in 2008 from investments such as endowments.

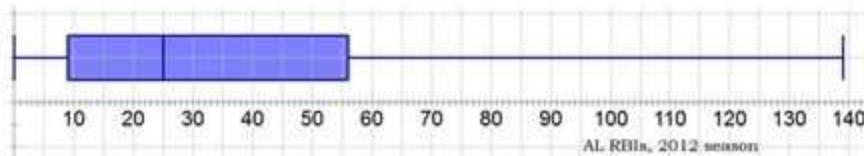
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The following boxplot shows the 2012 season runs batted in (RBIs) of 280 American League (AL) batters (the top 280 batters in terms of number of plate appearances).



Five-Number Summary for AL RBIs in 2012:

Minimum = 0



First Quartile = 9

Median = 25

Third Quartile = 56

Maximum = 139

If no batter hit exactly 25 RBIs, then how many AL hitters hit more than 25 RBIs in 2012?

9

56

83

114

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**Title**  
AL RBIs in 2012

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:57

**Others' Pace**  
1:06

Melpomene High School has 400 students, and Thalia High School has 700 students. The following table shows the percentage breakdown for various groups in each school.

	percentage in Melpomene H.S.	percentage in Thalia H.S.
in band only	11%	8%
on an athletic team only	12%	42%
in honor society only	16%	2%
in band & athletic team only	14%	10%
in honor society & band only	26%	15%
in honor society & athletic team only	10%	8%
in band & athletic team & honor society	4%	2%
in none of these three groups	7%	13%

How many non-band members at Melpomene, regardless of other activities, would have to join the band so that they had the same number of band members as does Thalia High School?

- 12  
 25  
 38  
 46  
 65

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**Title**  
Student Activities at Two High Schools

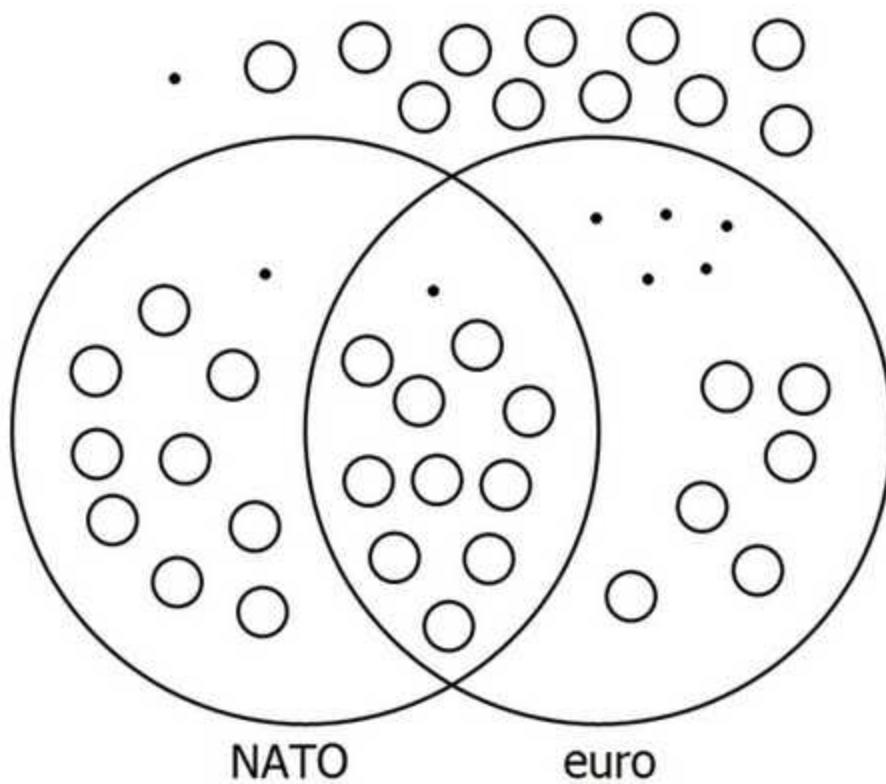
**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:31

**Others' Pace**  
3:07

The diagram shows the 44 nations that occupy the continent of Europe. (The diagram excludes Russia, which occupies both Europe & Asia.) Every dot is a smaller nation, with a national population less than 500,000; the circles are nations each with more than half a million people. Those nations in the "NATO" circle, as of 2013, are members of the NATO military alliance. Those nations in the "euro" circle, as of 2013, use the euro as their primary currency.



Approximately what percent of nations in Europe have a national population less than 500,000 people?

- 18%
- 22%
- 27%
- 36%
- 50%

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**Title**  
European Nations

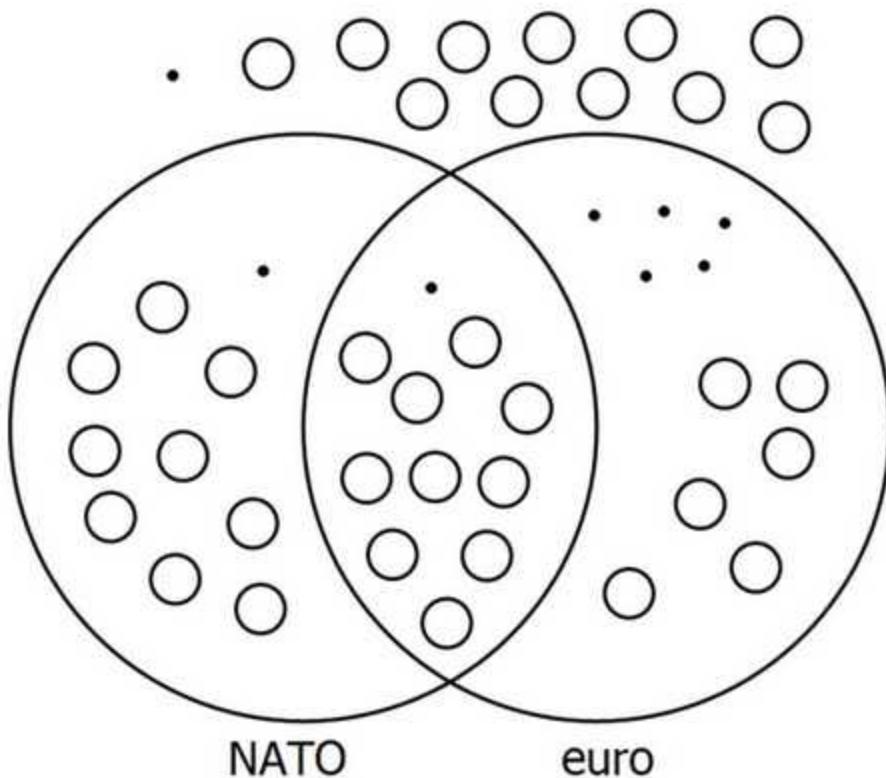
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:11

**Others' Pace**  
1:27

The diagram shows the 44 nations that occupy the continent of Europe. (The diagram excludes Russia, which occupies both Europe & Asia.) Every dot is a smaller nation, with a national population less than 500,000; the circles are nations each with more than half a million people. Those nations in the "NATO" circle, as of 2013, are members of the NATO military alliance. Those nations in the "euro" circle, as of 2013, use the euro as their primary currency.



Of the nations with national populations more than half a million people, approximately what percent of European nations are neither members of NATO nor primary users of the euro?

25%

27%

31%

47%

75%

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**Title**  
European Nations

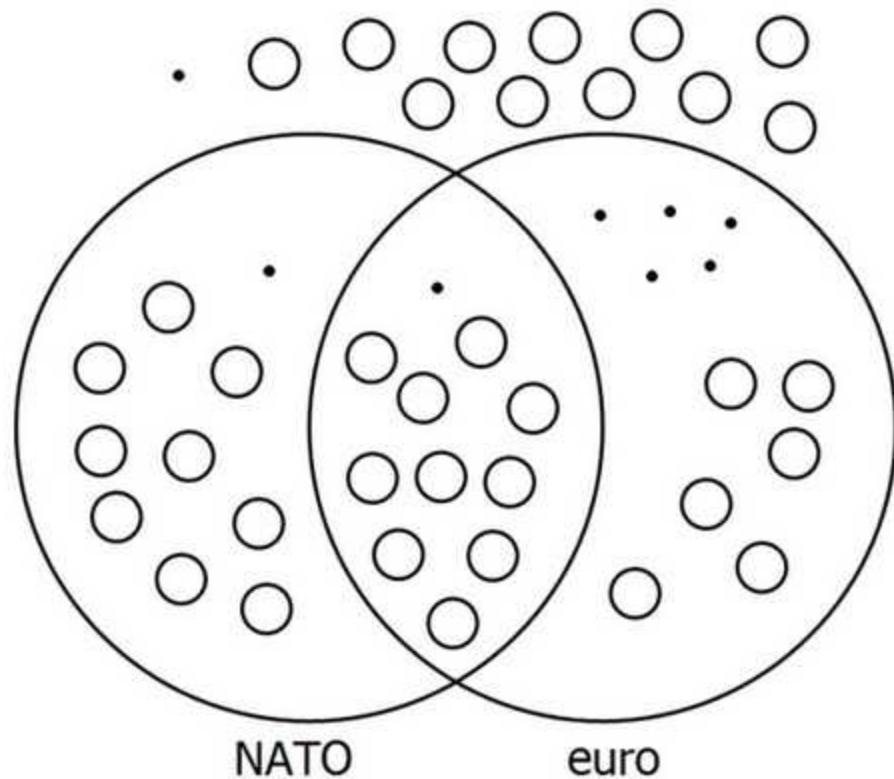
**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:01

**Others' Pace**  
1:10

The diagram shows the 44 nations that occupy the continent of Europe. (The diagram excludes Russia, which occupies both Europe & Asia.) Every dot is a smaller nation, with a national population less than 500,000; the circles are nations each with more than half a million people. Those nations in the "NATO" circle, as of 2013, are members of the NATO military alliance. Those nations in the "euro" circle, as of 2013, use the euro as their primary currency.



