

MAGOOSH 589 QUANT PRACTICE QUESTIONS

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

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

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

$$p \times q$$

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 \neq 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

Column B

$a + b$

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



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

Column B

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, $(p + q)/p$

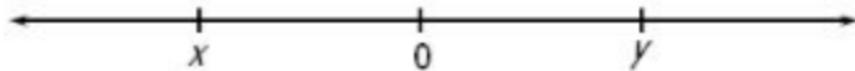
Your Result
Correct

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[Back to Results](#)

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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

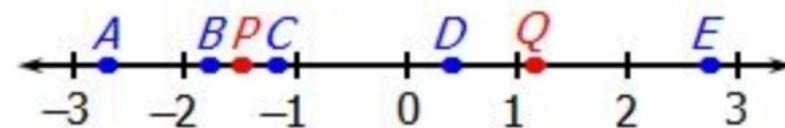
Your Result
Correct

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

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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

$$\frac{x}{y}$$

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.

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

- 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
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.

Column A	Column B
Price of item excluding sales tax	\$39



- 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
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 1/3

44 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?

0.005%

0.05%

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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Question 40 of 66

[Previous](#)[Next](#)**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[Back to Results](#)

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[Previous](#)[Next](#)**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

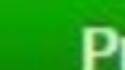
Others' Pace
1:38

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.

Column A	Column B
k	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
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 1.2×10^{10} ?

2^{11}

75

5^{10}

18

3^9

36

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Title
Divisors of 1.2×10^{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

Column B

The number of prime numbers divisible by 13

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

Column B

Number of primes between
50 and 60

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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Question 34 of 47

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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	Column B
x	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[Back to Results](#)

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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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Question 1 of 52

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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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Question 2 of 52

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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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Question 3 of 52

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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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Question 4 of 52

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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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Question 5 of 52

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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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Question 6 of 52

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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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Question 8 of 52

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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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Question 9 of 52

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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

$\frac{7}{2}$

$\frac{2}{7}$

$\frac{1}{5}$

$\frac{1}{56}$

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Question 10 of 52

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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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Question 13 of 52

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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

$$\begin{aligned}x^2 - y^2 &< 8 \\x + y &> 3\end{aligned}$$

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)³

A(R+R³)

A(3R+3R²+R³)

3A(R)³

3A(R+R²+R³)

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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
Taxi trip - miles traveled
vs

Your Result
Correct

Difficulty
Medium

Your Pace
1:34

Others' Pace
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 3×10^5 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. 1.08×10^8

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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.

Column A	Column B
Clyde's average speed for the entire trip.	75 miles per hour

- 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 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
Ratio of boys to girls vs 1 to 3

Your Result
Correct

Difficulty
Hard

Your Pace
0:54

Others' Pace
1:30

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

 x 4 x + 2 y 5 x + 2 y 6 x + 2 y 6 x + y [Back to Results](#)

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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

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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?

$\frac{xy}{w}$

$\frac{y}{wx}$

$\frac{w}{xy}$

$\frac{wx}{y}$

wxy

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Question 35 of 72

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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	Column B
Gerry's age 20 years ago	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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Question 36 of 72

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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

Column B

K

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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Question 43 of 72

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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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Question 48 of 72

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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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Question 56 of 72

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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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Question 64 of 72

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Title
Helicopter Trip

Your Result
Correct

Difficulty
Medium

Your Pace
1:14

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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Question 1 of 68

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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](#)

Question 2 of 68

[Previous](#)[Next](#)**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](#)

Question 3 of 68

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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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Question 4 of 68

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Title
Determine the exponent -
I

Your Result
Correct

Difficulty
Easy

Your Pace
0:35

Others' Pace
1:11

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

2.4×10^{50}

2.4×10^{51}

2.4×10^{60}

2.4×10^{61}

2.4×10^{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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Question 6 of 68

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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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Question 7 of 68

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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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Question 8 of 68

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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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Question 9 of 68

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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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Question 10 of 68

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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
 (1.37×10^{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](#)

Question 14 of 68

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

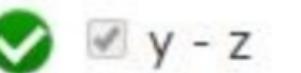
$10^x + 10^y + 10^z = n$, where x, y, and z are positive integers

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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Question 21 of 68

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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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Question 22 of 68

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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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Question 25 of 68

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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 , Δx is defined as the cube root of x ,
and ∇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

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

18 $\sqrt{2}$ 36 $\sqrt{2}$ 

72

162 $\sqrt{2}$ 

648

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Question 29 of 68

[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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Question 30 of 68

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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 6×10^{10} kilometers per year, how many years will it take the spaceship to travel 3×10^{30} kilometers?

5×10^2

10^{11}

5×10^{19}

5×10^{20}

5×10^{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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Question 35 of 68

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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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Question 38 of 68

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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 Φ 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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Question 39 of 68

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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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Question 40 of 68

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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

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



0.005

0.02

0.05

0.2

0.5

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Question 42 of 68

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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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Question 43 of 68

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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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Question 48 of 68

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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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Question 49 of 68

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Title
Function Equation

Your Result
Correct

Difficulty
Medium

Your Pace
1:13

Others' Pace
0:42

$$(3^{-1} - 2^{-1})^{-1} =$$

 -6 -5 $-\frac{1}{6}$ $\frac{1}{6}$ 6[Back to Results](#)

Question 50 of 68

[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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Question 51 of 68

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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 ?

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

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

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

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

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

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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](#)

Question 55 of 68

[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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Question 56 of 68

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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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Question 57 of 68

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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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Question 58 of 68

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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](#)

Question 59 of 68

[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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Question 60 of 68

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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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Question 62 of 68

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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[Back to Results](#)

Question 63 of 68

[Previous](#)[Next](#)**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

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

9×10^{-100}

1×10^{-4}

9×10^{-4}

1×10^{15}



9×10^{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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Question 66 of 68

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

Your Result
Correct

Difficulty
Easy

Your Pace
0:16

Others' Pace
0:27

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

2×10^4

8×10^4

4×10^{20}

2×10^{30}



8×10^{30}

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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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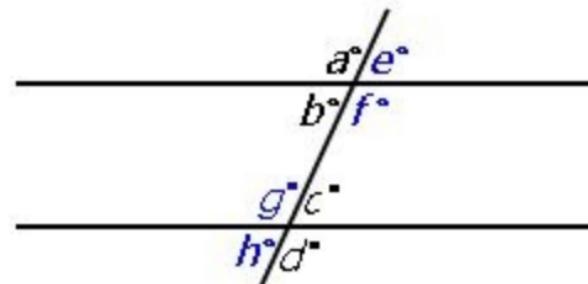
Title
Root a plus root b

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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Question 1 of 70

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Title
4-angle sum vs 4-angle sum

Your Result
Correct

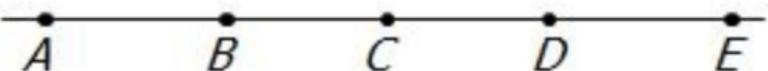
Difficulty
Easy

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

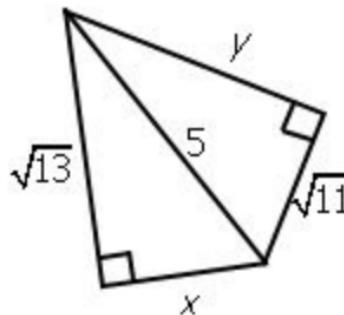
Easy

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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Question 3 of 70

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Title
Two right triangles

Your Result
Correct

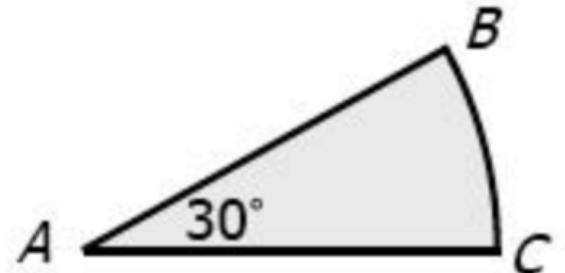
Difficulty
Easy

Your Pace
1:07

Others' Pace
1:15

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

24



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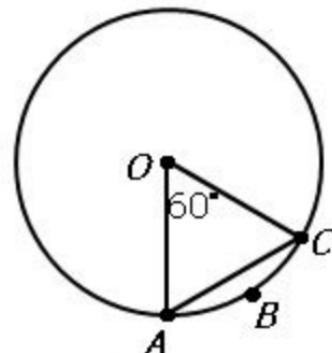
Title
Sector, Length of AC

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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Question 5 of 70

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Title
Circle arc length

Your Result
Correct

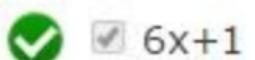
Difficulty
Medium

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.

 x+2 5x+6[Back to Results](#)

Question 6 of 70

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Title
Triangle with Variables

Your Result
Correct

Difficulty
Hard

Your Pace
1:08

Others' Pace
1:09

Column A

Column B

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

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

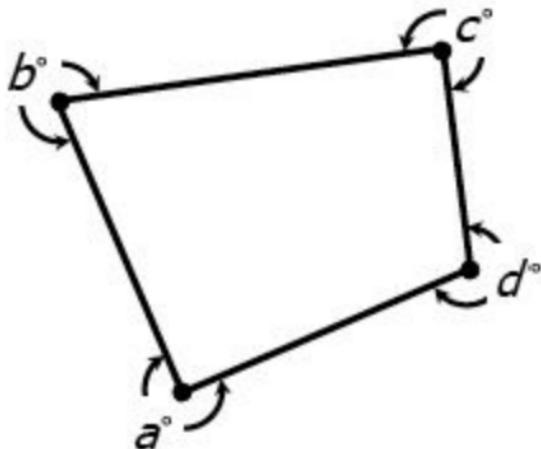
Difficulty
Medium

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

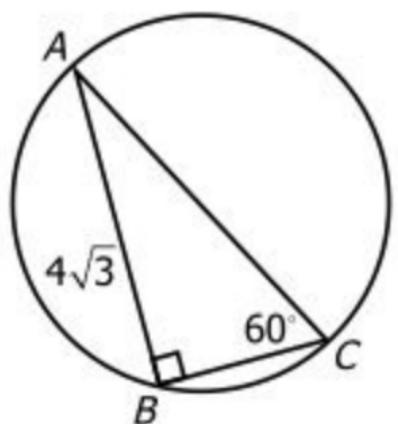
Your Result
Correct

Difficulty
Medium

Your Pace
1:18

Others' Pace
1:02

What is the area of the circle?



9π

12π

16π

24π

36π

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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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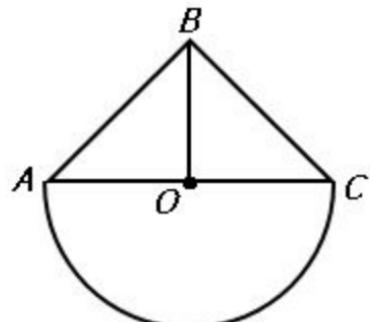
Title
Two sides of triangle

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

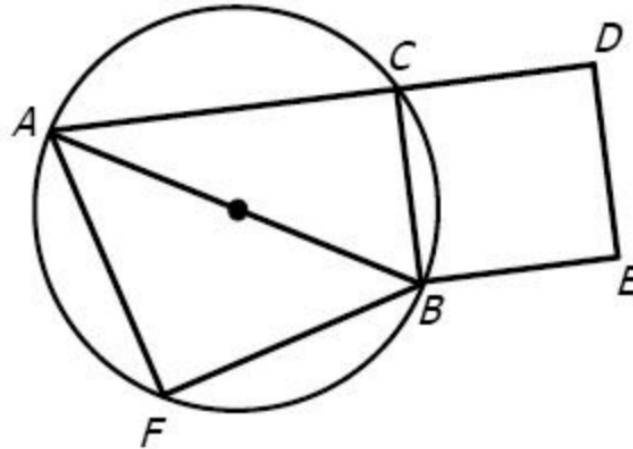
Difficulty
Medium

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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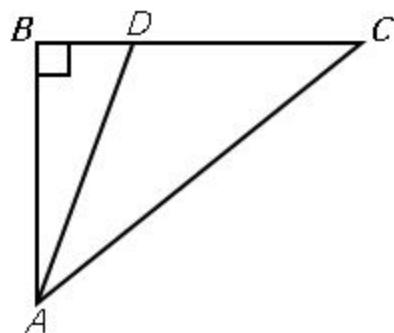
Title
Three cube-shaped
aquariums

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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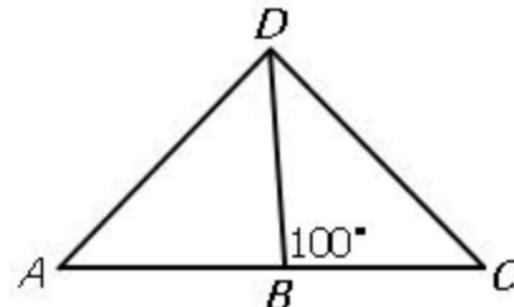
Title
Cylinders with x and y

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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Question 17 of 70

[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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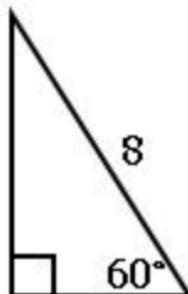
Title
Rectangle R

Your Result
Correct

Difficulty
Hard

Your Pace
1:30

Others' Pace
3:15



Column A

Area of triangle

Column B

16

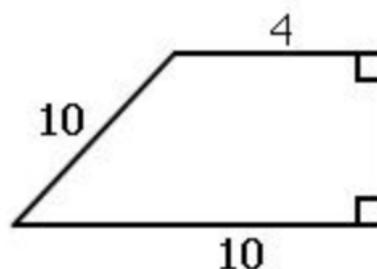
- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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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

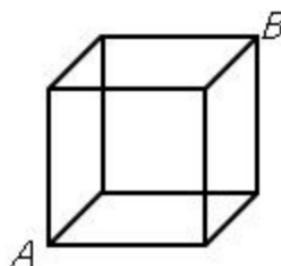
- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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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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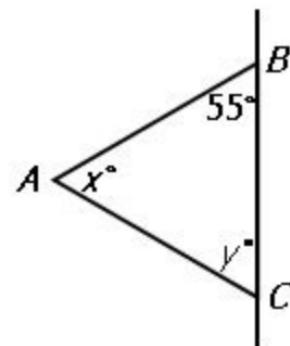
Title
Cube diagonal

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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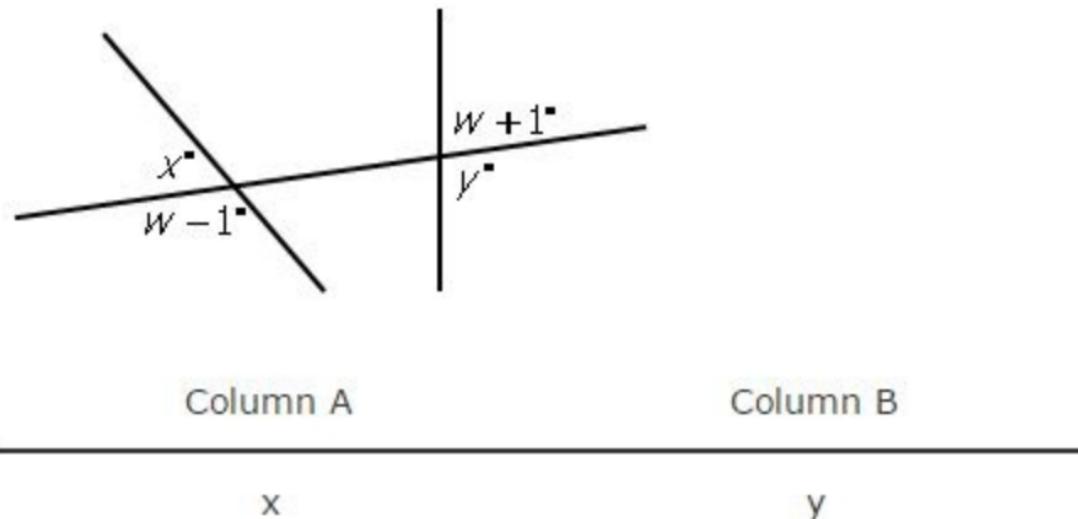
Title
Triangle against a line

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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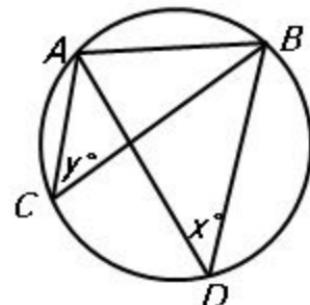
Title
3 intersecting lines

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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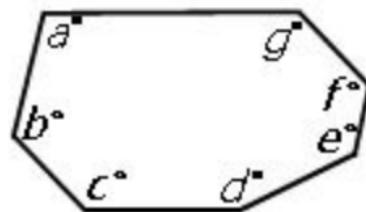
Title
Inscribed angles

Your Result
Correct

Difficulty
Hard

Your Pace
3:08

Others' Pace
1:08



Column A

Column B

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

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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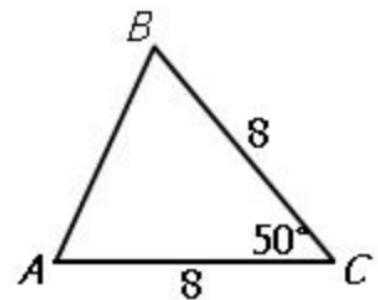
Title
Angle sum of heptagon

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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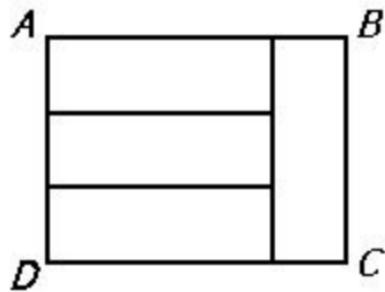
Title
Circle with radius root 7

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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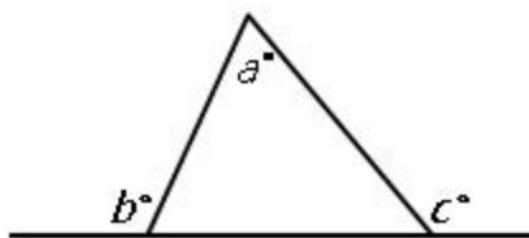
Title
4 rectangles

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

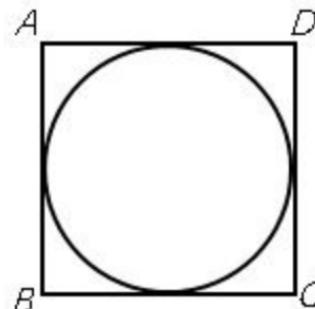
Your Result
Correct

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



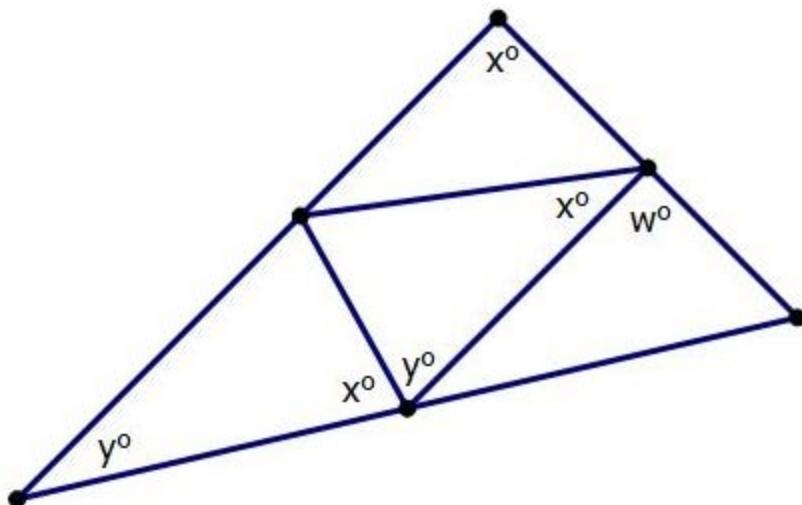
$2x + 2y - 180$

$180 - x - y$

$360 - 2x - 2y$

$360 - 2x - 3y$

$180 + x - 2y$



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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

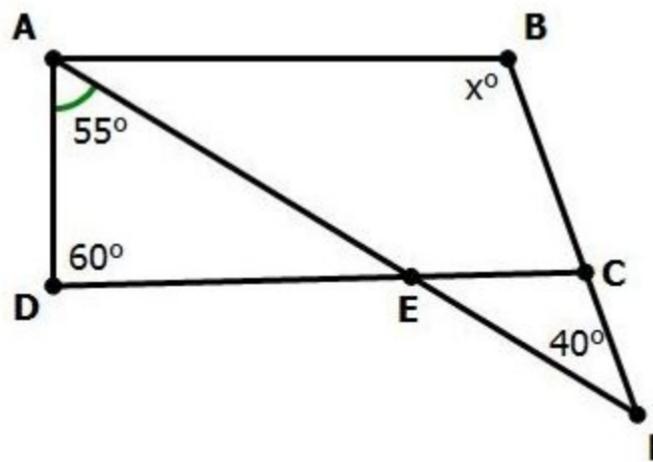
Difficulty
Hard

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 ?

Note: Figure not drawn to scale



75

85

95

105

115

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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

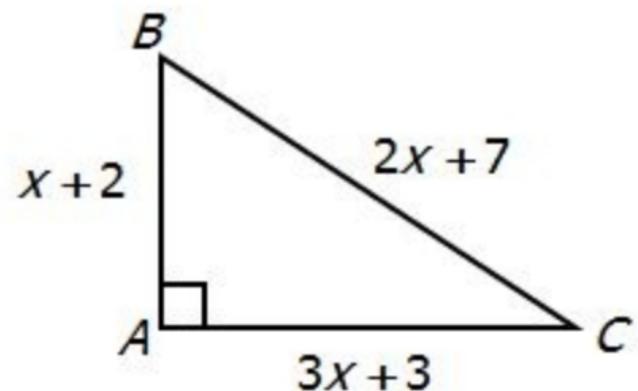
Your Result
Correct

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

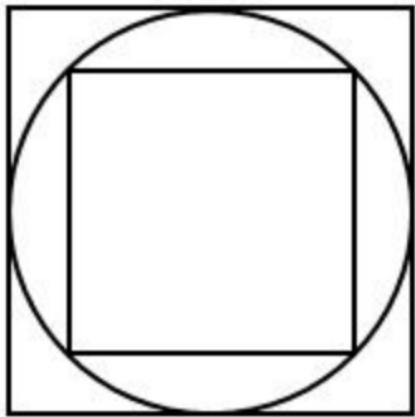
Your Result
Correct

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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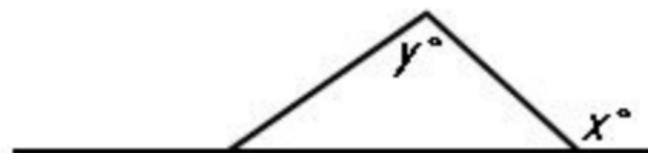
Title
Square in circle

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

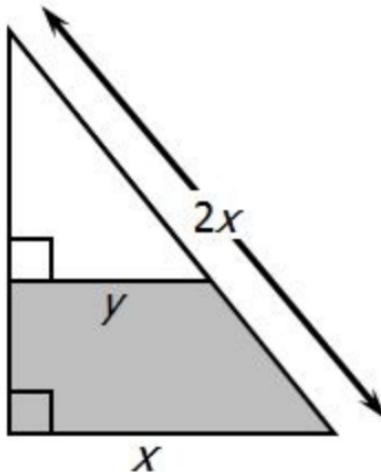
Difficulty
Hard

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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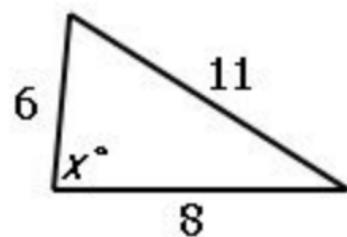
Title
Nested triangle

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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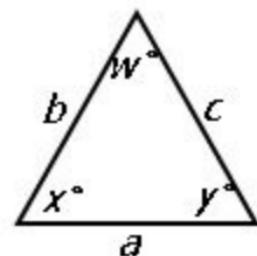
Title
x vs 90 degrees

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

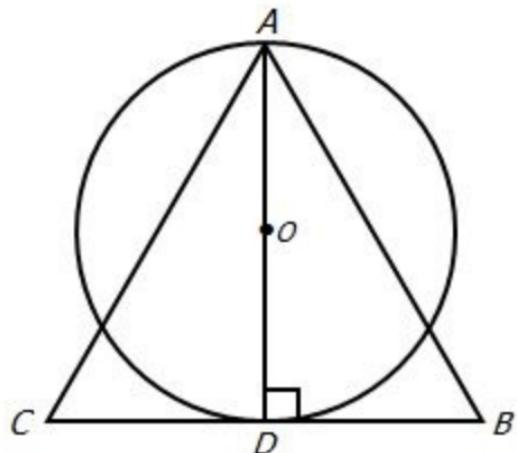
Your Pace

1:03

Others' Pace

1:52

If the circle with center O has area 9π , 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

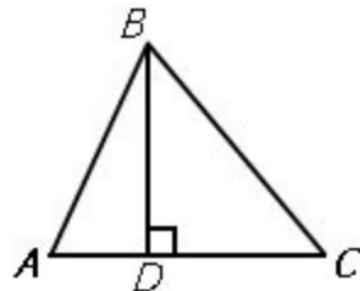
Hard

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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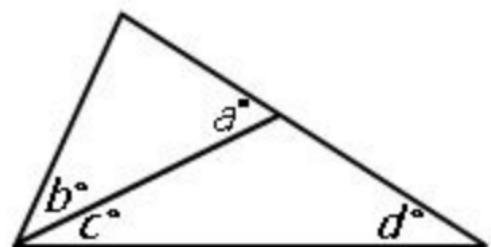
Title
Triangle comparing ratios
of sides

Your Result
Correct

Difficulty
Hard

Your Pace
0:47

Others' Pace
1:13



Column A

$$a + b$$

Column B

$$c + d$$



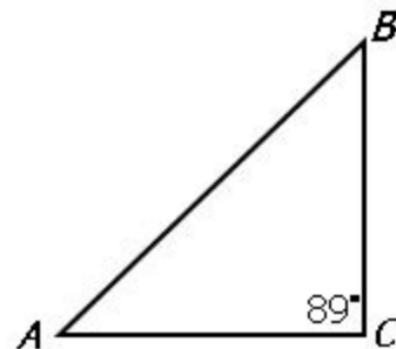
- The quantity in Column A is greater
- The quantity in Column B is greater
- The two quantities are equal
- The relationship cannot be determined from the information given

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Title	Your Result	Difficulty	Your Pace	Others' Pace
a plus b vs c plus d	Correct	Hard	0:04	1:20