Of all the nations with populations greater than 500,000 who are not members of NATO, approximately what percent of them use the euro as their primary currency?

26%

35%

41%

48%

63%

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**Title**  
European Nations

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:27

**Others' Pace**  
1:23

The following tables show the revenues & costs, in thousands of dollars, for a small company in the year 2007.

<b>Revenues</b>	
Sales	753
Investments	53
Subsidiaries	246
<b>TOTAL</b>	<b>1052</b>

<b>Costs</b>	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
<b>TOTAL</b>	<b>749</b>

The CEO has promised that any increase in revenues from investments in 2008 will go toward increasing the R&D budget. Assume that revenues from investments increase by 40% from 2007 to 2008, and that these additional funds are the only change to the R & D budget. By what percent does the R & D budget increase?

2.8%

4.0%

11.5%

28.3%

56.6%

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**Title**  
Budget of a Small Company

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:18

**Others' Pace**  
2:16

The following tables show the revenues & costs, in thousands of dollars, for a small company in the year 2007.

<b>Revenues</b>	
Sales	753
Investments	53
Subsidiaries	246
<b>TOTAL</b>	<b>1052</b>

<b>Costs</b>	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
<b>TOTAL</b>	<b>749</b>

Suppose in the following year, 2008, the sales are the same value, and half of those sales are directly due to the 2007 investment in R & D. The revenue received from these sales would be what percent greater than the money invested in R & D?

85%

110%

200%

402%

503%

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**Title**  
Budget of a Small Company

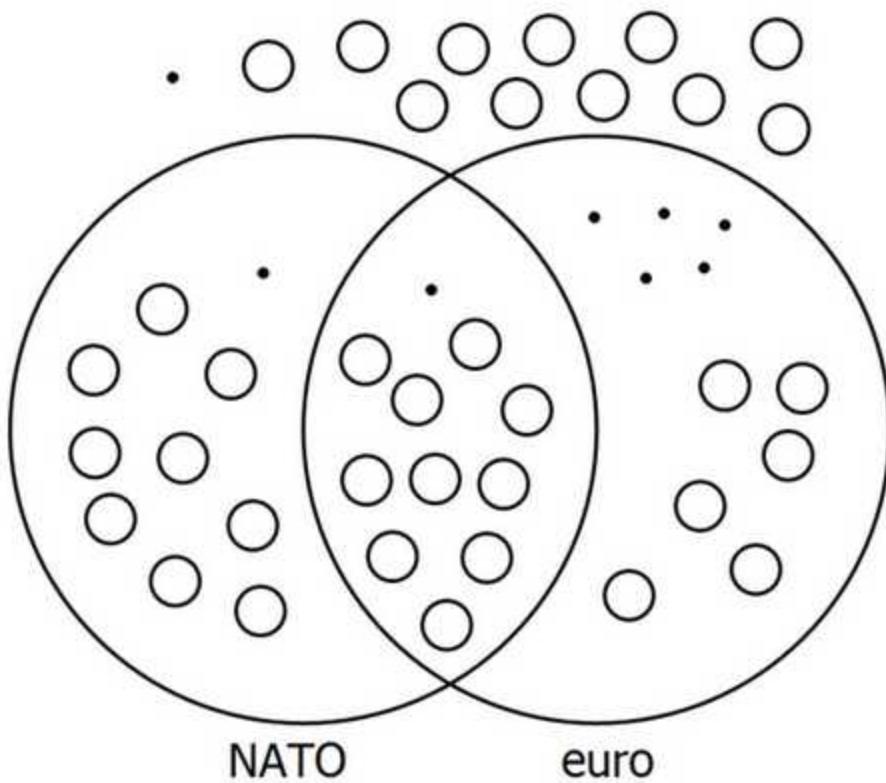
**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
0:51

**Others' Pace**  
2:06

The diagram shows the 44 nations that occupy the continent of Europe. (The diagram excludes Russia, which occupies both Europe & Asia.) Every dot is a smaller nation, with a national population less than 500,000; the circles are nations each with more than half a million people. Those nations in the "NATO" circle, as of 2013, are members of the NATO military alliance. Those nations in the "euro" circle, as of 2013, use the euro as their primary currency.



Consider the nation represented by the single dot inside the left circle but outside the right circle. This dot has to represent which of the following nations?

- Iceland (population = 103,000); NATO member; primary currency = krona
- Latvia (population = 2,067,900); NATO member; primary currency = lats
- Luxembourg (population = 448,569); NATO member; primary currency = euro
- Montenegro (population = 616,258); not a NATO member; primary currency = euro
- Vatican City (population = 900); not a NATO member; primary currency = euro

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Title	Your Result	Difficulty	Your Pace	Others' Pace
European Nations	Correct	Easy	1:01	1:00

The following tables show the revenues & costs, in thousands of dollars, for a small company in the year 2007.

<b>Revenues</b>	
Sales	753
Investments	53
Subsidiaries	246
<b>TOTAL</b>	<b>1052</b>

<b>Costs</b>	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
<b>TOTAL</b>	<b>749</b>

Profit = Revenue – Costs. If costs remain constant from 2007 to 2008, and if revenues increase by 10% in that same period, by what percent will profits increase from 2007 to 2008?

11.6%

25.8%

34.7%

71.2%

116.3%

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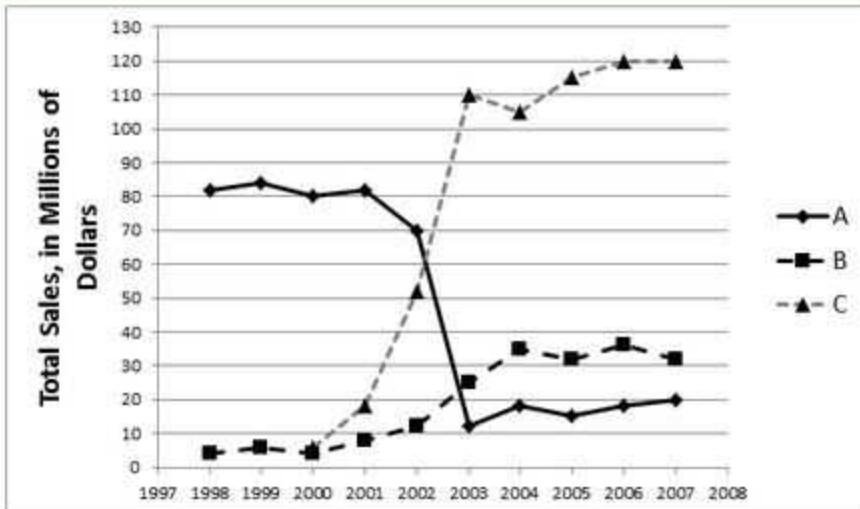
**Title**  
Budget of a Small Company

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:22

**Others' Pace**  
2:07



The graph above shows the total sales, in millions of dollars, for three companies, A & B & C, in a particular sector for the years 1998 through 2007 inclusive. Assume these companies are the only three companies active in this particular sector. Company A is represented by a solid black line; Company B is represented by the black line with large dashes; Company C is represented by the gray line with small dashes. Companies A & B existed since the 1980s, although only data from 1998 is shown. Company C's first year in existence was 2000.

Company C was responsible for approximately what percent of total sales in the sector in 2007?

- 24%
- 40%
- 55%
- 70% ✓
- 93%

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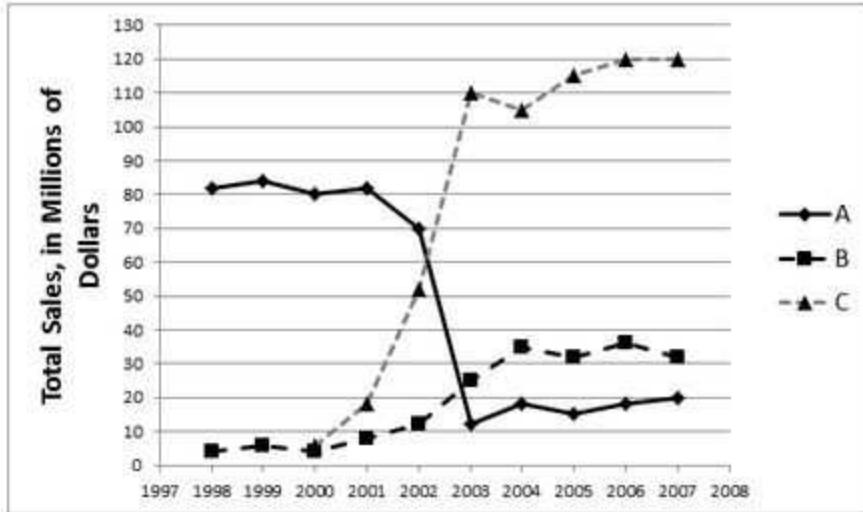
**Title**  
Three Companies in a Sector

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:41

**Others' Pace**  
0:55



From 2002 to 2003, Company C had what percentage increase in its total sales?

26%

53%

78%

90%

112%

The graph above shows the total sales, in millions of dollars, for three companies, A & B & C, in a particular sector for the years 1998 through 2007 inclusive. Assume these companies are the only three companies active in this particular sector. Company A is represented by a solid black line; Company B is represented by the black line with large dashes; Company C is represented by the gray line with small dashes. Companies A & B existed since the 1980s, although only data from 1998 is shown. Company C's first year in existence was 2000.