Column A

Length of AB

Column B

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

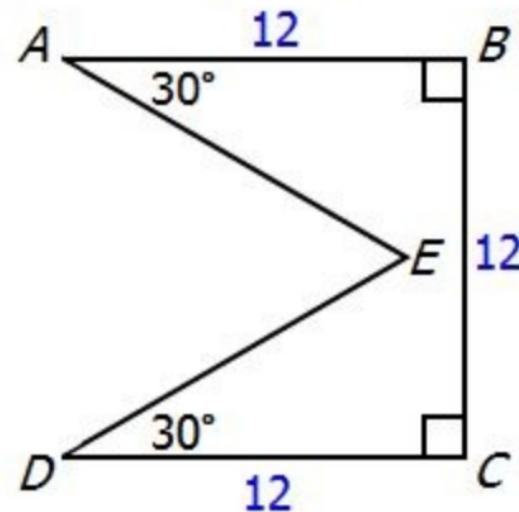
Your Result
Correct

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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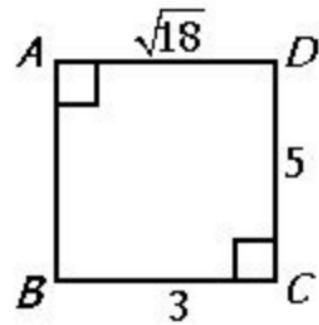
Title
Saw tooth

Your Result
Correct

Difficulty
Hard

Your Pace
0:28

Others' Pace
0:58



Column A

Column B

Length of AB

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	Your Result	Difficulty	Your Pace	Others' Pace
Quadrilateral diagonal	Correct	Hard	1:11	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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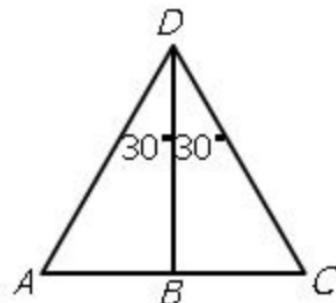
Title
Area of rectangle vs
triangle

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

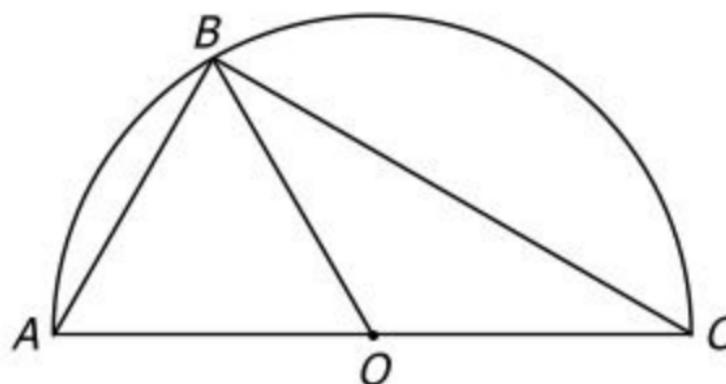
Your Result
Correct

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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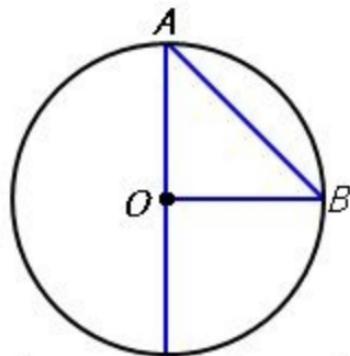
Title
Triangles in a semicircle

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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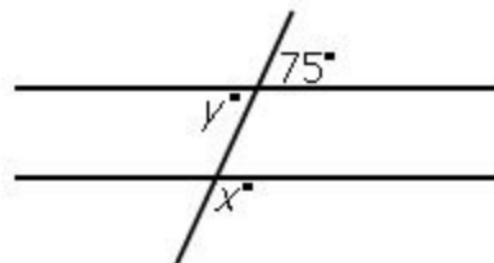
Title
Circle lengths

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 $2x$

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 circumference to diameter ratio of circle A

The circumference to diameter ratio of circle B

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Title

Circumference to diameter ratio

Your Result

Correct

Difficulty

Easy

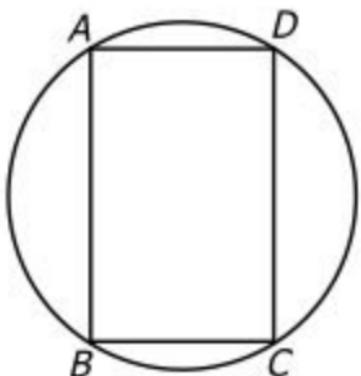
Your Pace

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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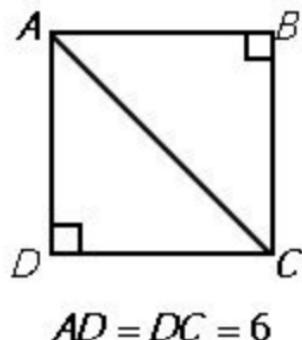
Title
Rectangle in circle

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

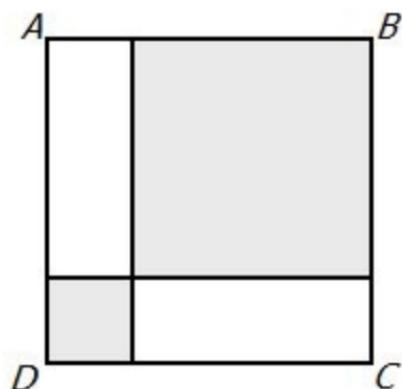
Difficulty
Very Hard

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

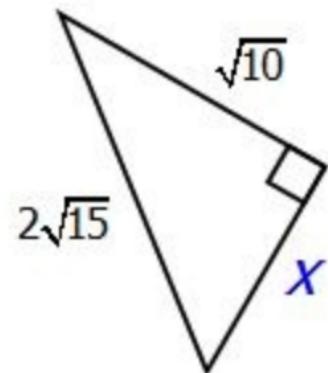
Difficulty
Hard

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

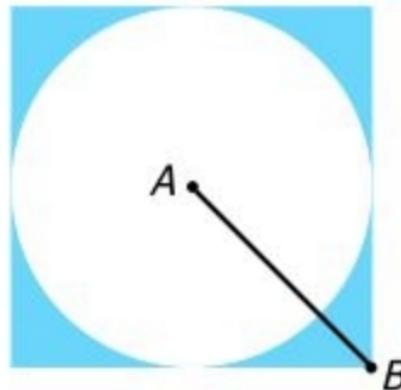
Your Result
Correct

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?

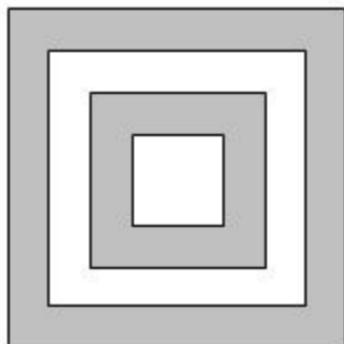
1:8

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).



12π

15π

16π

18π



20π

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Title
Cow and rope

Your Result
Correct

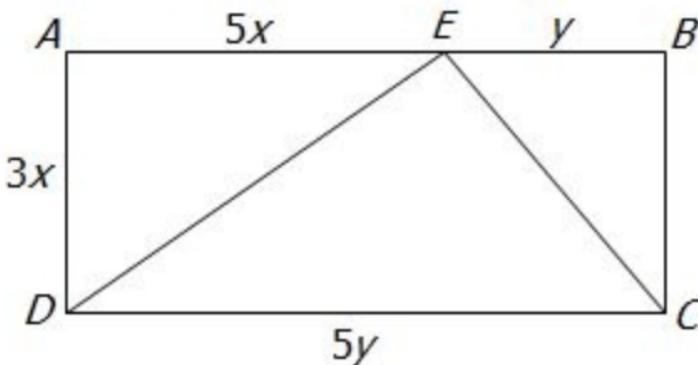
Difficulty
Hard

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

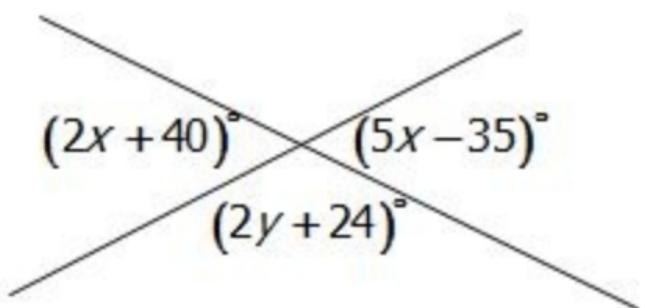
Difficulty
Medium

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

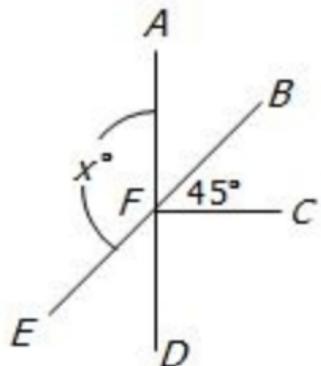
Difficulty
Medium

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

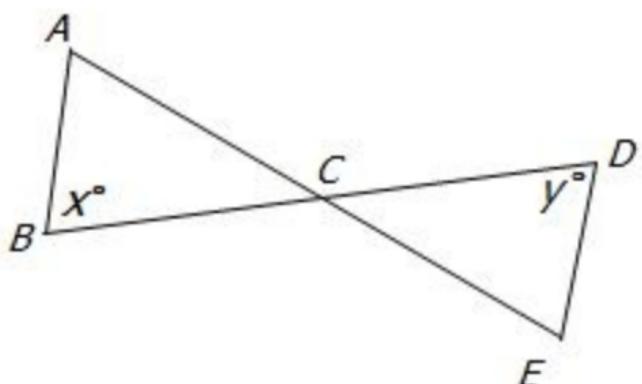
Difficulty
Easy

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[Back to Results](#)

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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

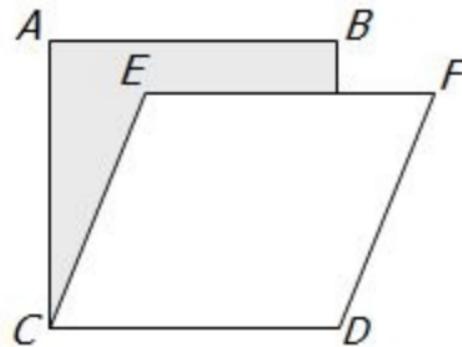
Difficulty
Very Hard

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?

- 3
- 2
- 0
- 2
- 3

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Title
Intersects

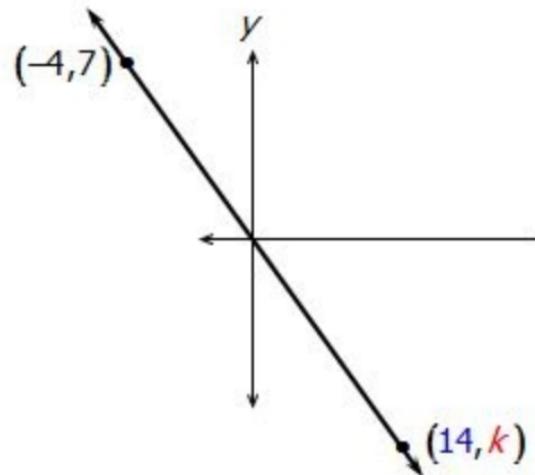
Your Result
Correct

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

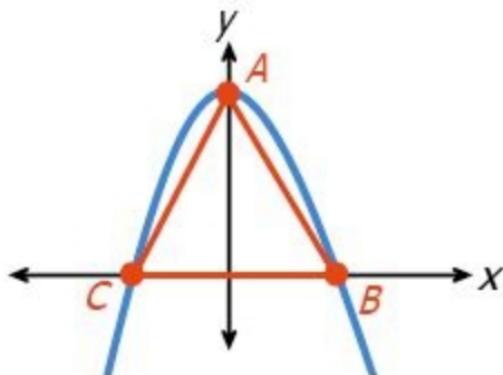
Your Pace
0:18

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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Question 9 of 20

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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

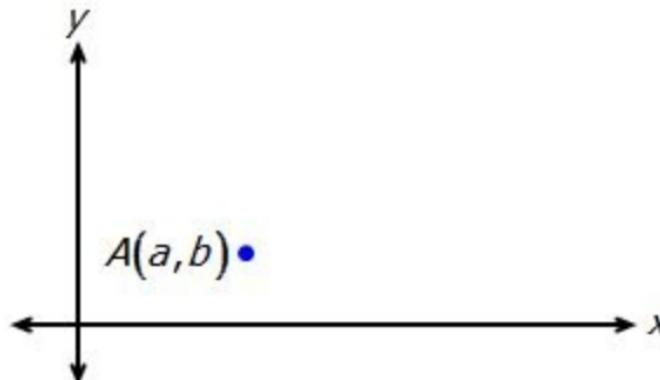
Your Result
Correct

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

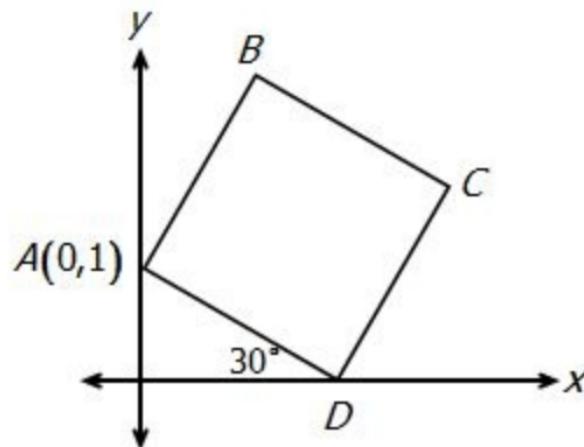
Your Result
Correct

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

Average age of all 60 people

Column B

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

$w + x + y = 21$

The quantity in Column A is greater

Column A

Column B

Average of x and y

7

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 xy vs 7

Your Result
Correct

Difficulty
Easy

Your Pace
0:05

Others' Pace
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

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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

Column B

Average of 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
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	Your Result	Difficulty	Your Pace	Others' Pace
Average of vw vs xy	Correct	Hard	1:01	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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Question 13 of 45

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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

The product of the 5 integers

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

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

Column A

Median of the 7 numbers

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
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 ?

62

65

71

76

83

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

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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.



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

23

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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

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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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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

$x - 4y$

$4x + 4y$

$8x - 4y$

$4y - 8x$

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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

712

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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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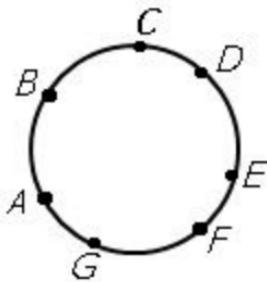
Title
3 digit numbers

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

$(4!)^4$



$16!/(4!)^4$

$16!/4!$

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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Question 2 of 18

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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

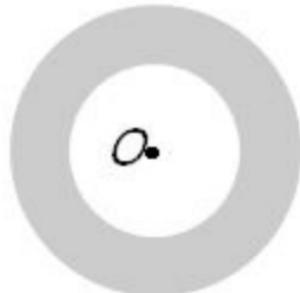
Your Result
Correct

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?

$\frac{3}{14}$

$\frac{2}{7}$

$\frac{9}{14}$

$\frac{5}{7}$

$\frac{11}{14}$

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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?

$\frac{1}{4}$

$\frac{1}{3}$

$\frac{5}{16}$

$\frac{31}{64}$

$\frac{1}{2}$

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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

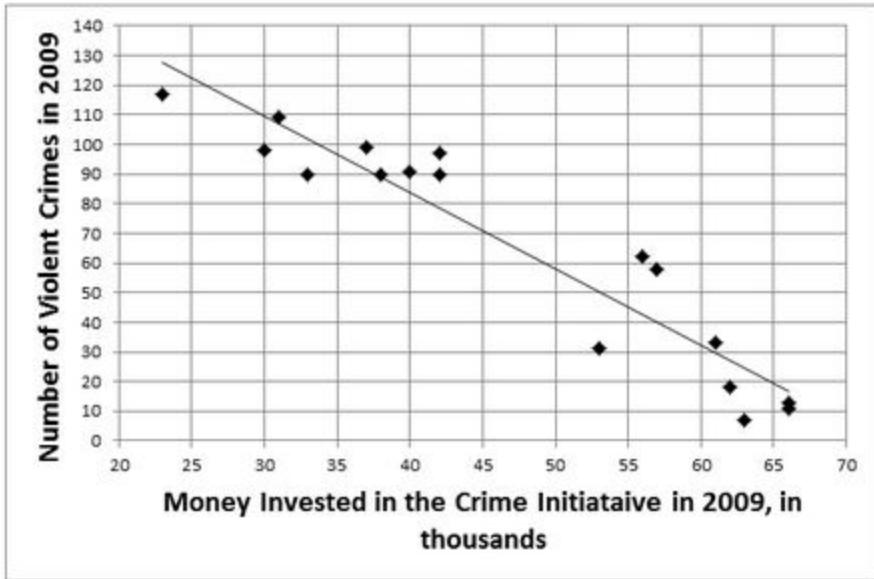
Your Result
Correct

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

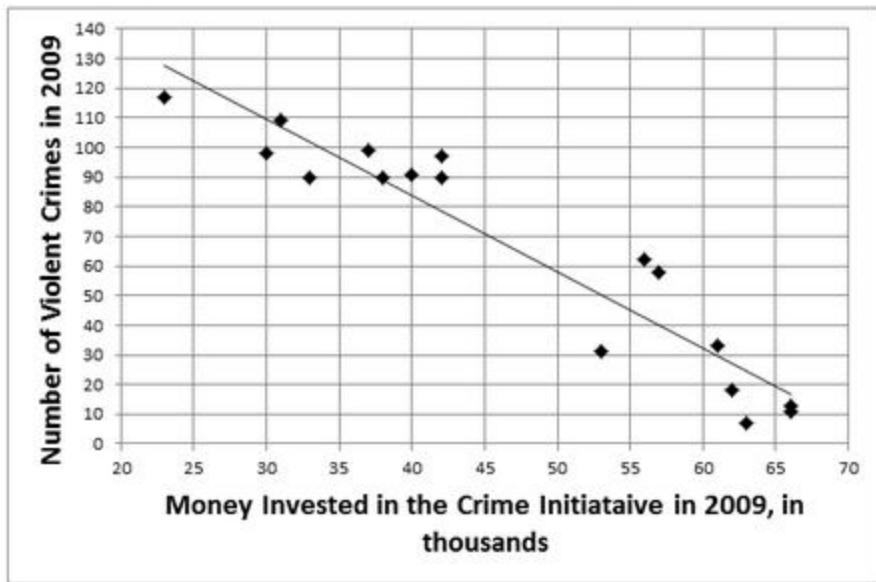
Your Result
Correct

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

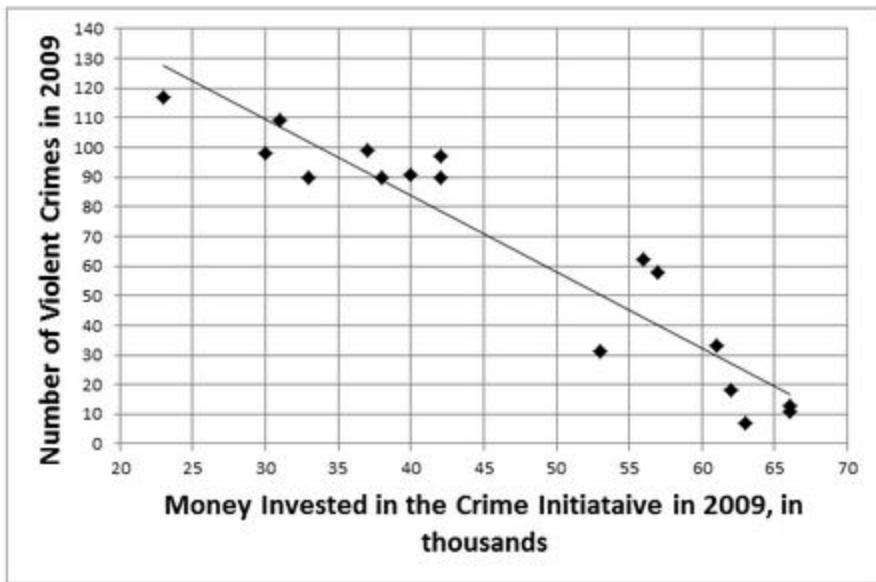
Your Result
Correct

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

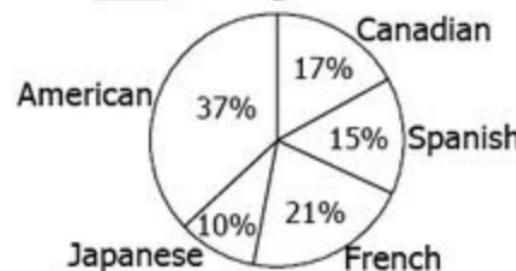
Difficulty
Easy

Your Pace
1:31

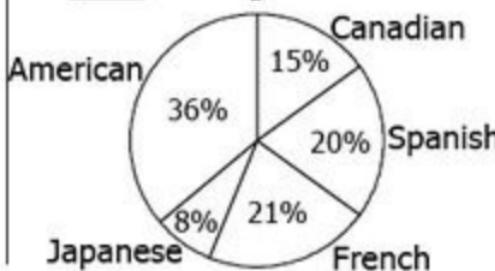
Others' Pace
1:04

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

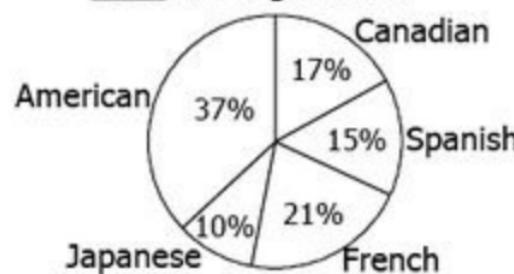
Difficulty
Easy

Your Pace
1:21

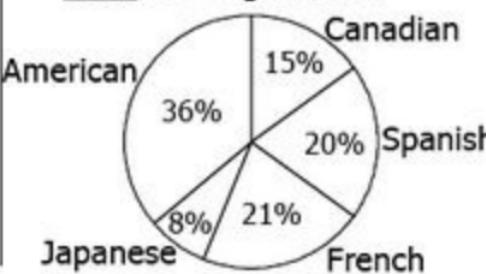
Others' Pace
1:13

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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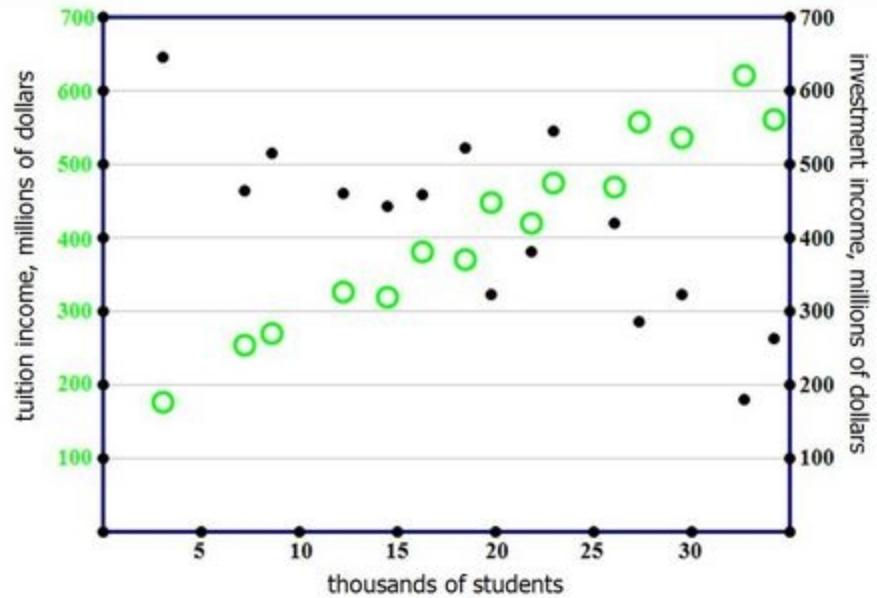
Title
University Graduates

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

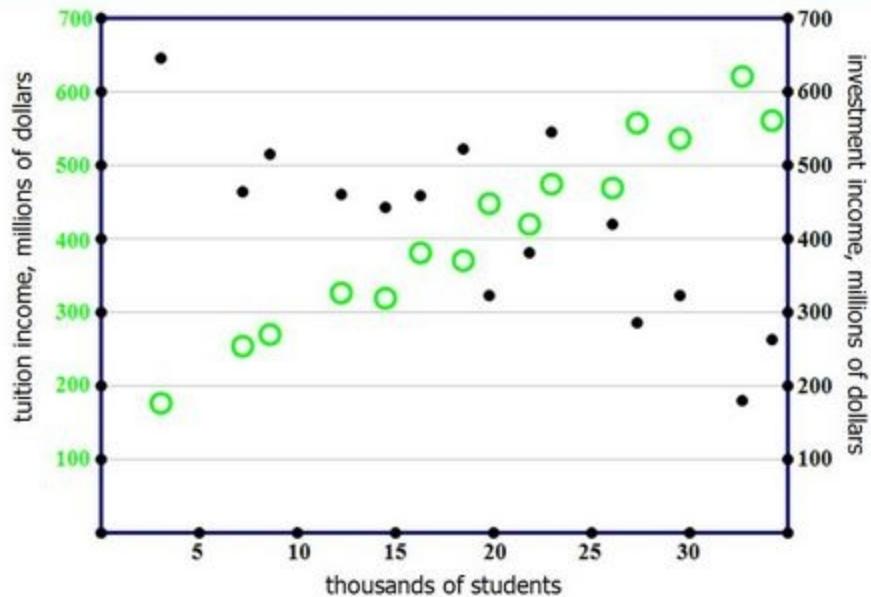
I, II, and III

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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

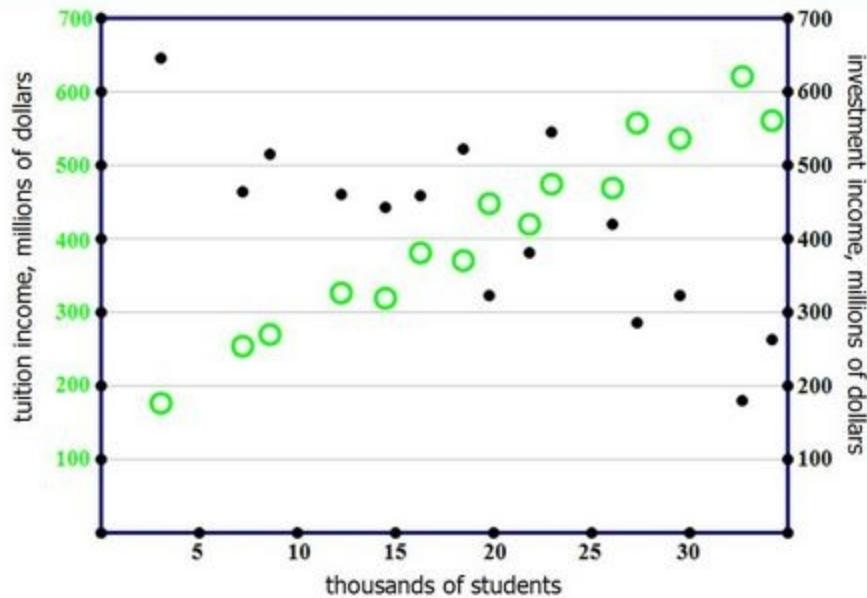
On the above diagram, each of fifteen private colleges is represented by a circle and a dot. The light green circle, read against the green scale on the left, gives the college's annual gross tuition income in 2008; the data point is the very center of the circle. The black dot, directly above or below 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.