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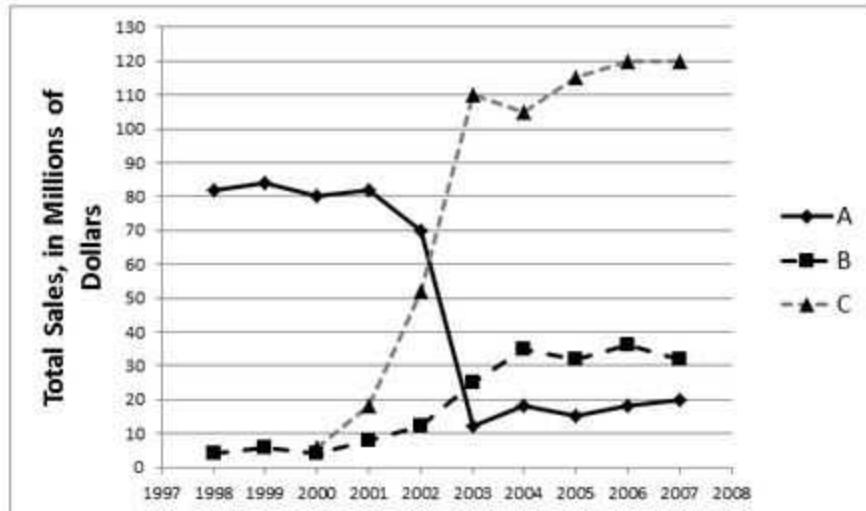
**Title**  
Three Companies in a Sector

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:02

**Others' Pace**  
1:34



The graph above shows the total sales, in millions of dollars, for three companies, A & B & C, in a particular sector for the years 1998 through 2007 inclusive. Assume these companies are the only three companies active in this particular sector. Company A is represented by a solid black line; Company B is represented by the black line with large dashes; Company C is represented by the gray line with small dashes. Companies A & B existed since the 1980s, although only data from 1998 is shown. Company C's first year in existence was 2000.

Total sales, by all companies in the sector, increased by approximately what percent from 1998 to 2007?

46%

72%

100%

153%

300%

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**Title**  
Three Companies in a Sector

**Your Result**  
Correct

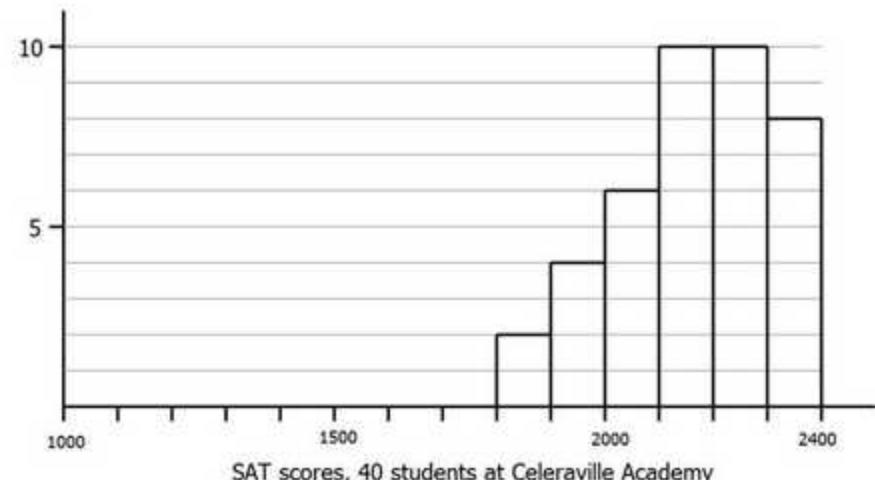
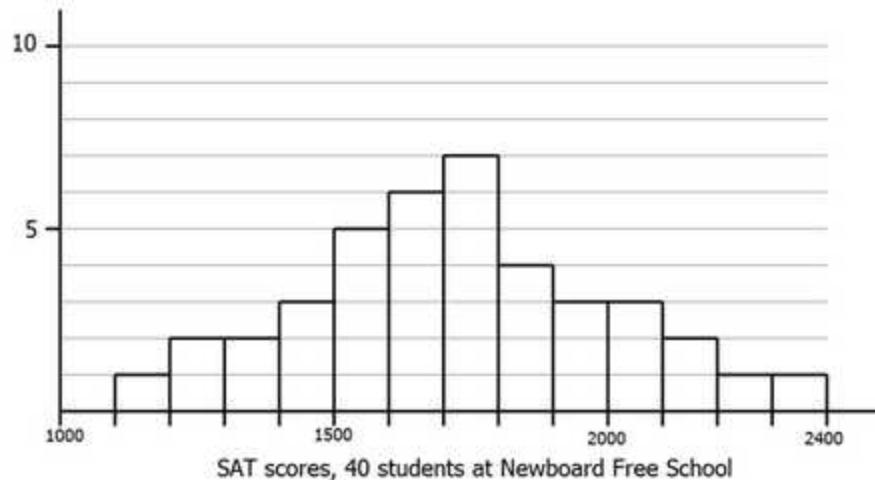
**Difficulty**  
Very Hard

**Your Pace**  
0:43

**Others' Pace**  
1:41

The following two histograms show the distribution of SAT scores of all forty students at each of two schools. The Newboard Free School is a mixed population school, with forty students of a variety of ability levels. The Celeraville Academy is an elite college prep school for forty gifted students.

A note on rounding: in the histograms below, a score divisible by 100 would be included in the column below that score; thus, for example, a score of exactly 1900 would be included as part of the column between 1800 and 1900.



The first quartile SAT score among the forty scores at the Newboard Free School is in which score range?

1300 - 1400

1400 - 1500

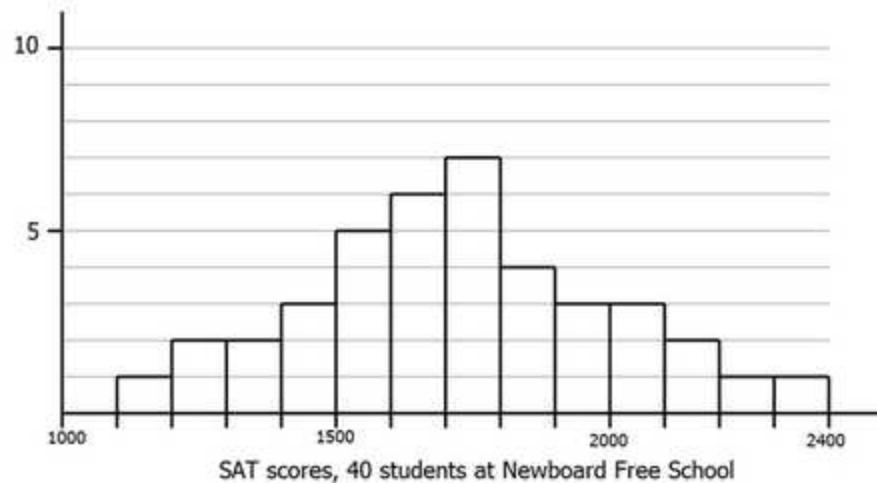
1500 - 1600

1600 - 1700

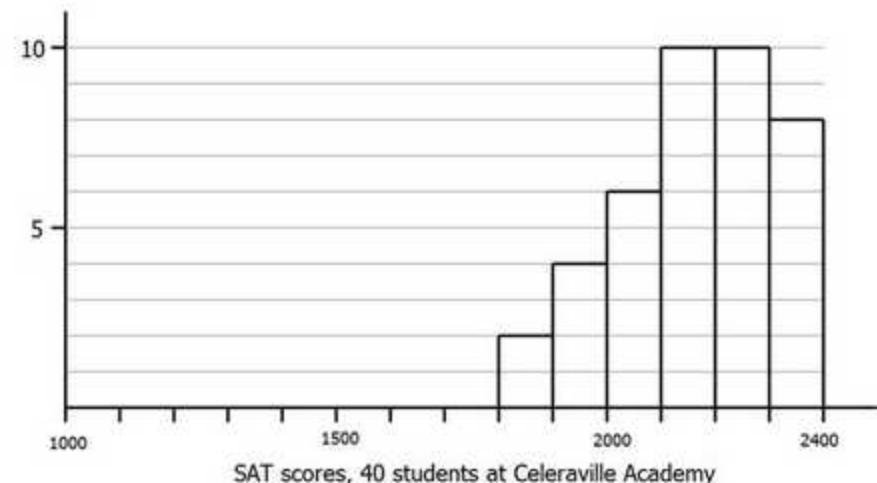
1700 - 1800

The following two histograms show the distribution of SAT scores of all forty students at each of two schools. The Newboard Free School is a mixed population school, with forty students of a variety of ability levels. The Celeraville Academy is an elite college prep school for forty gifted students.

A note on rounding: in the histograms below, a score divisible by 100 would be included in the column below that score; thus, for example, a score of exactly 1900 would be included as part of the column between 1800 and 1900.



SAT scores, 40 students at Newboard Free School



SAT scores, 40 students at Celeraville Academy

A score of 1800 would be zeroth percentile among the students at Celeraville Academy. What would its percentile rank be at among the students the Newboard Free School? (Assume that no one at Newboard Free School scored exactly 1800.)