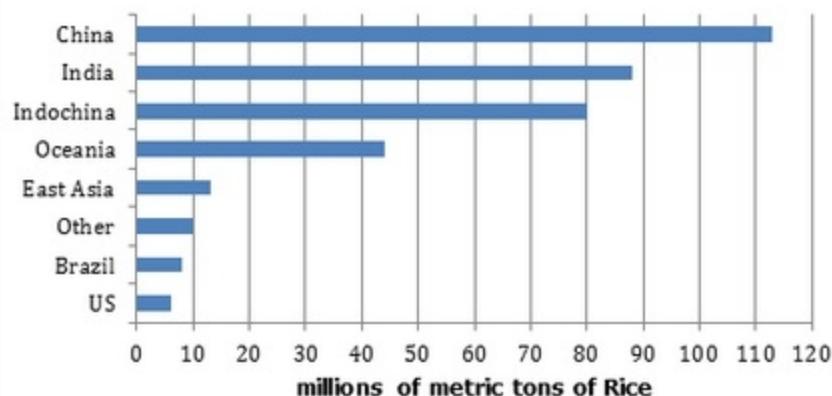
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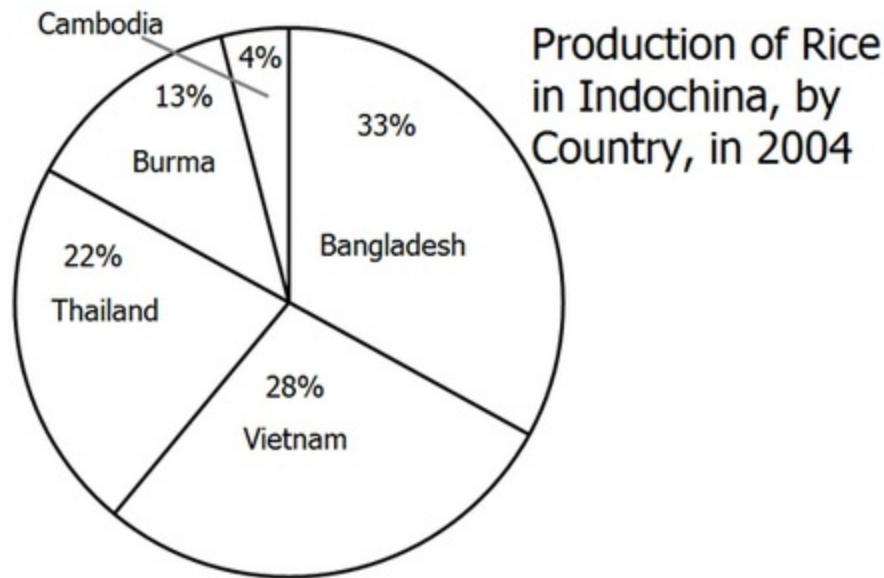
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World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons



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

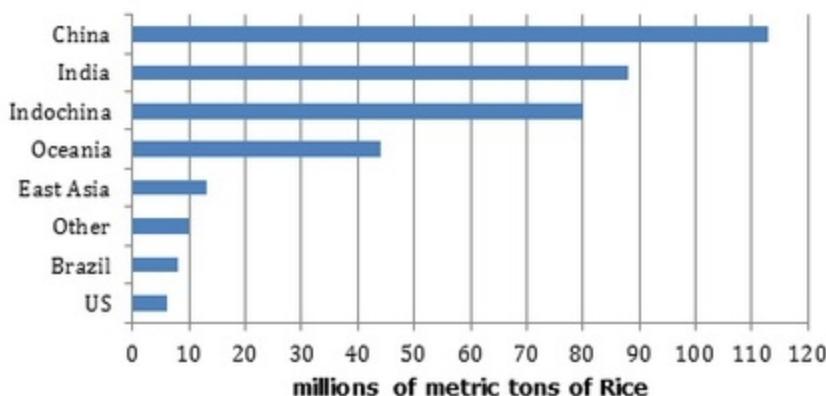
Your Result
Correct

Difficulty
Easy

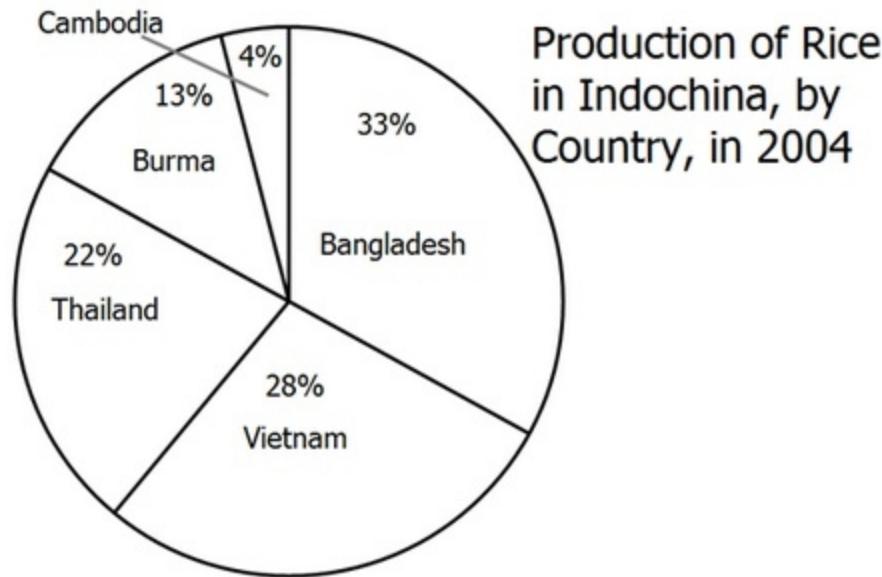
Your Pace
1:20

Others' Pace
1:20

World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons



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Title
World Rice Production in
2004

Your Result
Correct

Difficulty
Medium

Your Pace
2:06

Others' Pace
1:33

Bangladesh accounted for what percent of world rice production in 2004?

1.4%

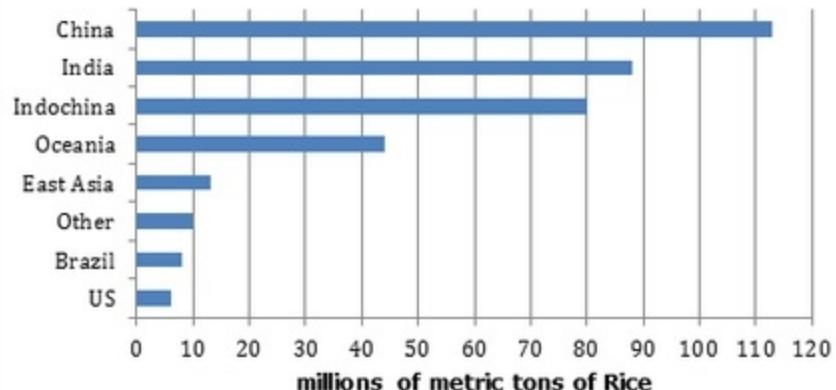
7.2%

11.6%

33%

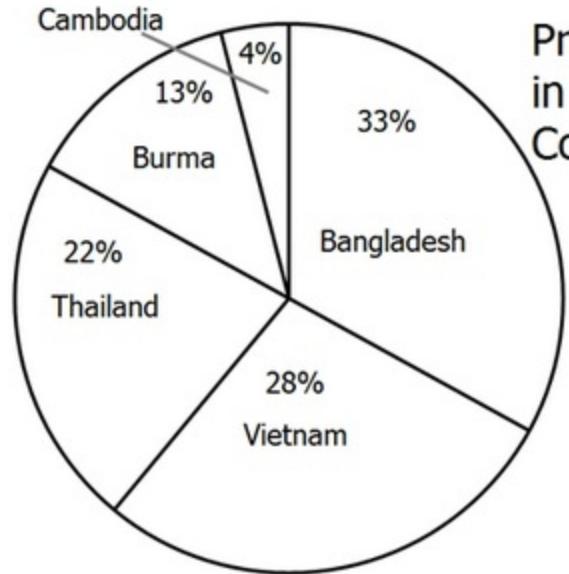
47.6%

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

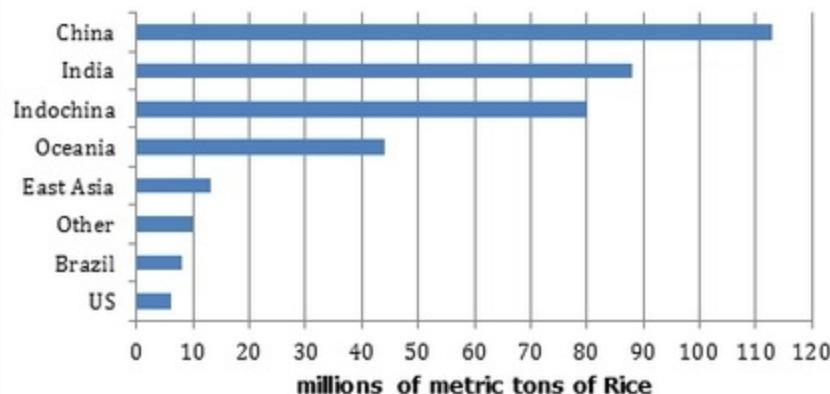
Your Result
Correct

Difficulty
Hard

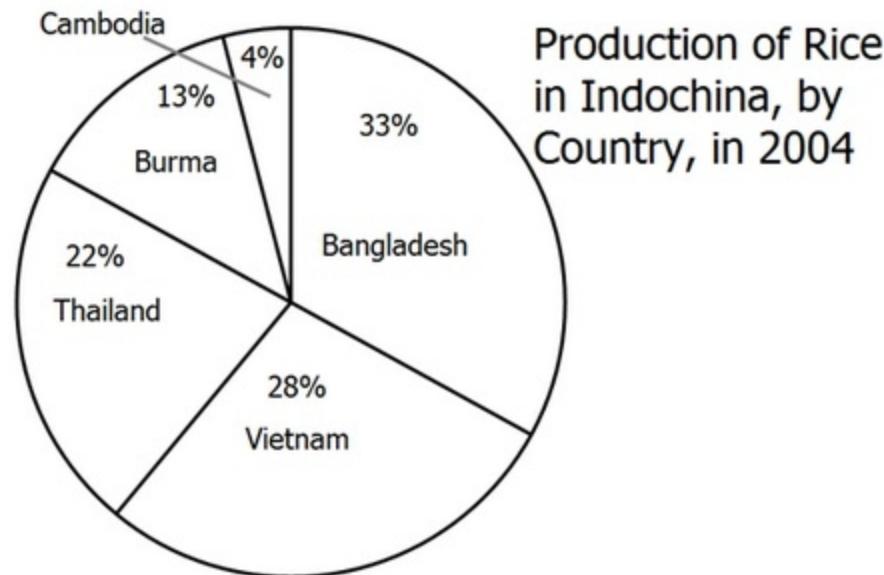
Your Pace
1:52

Others' Pace
2:14

World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons



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

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Title
World Rice Production in 2004

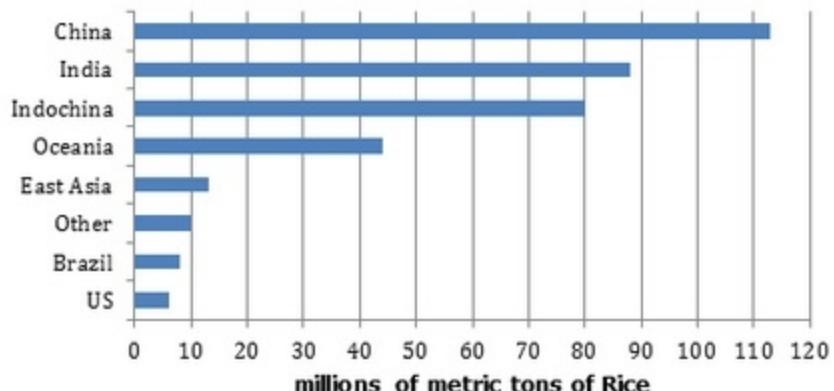
Your Result
Correct

Difficulty
Medium

Your Pace
0:28

Others' Pace
0:53

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?