21st percentile

35th percentile

56th percentile

61st percentile

65th percentile

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**Title**  
Distributions of SAT scores

**Your Result**  
Correct

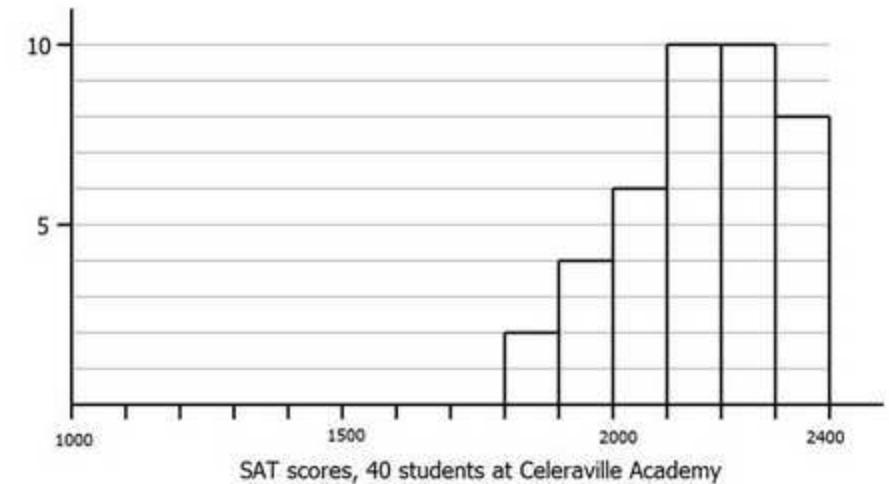
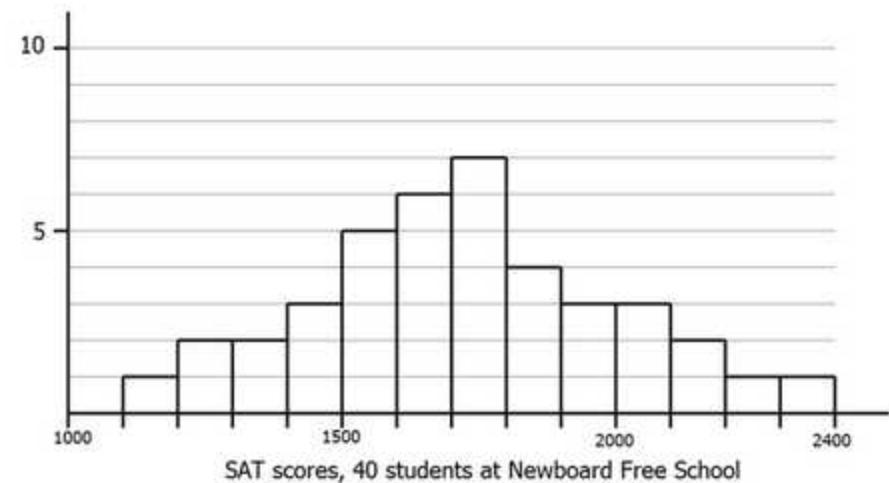
**Difficulty**  
Very Hard

**Your Pace**  
0:52

**Others' Pace**  
2:33

The following two histograms show the distribution of SAT scores of all forty students at each of two schools. The Newboard Free School is a mixed population school, with forty students of a variety of ability levels. The Celeraville Academy is an elite college prep school for forty gifted students.

A note on rounding: in the histograms below, a score divisible by 100 would be included in the column below that score: thus, for example, a score of exactly 1900 would be included as part of the column between 1800 and 1900.



In how many of the columns (2300-2400, 2200-2300, 2100-2200, etc.) is the number of students with a score in that category from the Celeraville Academy greater than the number of students with a score in that category from the Newboard Free School?

5

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**Title**  
Distributions of SAT scores

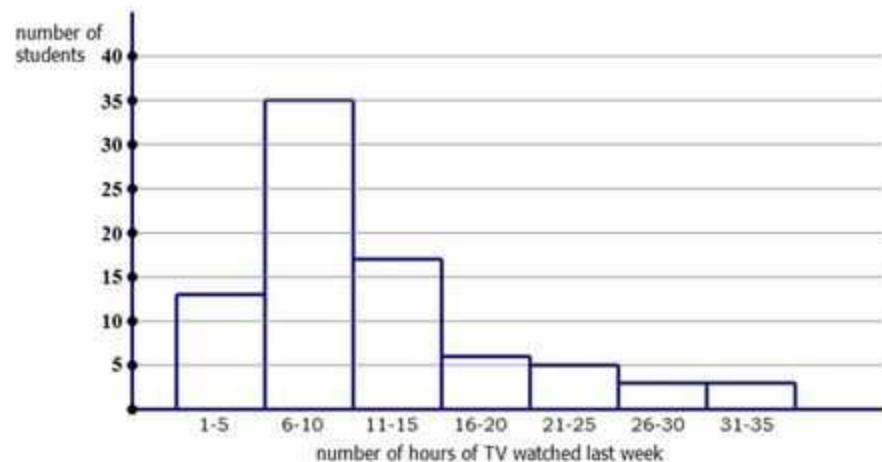
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:38

**Others' Pace**  
1:11

In a survey, 82 high school students were randomly selected and asked how many hours of television they had watched in the previous week. The histogram below displays their answers.



Which of the following could be the third quartile value for number of hours of TV watched last week?

11

17

21

23

26

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**Title**  
High Schoolers Watching TV

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:12

**Others' Pace**  
1:26

## ANIMAL DISTRIBUTION AT THE ZOO

Animal	Percent
Lions	32%
Leopards	16%
Ocelots	20%
Tigers	8%
Bobcats	24%

If 8 tigers were added to the zoo, the new ratio of lions to tigers would be 4 to 3. How many bobcats are at the zoo?

4

8

12

24

48

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**Title**  
Animals at the Zoo

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
1:04

**Others' Pace**  
2:45

## ANIMAL DISTRIBUTION AT THE ZOO

Animal	Percent
Lions	32%
Leopards	16%
Ocelots	20%
Tigers	8%
Bobcats	24%

If a pie graph were drawn to scale to represent the animal distribution at the zoo, what would be the measure (in degrees) of the central angle of the sector representing bobcats?

43.2

48

86.4

93.6

96

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**Title**  
Animals at the Zoo

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:19

**Others' Pace**  
1:04

## ANIMAL DISTRIBUTION AT THE ZOO

Animal	Percent
Lions	32%
Leopards	16%
Ocelots	20%
Tigers	8%
Bobcats	24%

If there are 44 leopards at the zoo, what is the zoo's total animal population?

225

275

325

350

375

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**Title**  
Animals at the Zoo

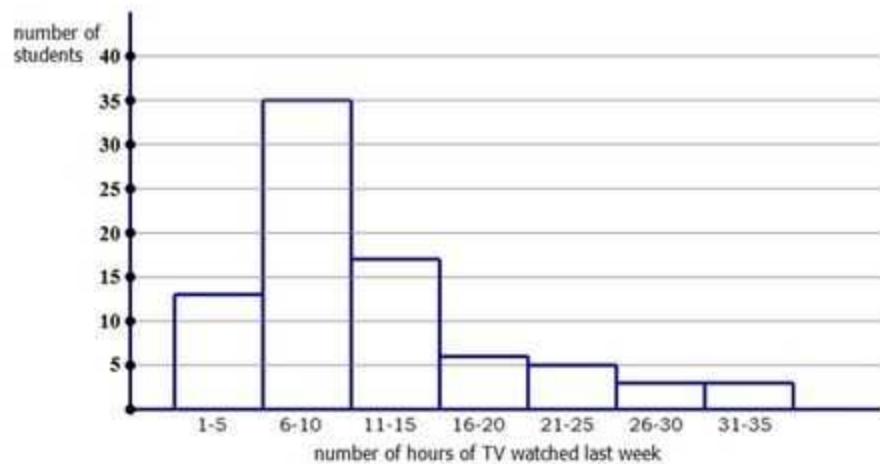
**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:09

**Others' Pace**  
1:02

In a survey, 82 high school students were randomly selected and asked how many hours of television they had watched in the previous week. The histogram below displays their answers.



Which of the following gives the range of the median number of hours of TV watched last week?

1-5

6-10

11-15

16-20

41-45

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**Title**  
High Schoolers Watching  
TV

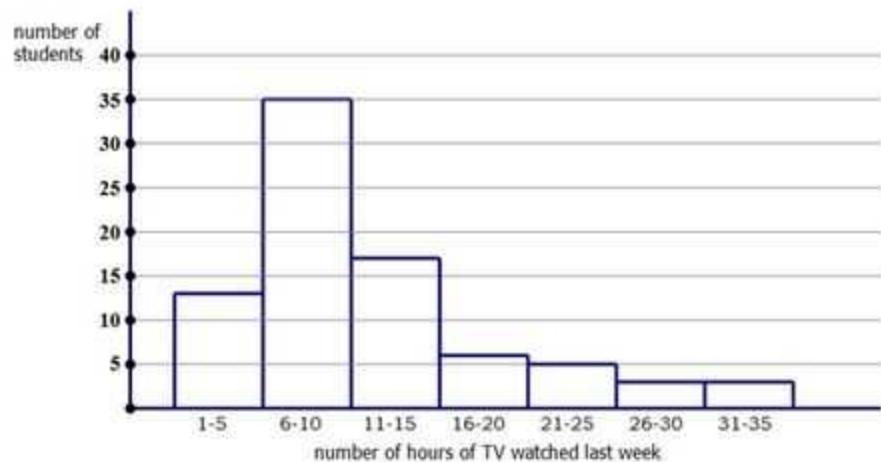
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:20

**Others' Pace**  
1:03

In a survey, 82 high school students were randomly selected and asked how many hours of television they had watched in the previous week. The histogram below displays their answers.



Suppose all students surveyed answered in integer number of hours only. Suppose, of 82 surveyed, only one respondent answered "16 hours." Within this group, the approximate percentile of this person would be:

- 32nd percentile
- 51st percentile
- 67th percentile
- 75th percentile
- 80th percentile

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**Title**  
High Schoolers Watching TV

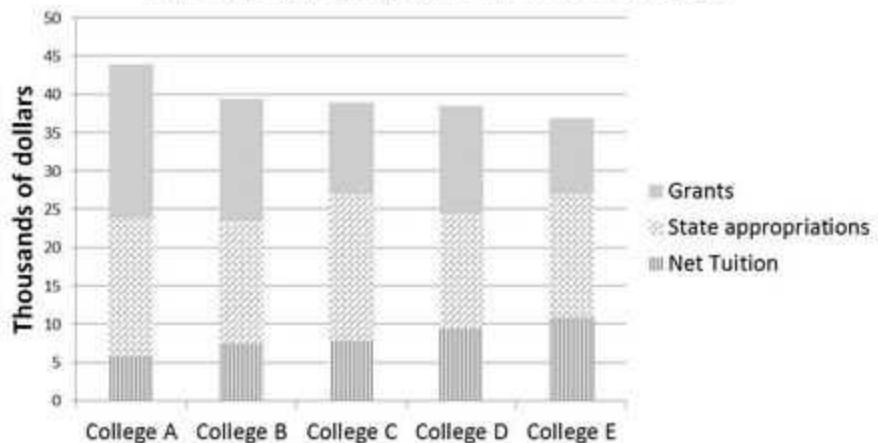
**Your Result**  
Correct

**Difficulty**  
Very Hard

**Your Pace**  
1:12

**Others' Pace**  
1:28

### Revenue per student at five state colleges



College C received approximately how much in state appropriations per student?