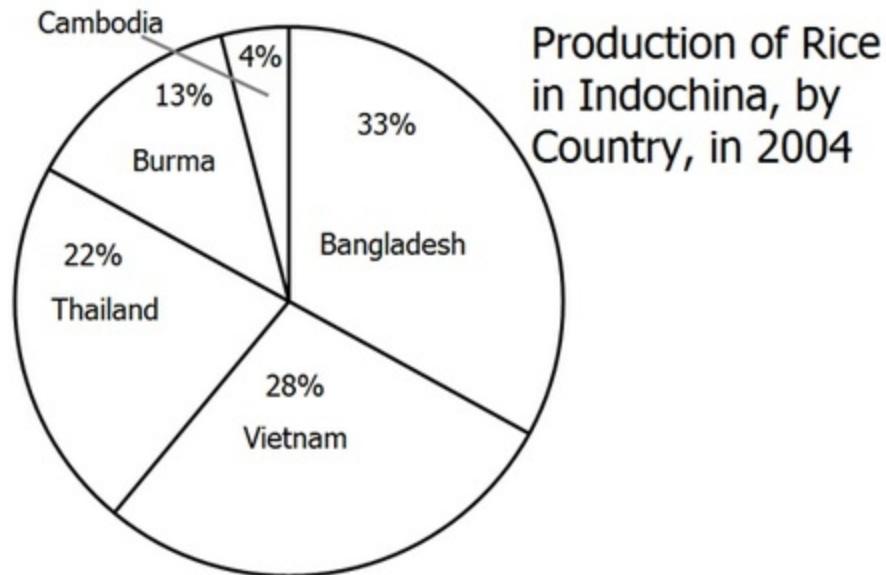
10.0%

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%
5 or more	12%

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

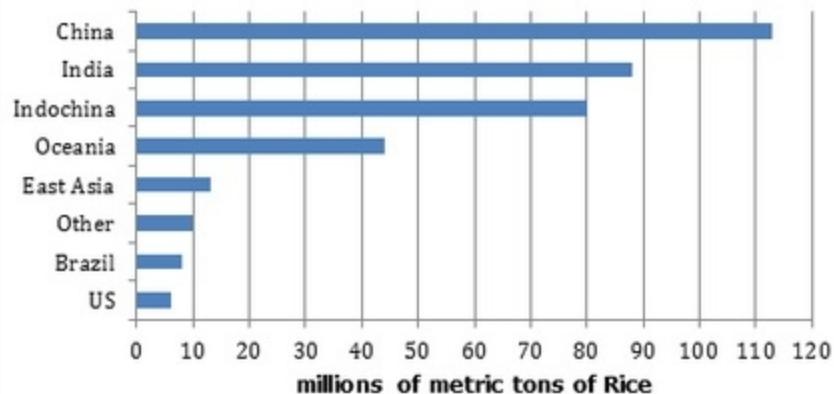
Your Result
Correct

Difficulty
Hard

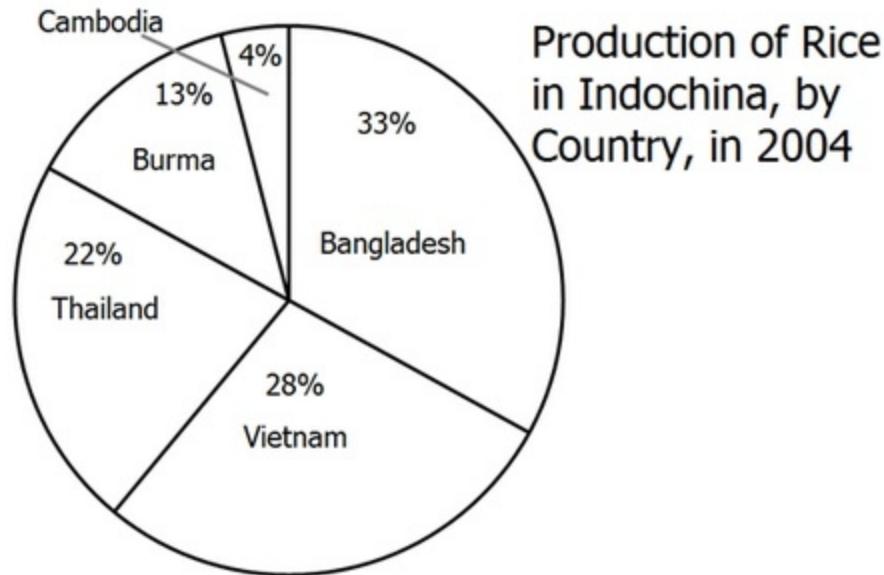
Your Pace
0:30

Others' Pace
1:31

World Rice Production, 2004



World's Total Rice Production in 2004 = 368,080,000 metric tons



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

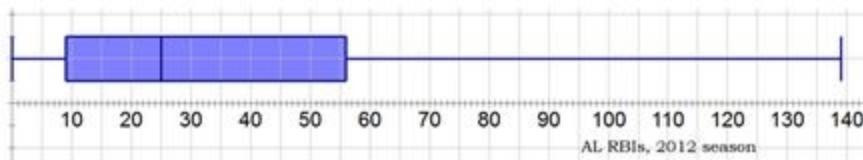
Your Result
Correct

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

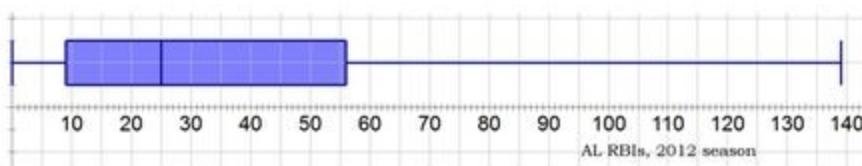
Your Result
Correct

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.

Revenues	
Sales	753
Investments	53
Subsidiaries	246
TOTAL	1052

Costs	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
TOTAL	749

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.

<u>Revenues</u>	
Sales	753
Investments	53
Subsidiaries	246
TOTAL	1052

<u>Costs</u>	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
TOTAL	749

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

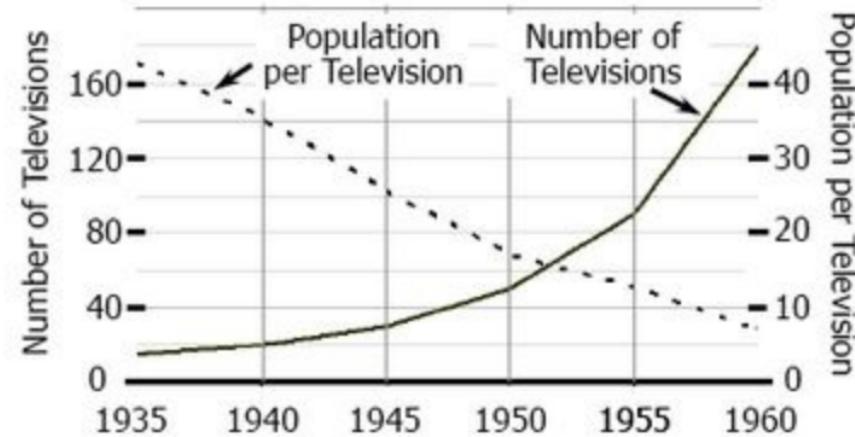
Your Result
Correct

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

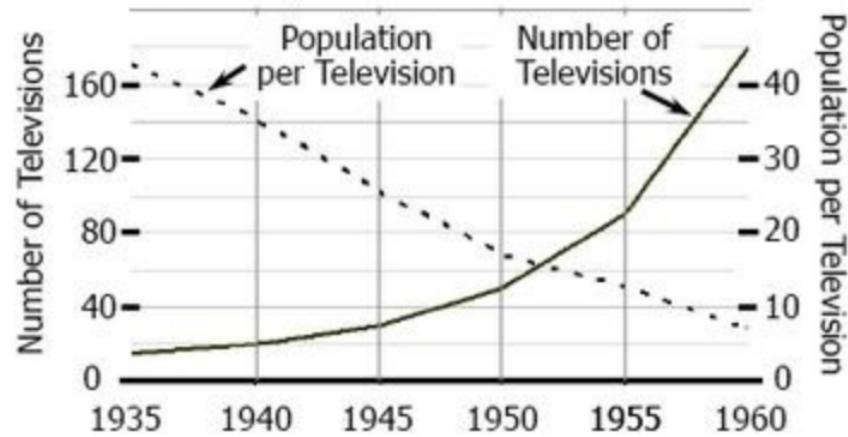
Your Result
Correct

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

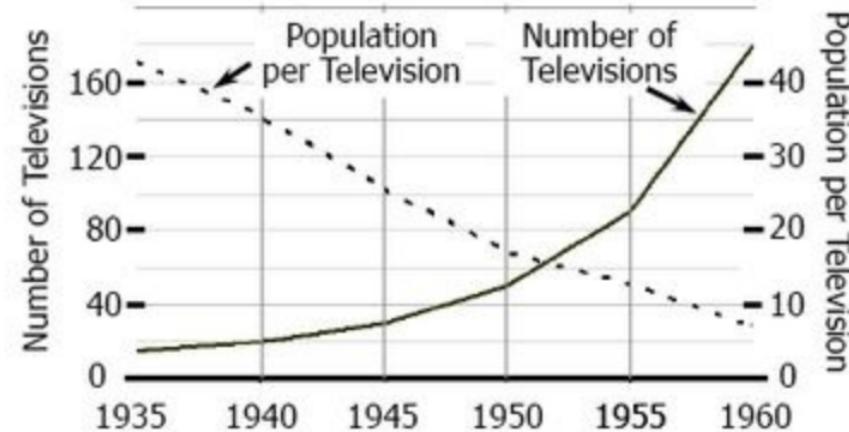
Your Result
Correct

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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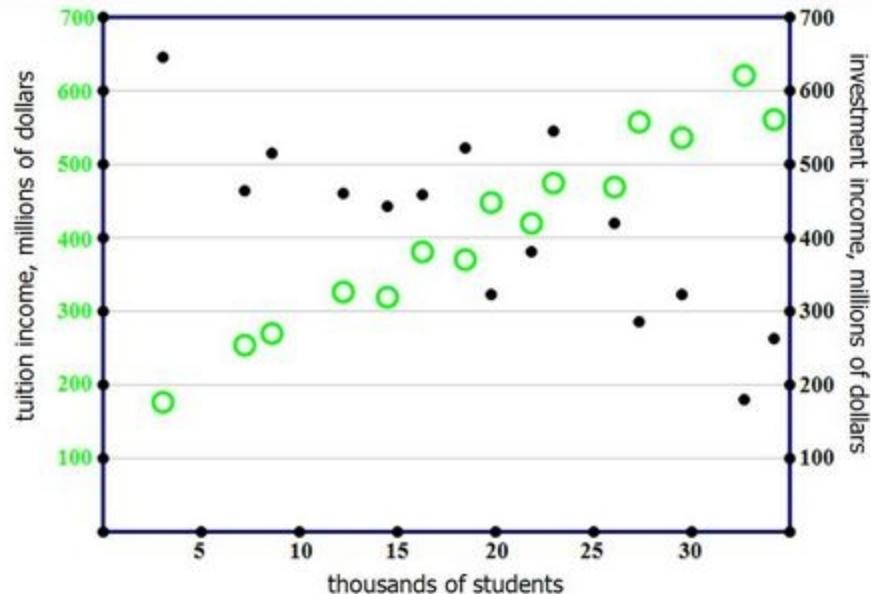
Title
Population Per Television

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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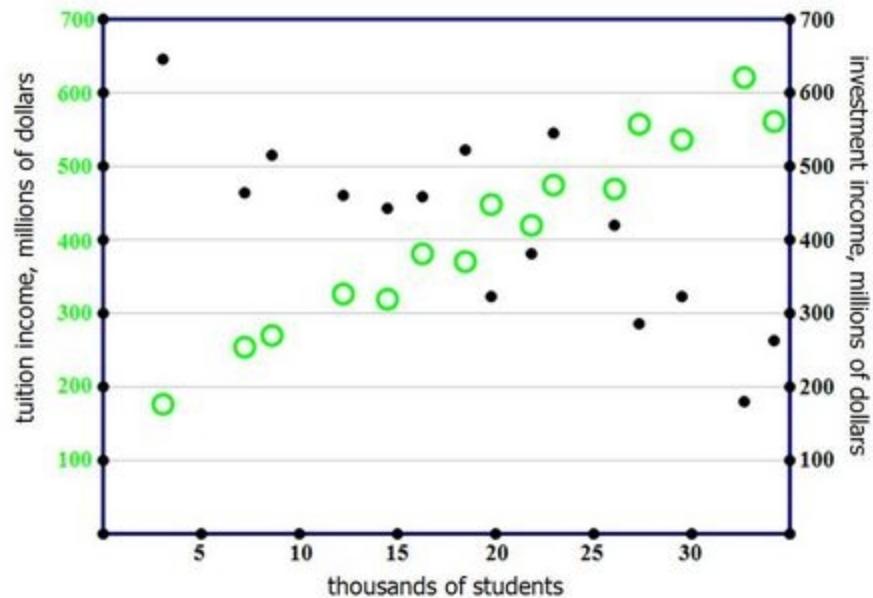
Title
Private Colleges in a State