\$9,000

\$12,000

\$19,000

\$27,000

\$39,000

### 2006 Enrollments

College A	25,000
College B	12,000
College C	33,000
College D	36,000
College E	85,000

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**Title**  
Colleges

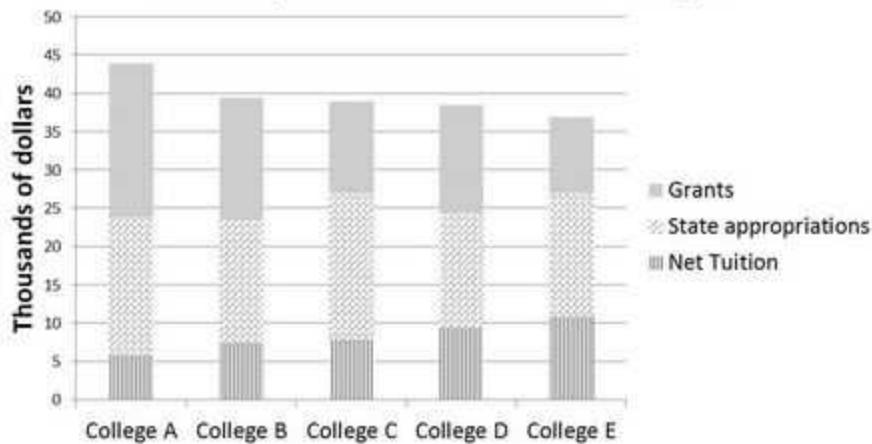
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:46

**Others' Pace**  
1:21

### Revenue per student at five state colleges



What is the total dollar amount that College B received in grants?

- \$16,000,000
- \$48,000,000
- \$96,000,000
- \$160,000,000
- \$192,000,000

### 2006 Enrollments

College A	25,000
College B	12,000
College C	33,000
College D	36,000
College E	85,000

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**Title**  
Colleges

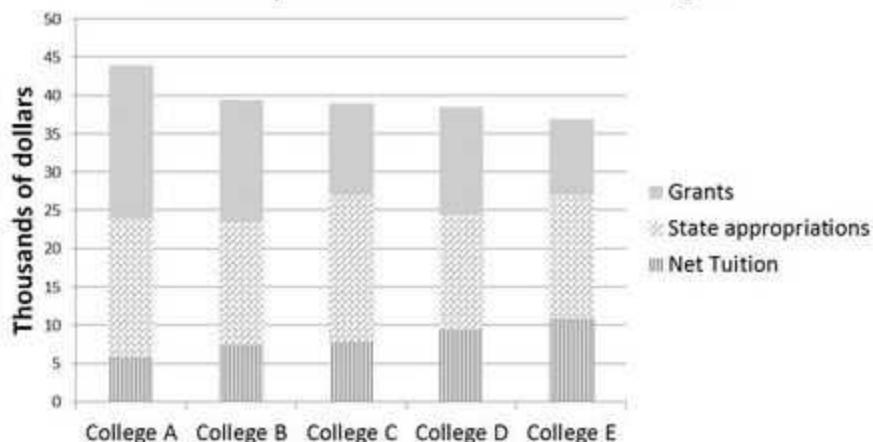
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:25

**Others' Pace**  
1:18

### Revenue per student at five state colleges



Suppose in the next year, 2007, College D's expenses and enrollment remain about the same, but in addition to their current revenues, they receive an additional \$50,000,000 grant. This would allow them to reduce average tuition by how much?

- \$1388.89  
 \$3571.43  
 \$5555.56  
 \$9500.00  
 \$25888.89

### 2006 Enrollments

College A	25,000
College B	12,000
College C	33,000
College D	36,000
College E	85,000

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**Title**  
Colleges

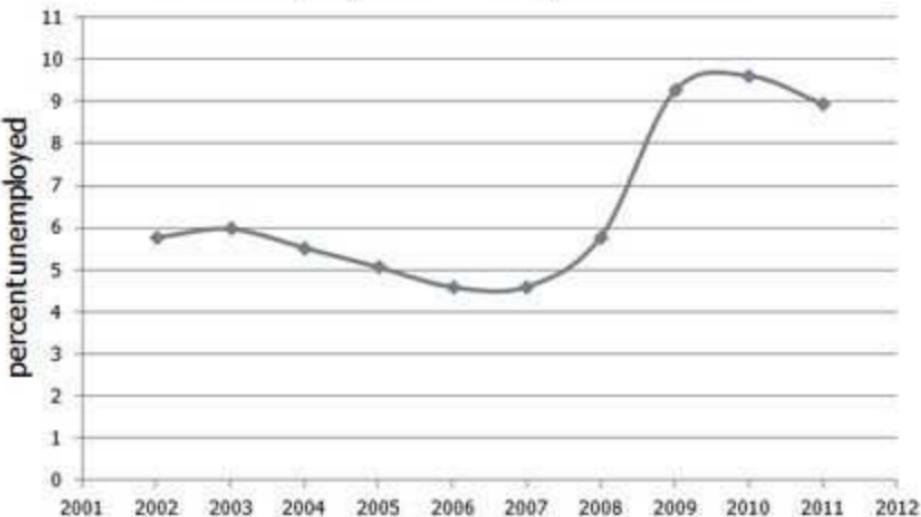
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:38

**Others' Pace**  
2:10

### US Unemployment Rate, Annual Data



The US unemployment rate in 2007 was approximately

3.5%

4.6%

5.2%

5.8%

7.2%

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**Title**  
US unemployment

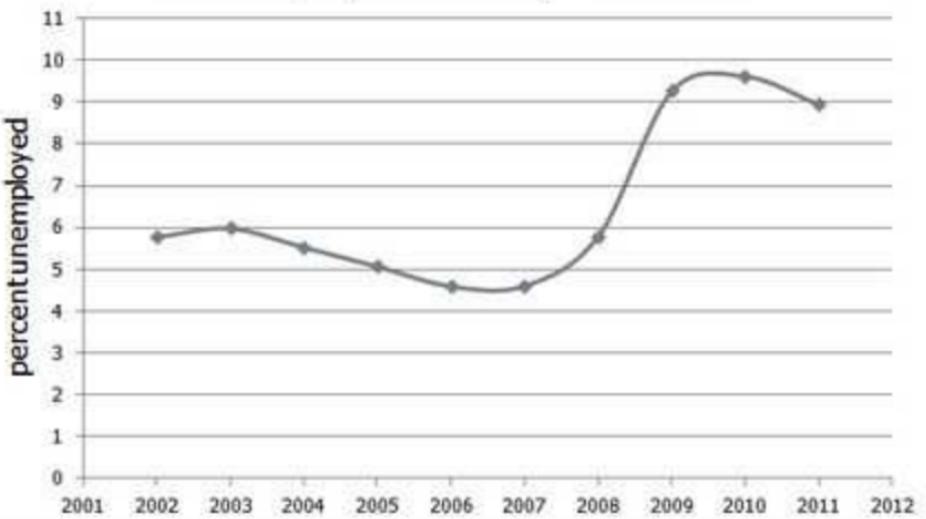
**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:22

**Others' Pace**  
0:25

### US Unemployment Rate, Annual Data



The percent increase in unemployment rate from 2008 to 2009 is approximately

3.5%

12.6%

23.7%

37.5%

59.9%

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**Title**  
US unemployment

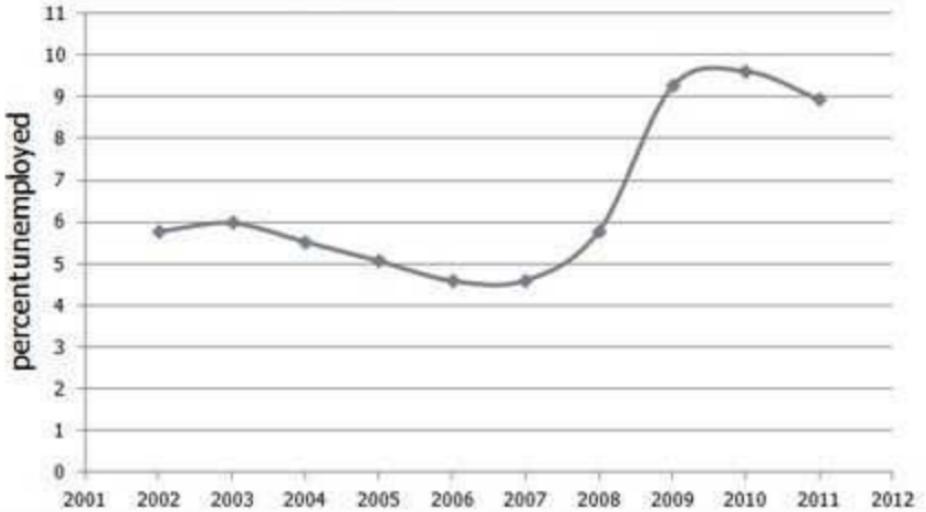
**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:15

**Others' Pace**  
1:03

### US Unemployment Rate, Annual Data



For years from 2004 onward, for how many years shown on the chart was the unemployment rate higher than it was in each of the previous two years?

3

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**Title**  
US unemployment

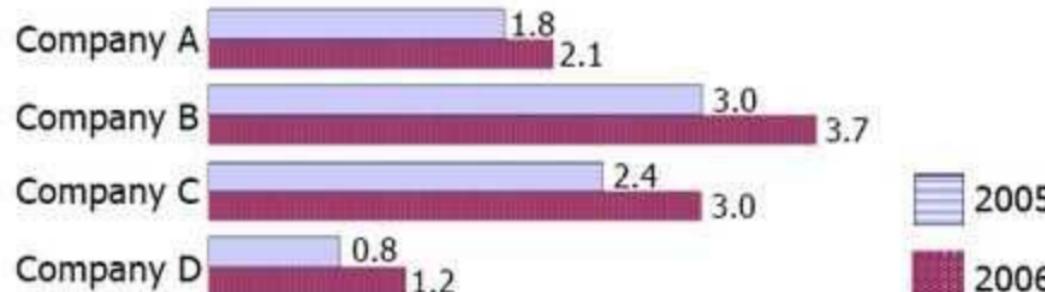
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:30

**Others' Pace**  
0:53

NUMBER OF WIDGETS SOLD BY SELECTED COMPANIES  
IN 2005 AND 2006 (in millions)



In 2005, Company C sold what percent of the widgets sold by the four companies listed?

- 24  
 25  
 30  
 37.5  
 42.9

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**Title**  
Widget Sales

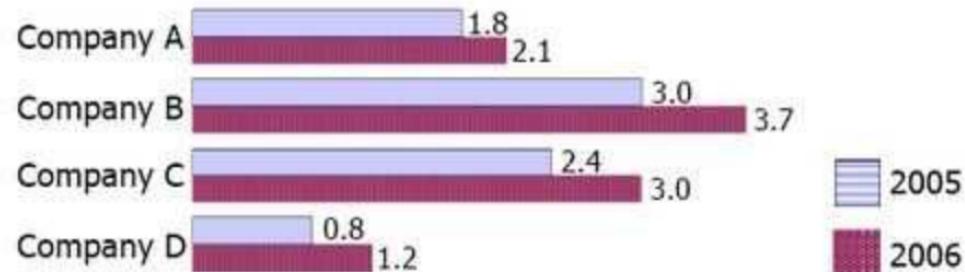
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:42

**Others' Pace**  
1:17

NUMBER OF WIDGETS SOLD BY SELECTED COMPANIES  
IN 2005 AND 2006 (in millions)



In 2006, the ratio of the number of widgets sold by Company C, Company E (not shown) and Company D was 5 to 8 to 2, respectively. How many widgets did Company E sell in 2006?

300,000

600,000

2,400,000

4,800,000

6,000,000

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**Title**  
Widget Sales

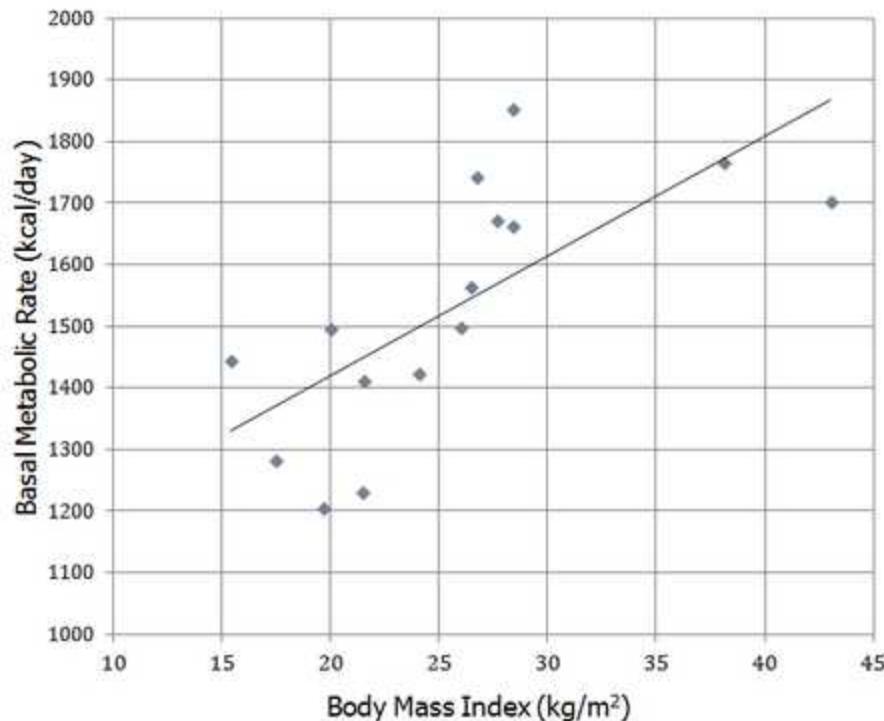
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
2:54

**Others' Pace**  
2:03

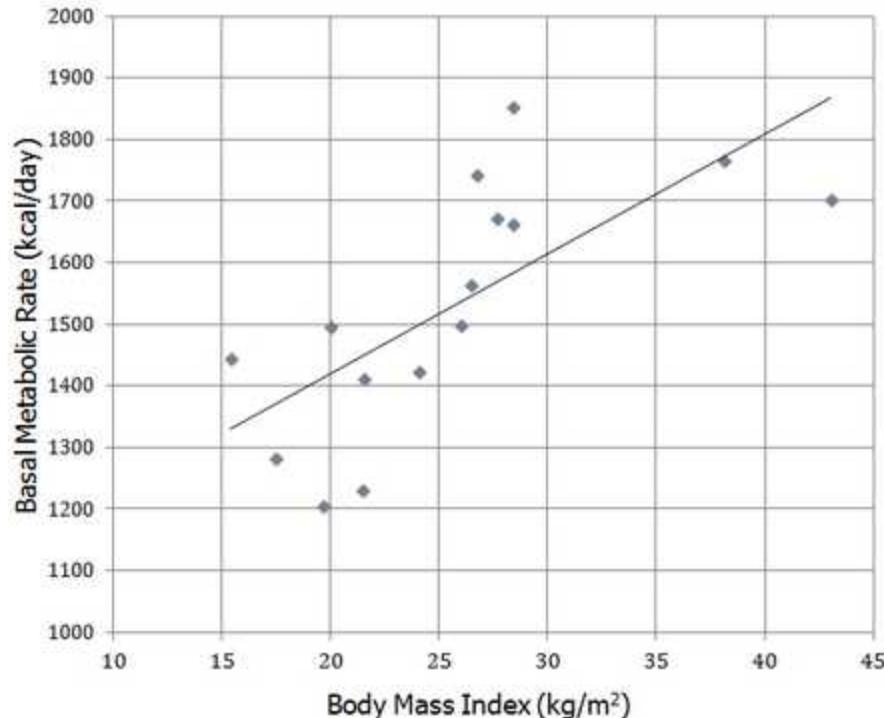
The graph below shows the Body Mass Index (BMI) and Basal Metabolic Rate (BMR) of fifteen males between the ages of 43 and 65.



- The individual on this chart with the highest BMI has a BMR of approximately
- 1204
  - 1444
  - 1563
  - 1702
  - 1853

Category	BMI range (kg/m <sup>2</sup> )
Severely underweight	less than 16.0
Underweight	from 16.0 to 18.5
Normal	Related Lessons from 18.5 to 25
Overweight	Note from 25 to 30
Obese	over 30

The graph below shows the Body Mass Index (BMI) and Basal Metabolic Rate (BMR) of fifteen males between the ages of 43 and 65.



Among the individuals with the three highest BMRs, what is their average BMI to the nearest integer?

20

26

31

37

44

Category	BMI range (kg/m <sup>2</sup> )
Severely underweight	less than 16.0
Underweight	from 16.0 to 18.5
Normal	from 18.5 to 25
Overweight	from 25 to 30
Obese	over 30

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**Title**  
BMI and BMR

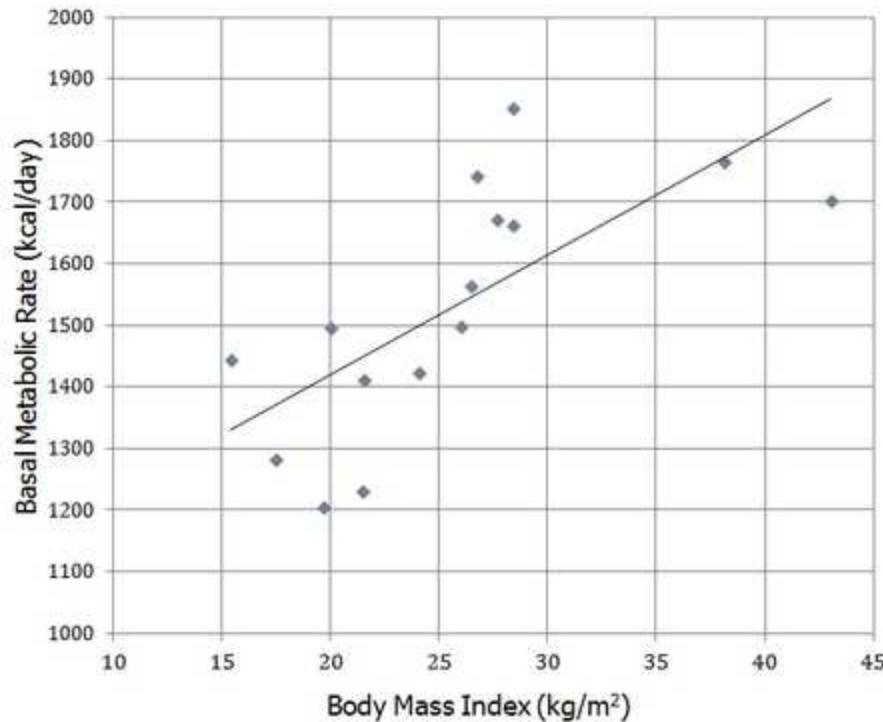
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:07

**Others' Pace**  
1:10

The graph below shows the Body Mass Index (BMI) and Basal Metabolic Rate (BMR) of fifteen males between the ages of 43 and 65.



Which BMI groups have representatives on this graph with BMR > 1600 kcal/day?