Your Result
Correct

Difficulty
Easy

Your Pace
0:54

Others' Pace
0:43



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

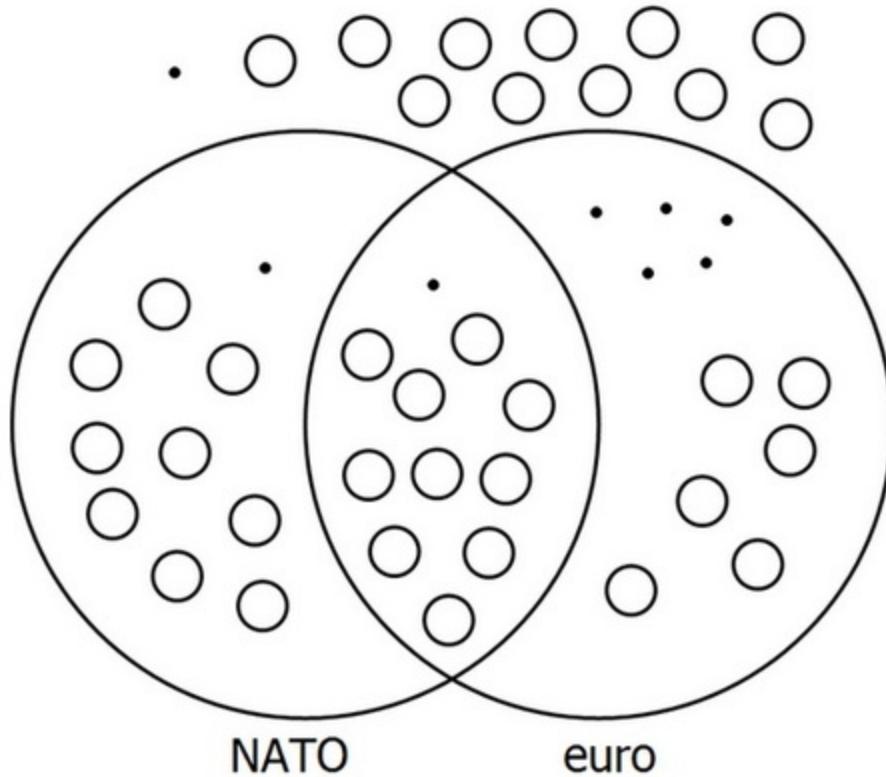
Your Result
Correct

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

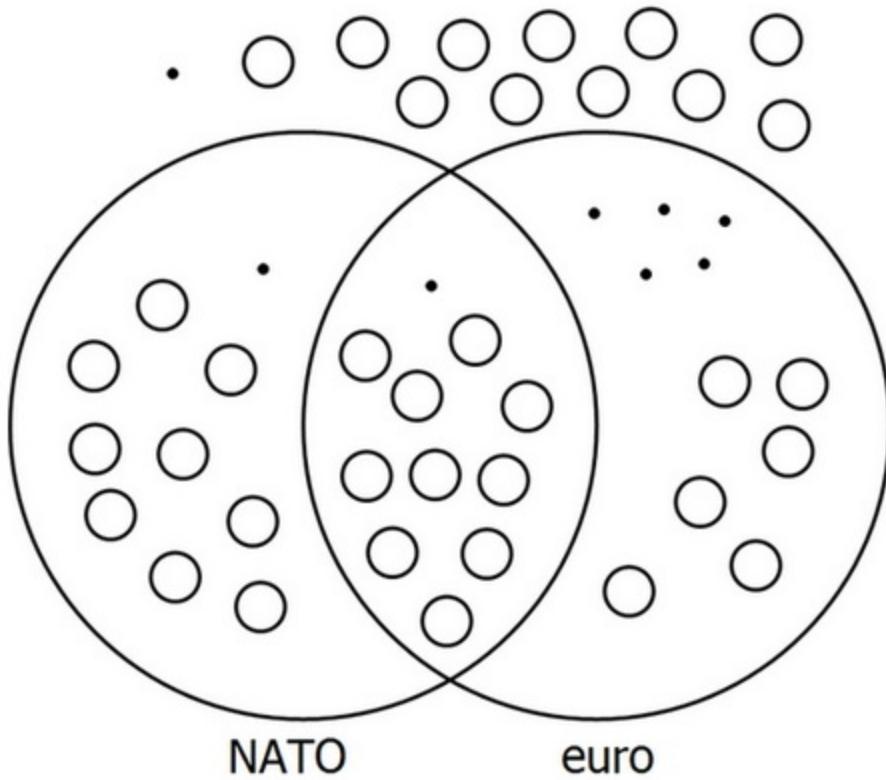
Your Result
Correct

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.

Revenues	
Sales	753
Investments	53
Subsidiaries	246
TOTAL	1052

Costs	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
TOTAL	749

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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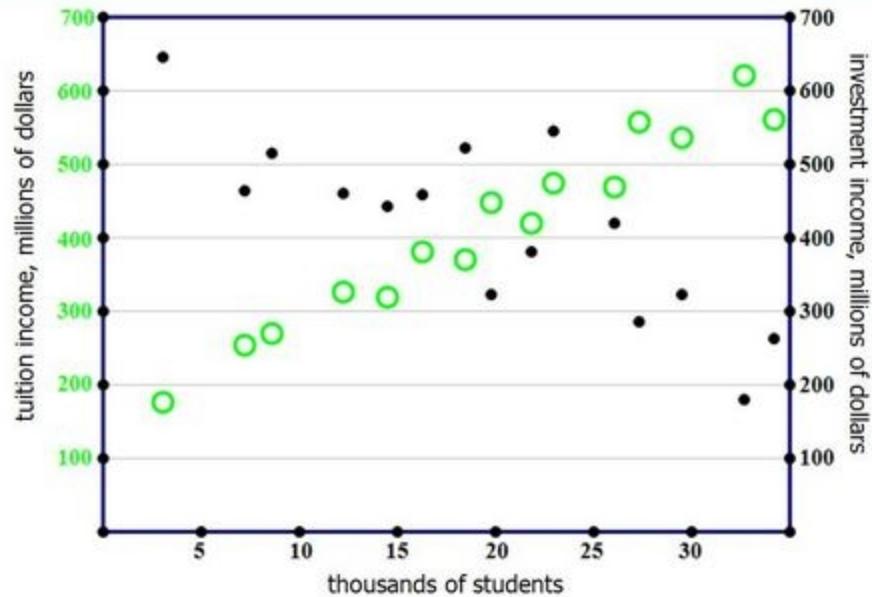
Title
Budget of a Small Company

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.

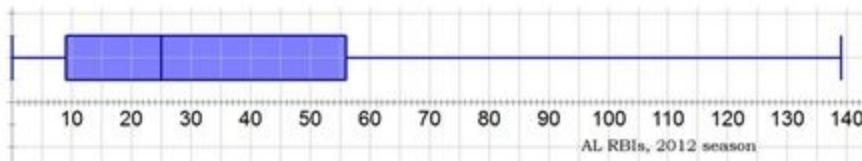
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The following boxplot shows the 2012 season runs batted in (RBIs) of 280 American League (AL) batters (the top 280 batters in terms of number of plate appearances).



Five-Number Summary for AL RBIs in 2012:

Minimum = 0



First Quartile = 9

Median = 25

Third Quartile = 56

Maximum = 139

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

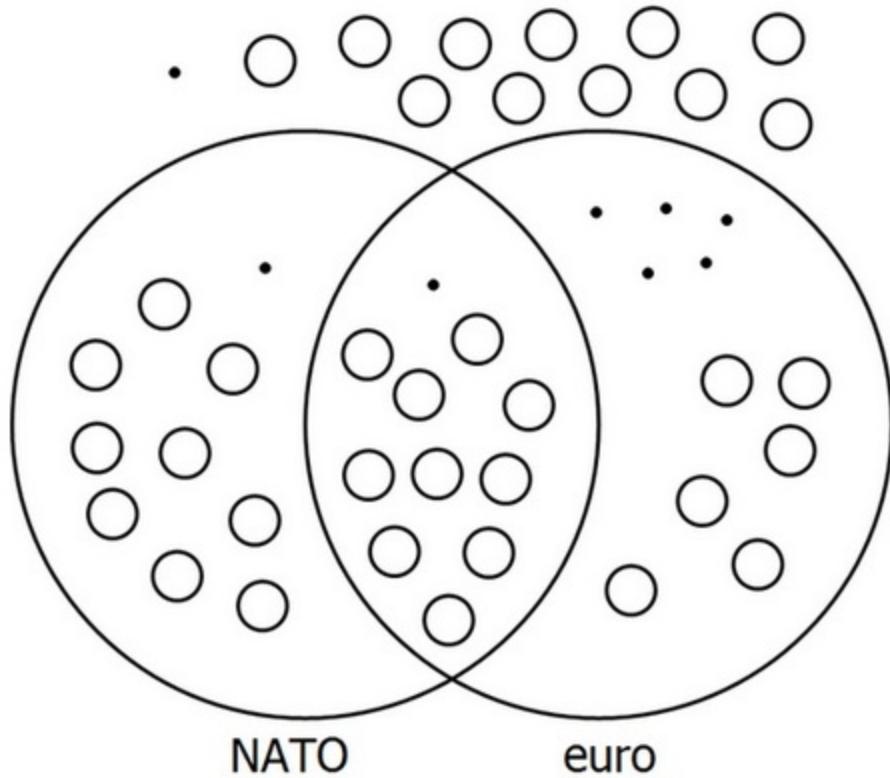
Your Result
Correct

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

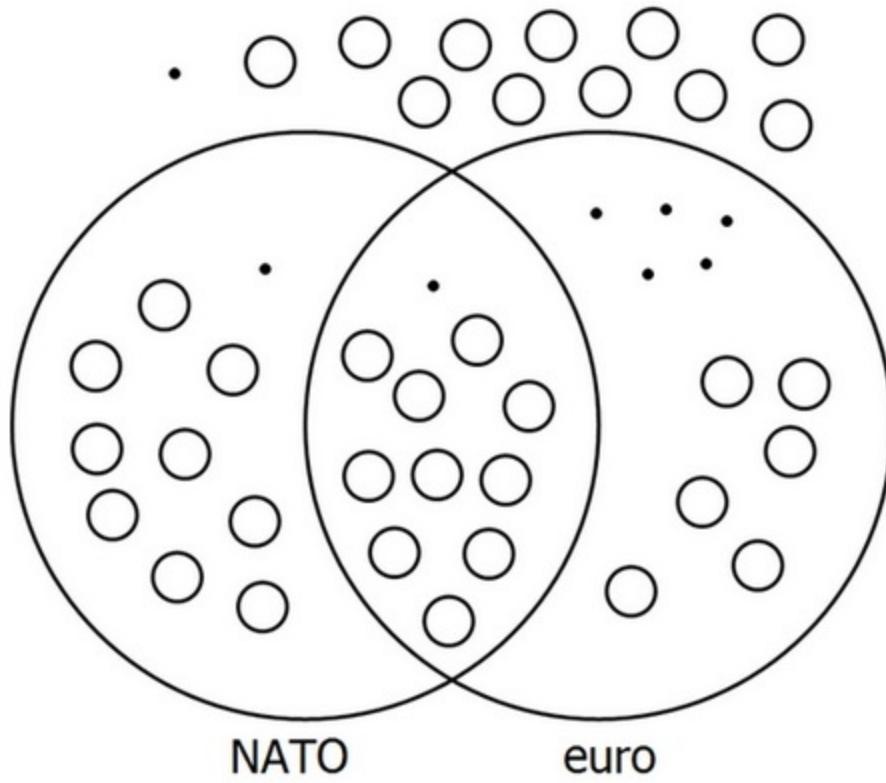
Your Result
Correct

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

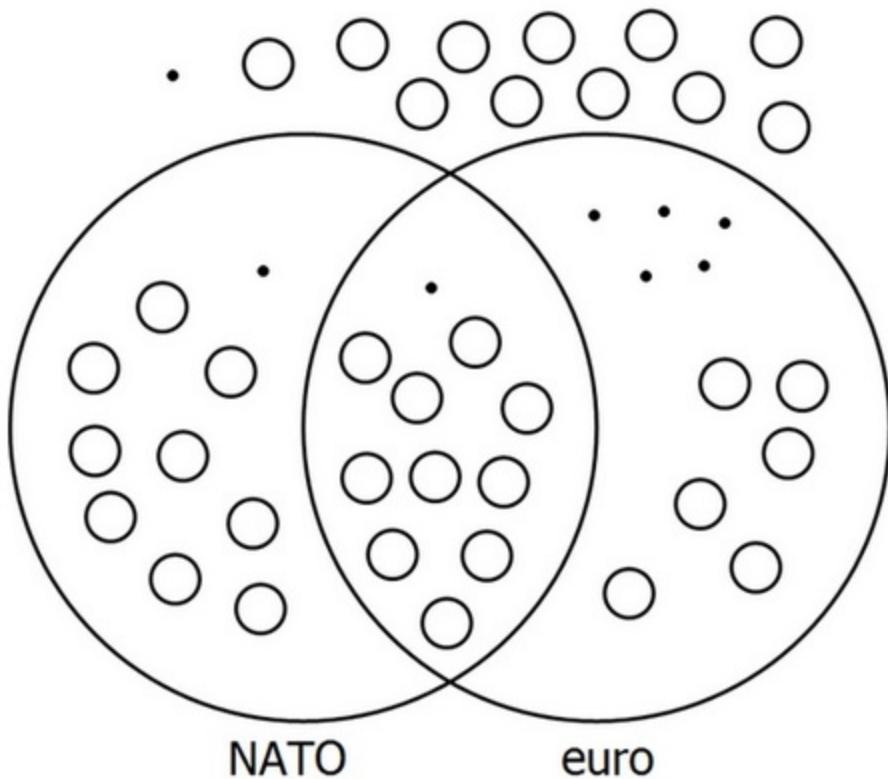
Your Result
Correct

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.