- Severely underweight
- Underweight
- Normal
- Overweight
- Obese

Category	BMI range (kg/m <sup>2</sup> )
Severely underweight	less than 16.0
Underweight	from 16.0 to 18.5
Normal	from 18.5 to 25
Overweight	from 25 to 30
Obese	over 30

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**Title**  
BMI and BMR

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:38

**Others' Pace**  
1:05

In the downtown of a certain city, there are 8,000 apartments for rent. Here is their breakdown by total area:

under 500 sq. ft.	5%
500 – 750 sq. ft.	18%
750 – 1000 sq. ft.	23%
1000 – 1250 sq. ft.	26%
1250 – 1500 sq. ft.	19%
1500 – 1750 sq. ft.	3%
1750 – 2000 sq. ft.	5%
over 2000 sq. ft.	1%

The median area falls into what group?

- 500 – 750 sq. ft.
- 750 – 1000 sq. ft.
- 1000 – 1250 sq. ft.
- 1250 – 1500 sq. ft.
- 1500 – 1750 sq. ft.

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**Title**  
Apartments

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:51

**Others' Pace**  
0:59

In the downtown of a certain city, there are 8,000 apartments for rent. Here is their breakdown by total area:

under 500 sq. ft.	5%
500 – 750 sq. ft.	18%
750 – 1000 sq. ft.	23%
1000 – 1250 sq. ft.	26%
1250 – 1500 sq. ft.	19%
1500 – 1750 sq. ft.	3%
1750 – 2000 sq. ft.	5%
over 2000 sq. ft.	1%

What is the total number of apartments with area between 500 and 1000 sq. ft.?

1440

1840

2080



3280

3920

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**Title**  
Apartments

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:50

**Others' Pace**  
0:48

In the downtown of a certain city, there are 8,000 apartments for rent. Here is their breakdown by total area:

under 500 sq. ft.	5%
500 – 750 sq. ft.	18%
750 – 1000 sq. ft.	23%
1000 – 1250 sq. ft.	26%
1250 – 1500 sq. ft.	19%
1500 – 1750 sq. ft.	3%
1750 – 2000 sq. ft.	5%
over 2000 sq. ft.	1%

A developer proposes converting a gigantic old warehouse complex into apartments. The proposed new building would add 250 economy apartments (area = 625 sq. ft.), 200 regular apartments (area = 925 sq. ft.), and 50 luxury apartments (area = 1800 sq. ft.). If these apartments are added, then apartments with an area of 750 – 1000 sq. ft. will constitute what percent of the total number of apartments downtown.

16%

24%

35%

50%

72%

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**Title**  
Apartments

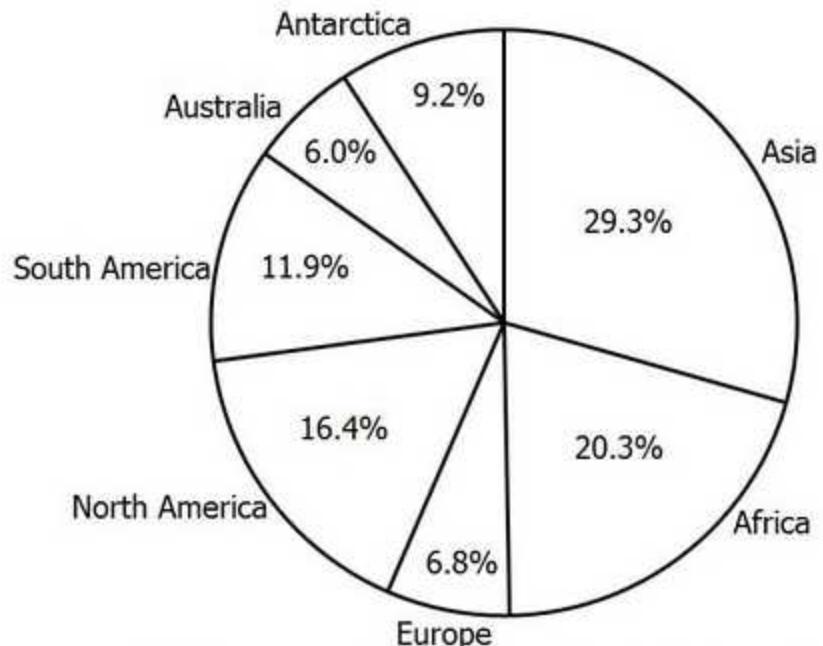
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
1:30

**Others' Pace**  
2:35

### Continents by Area

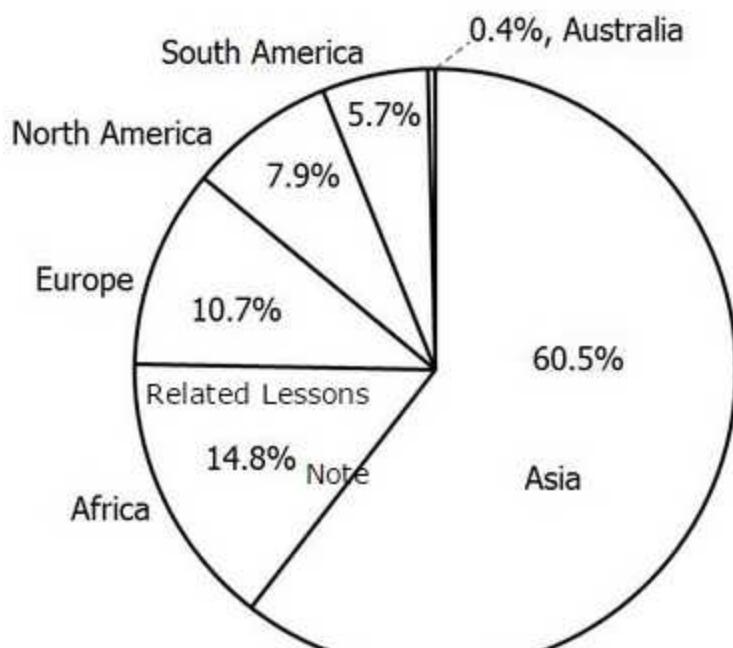


Total continental land area = 150,000,000 sq. km.

What is the approximate area of the continent of Africa in square kilometers?

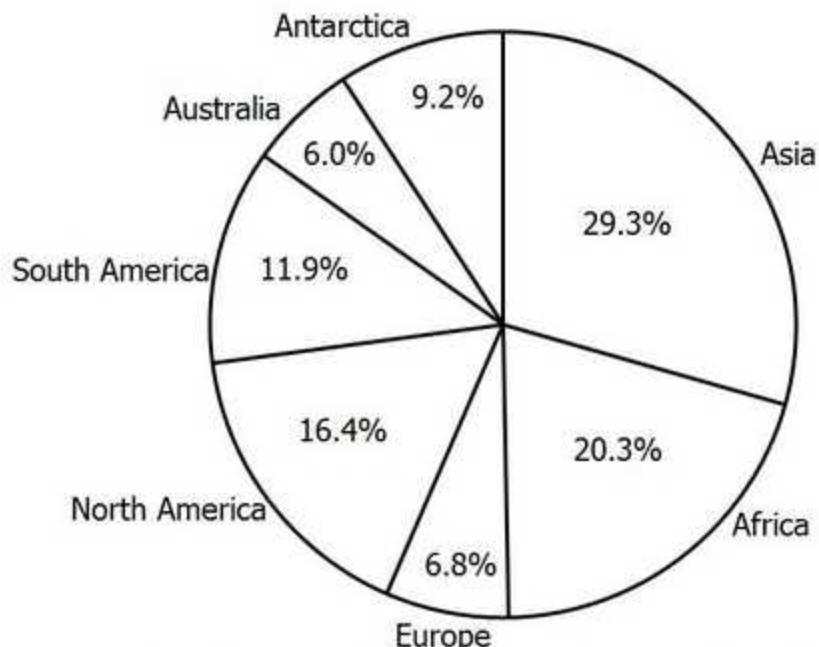
- 10,200,000
- 30,450,000
- 43,950,000
- 738,916,000
- 1,421,000,000

### Continents by Population



Total world population = 7,000,000,000

### Continents by Area



Total continental land area = 150,000,000 sq. km.

What is the approximate population of South America?

399,000,000

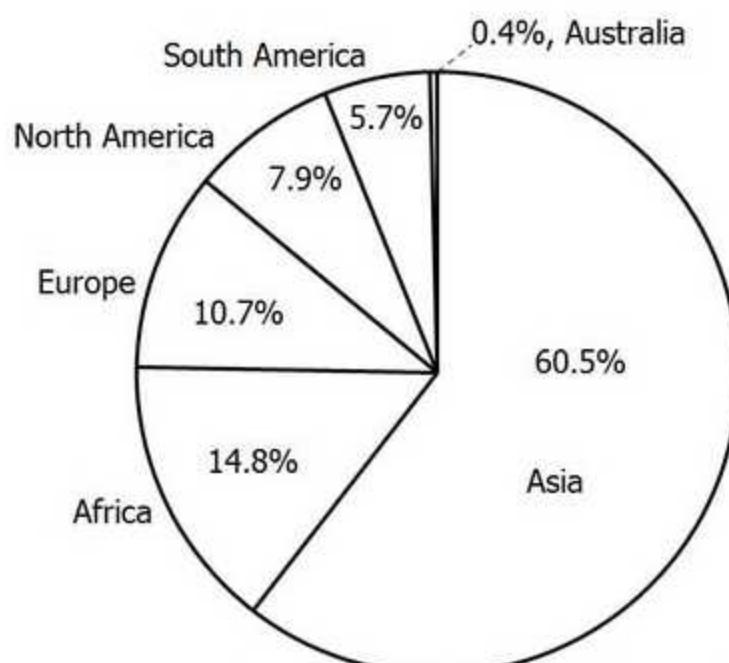
833,000,000

1,036,000,000

2,632,000,000

8,432,000,000

### Continents by Population



Total world population = 7,000,000,000

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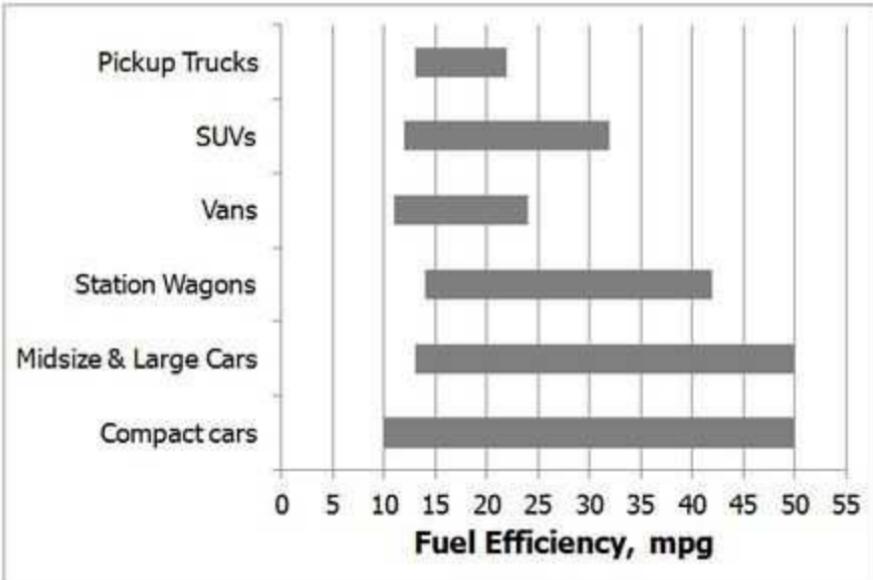
Title  
Continents

Your Result  
Correct

Difficulty  
Easy

Your Pace  
0:52

Others' Pace  
0:47



Note: mpg = miles per gallon

The range from the least fuel efficient Station Wagon to the most fuel efficient Station Wagon is what?

20 mpg

28 mpg

36 mpg

42 mpg

50 mpg

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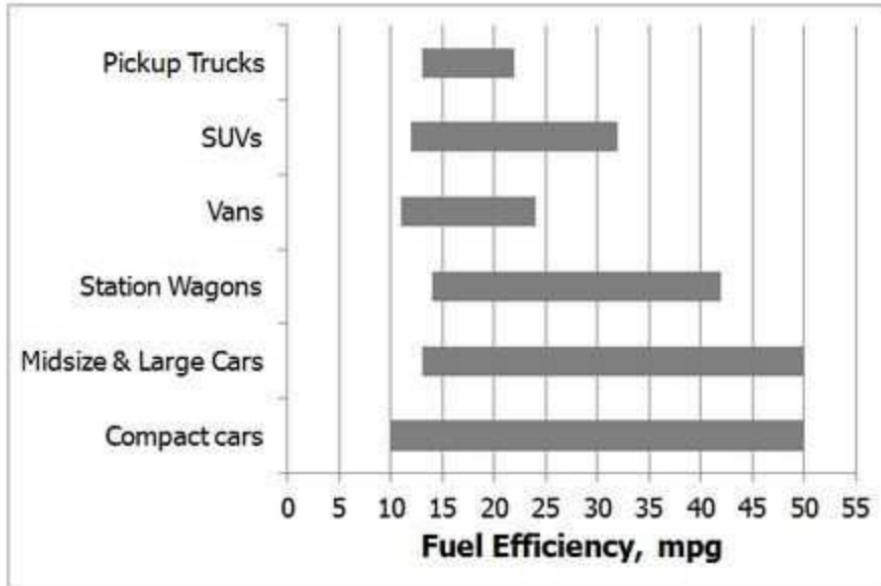
**Title**  
Fuel efficiency of cars

**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:49

**Others' Pace**  
0:56



In how many different categories is possible to select a vehicle with a fuel efficiency of 28 mpg?

4

Note: mpg = miles per gallon

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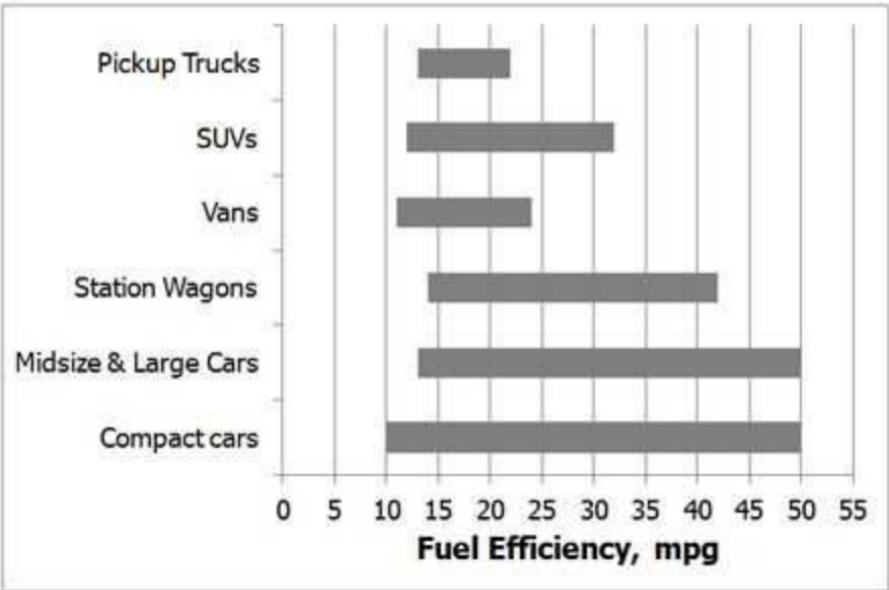
**Title**  
Fuel efficiency of cars

**Your Result**  
Correct

**Difficulty**  
Easy

**Your Pace**  
0:38

**Others' Pace**  
0:26



Note: mpg = miles per gallon

If gas costs \$4/gallon, and one is going to drive a compact car on a 200 mile trip, what is the difference in fuel costs required for this trip between the most fuel efficient and least fuel efficient compact car?

- \$64  
 \$80  
 \$160  
 \$200  
 \$800

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**Title**  
Fuel efficiency of cars

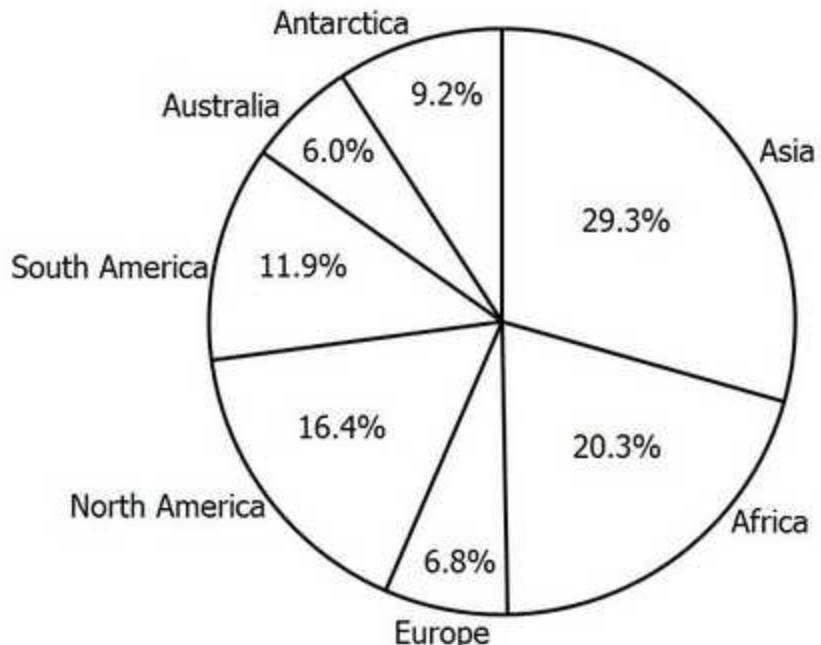
**Your Result**  
Correct

**Difficulty**  
Medium

**Your Pace**  
0:41

**Others' Pace**  
1:46

### Continents by Area

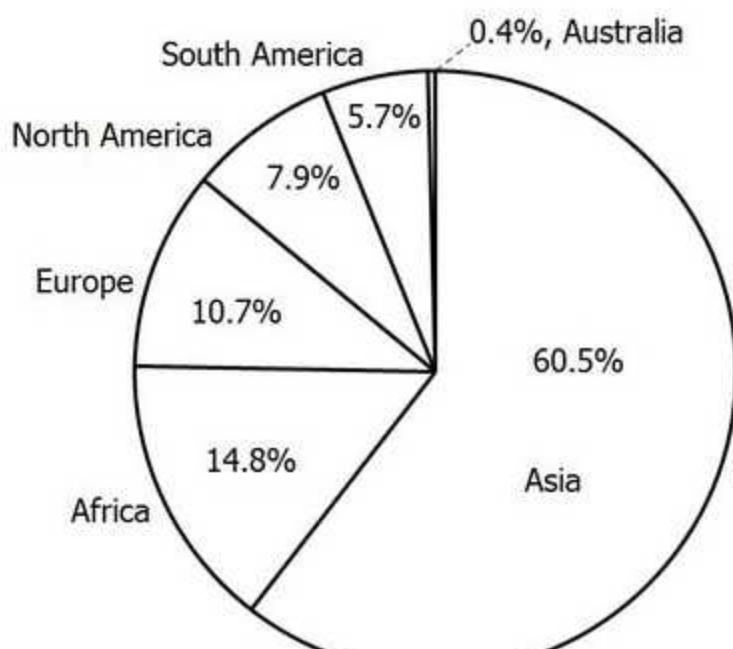


Total continental land area = 150,000,000 sq. km.

Population density is the population of a region divided by its geographic area. Of the seven continents, Asia has by far the largest population density. Which continent has the second largest?

- Africa
- North America
- South America
- Europe
- Australia

### Continents by Population



Total world population = 7,000,000,000

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**Title**  
Continents

**Your Result**  
Correct

**Difficulty**  
Hard

**Your Pace**  
0:07

**Others' Pace**  
1:53