Revenues	
Sales	753
Investments	53
Subsidiaries	246
TOTAL	1052

Costs	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
TOTAL	749

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.

Revenues	
Sales	753
Investments	53
Subsidiaries	246
TOTAL	1052

Costs	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
TOTAL	749

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

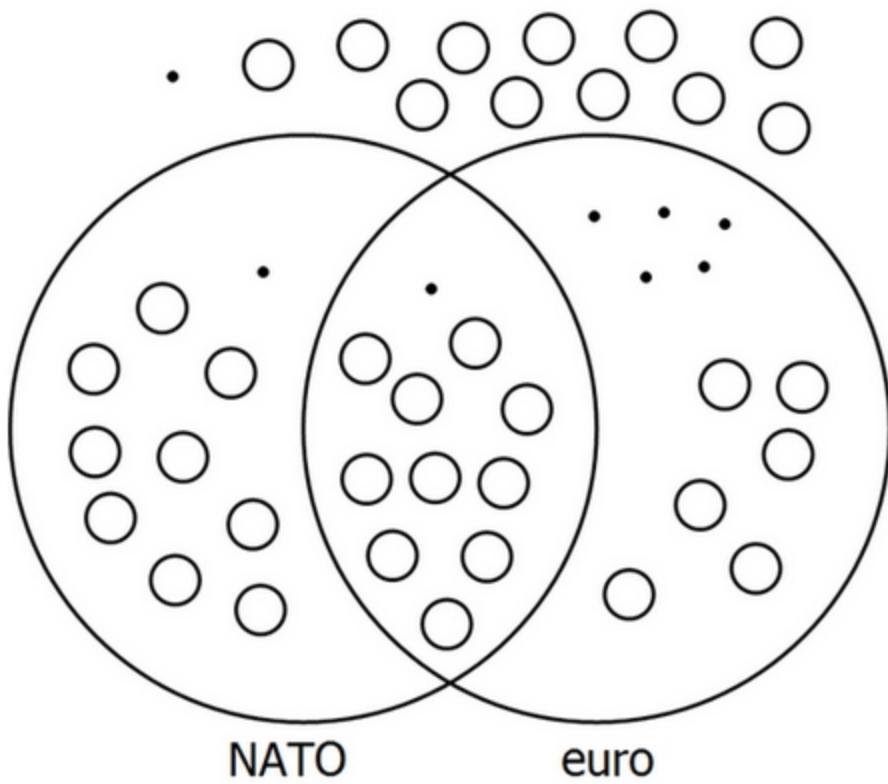
Your Result
Correct

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.

Revenues	
Sales	753
Investments	53
Subsidiaries	246
TOTAL	1052

Costs	
Materials & Resource	83
Production	16
Payroll & Benefits	452
Insurance & Plant	123
Research & Development (R & D)	75
TOTAL	749

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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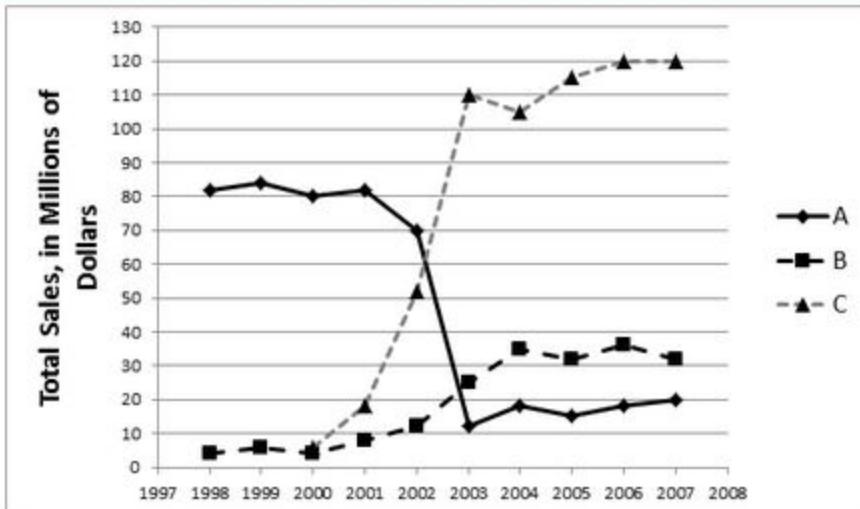
Title
Budget of a Small Company

Your Result
Correct

Difficulty
Medium

Your Pace
0:22

Others' Pace
2:07



Company C was responsible for approximately what percent of total sales in the sector in 2007?

24%

40%

55%

70%

93%

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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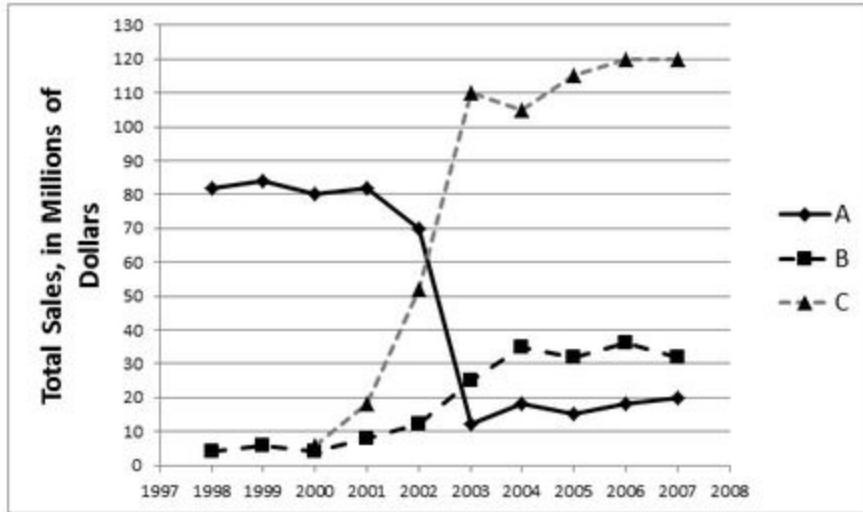
Title
Three Companies in a Sector

Your Result
Correct

Difficulty
Medium

Your Pace
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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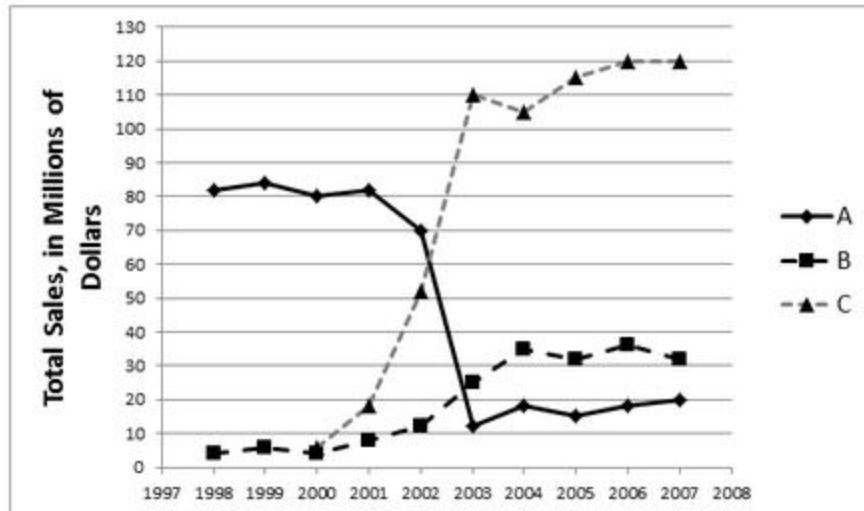
Title
Three Companies in a Sector

Your Result
Correct

Difficulty
Medium

Your Pace
1:02

Others' Pace
1:34



Total sales, by all companies in the sector, increased by approximately what percent from 1998 to 2007?

46%

72%

100%

153%

300%

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

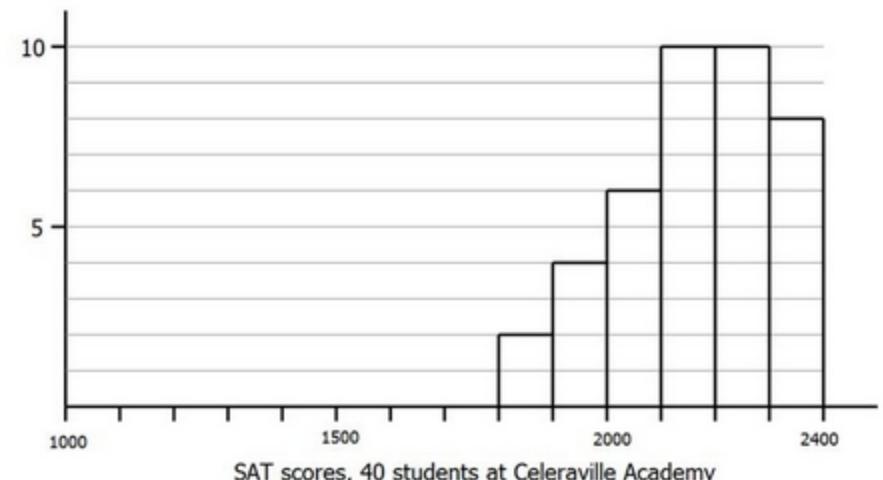
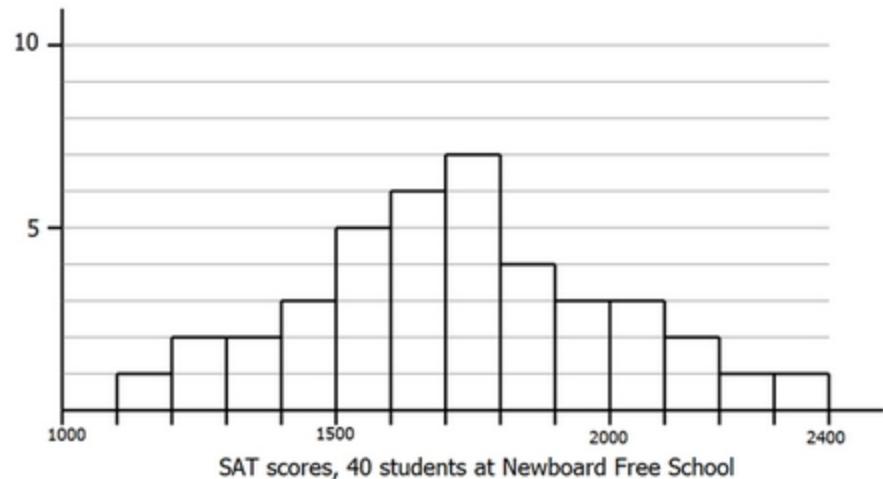
Difficulty
Very Hard

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

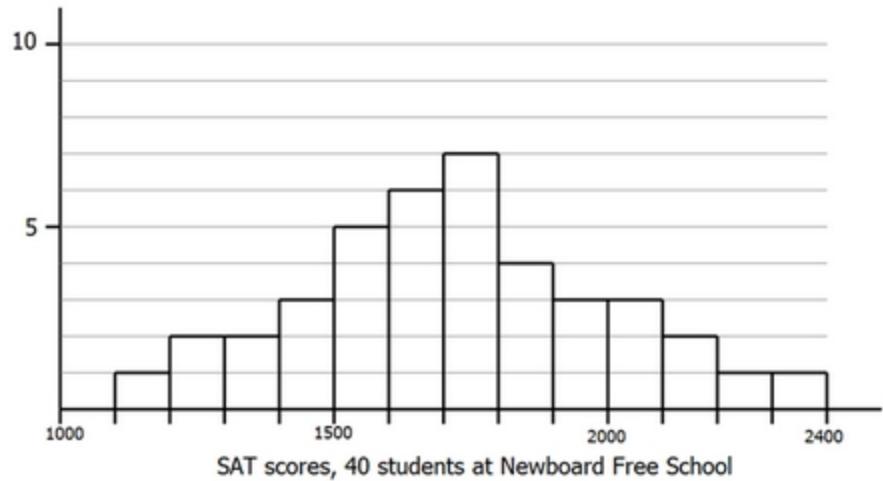
1500 – 1600

1600 – 1700

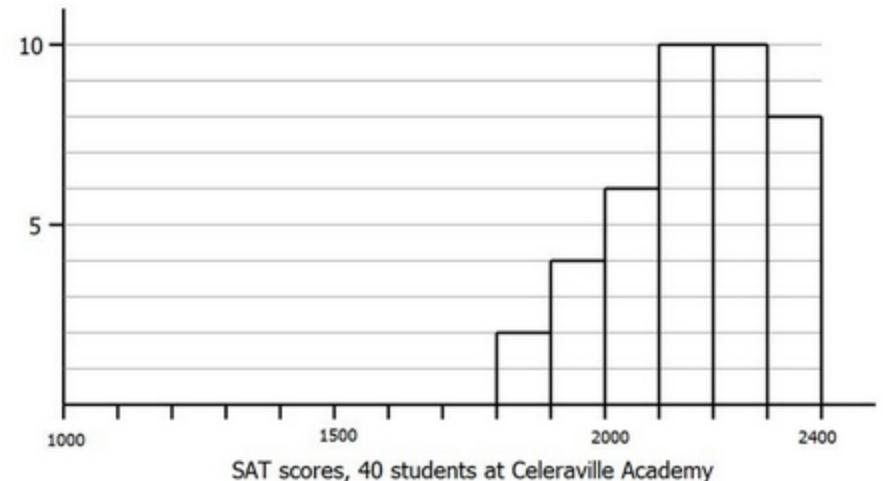
1700 – 1800

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 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

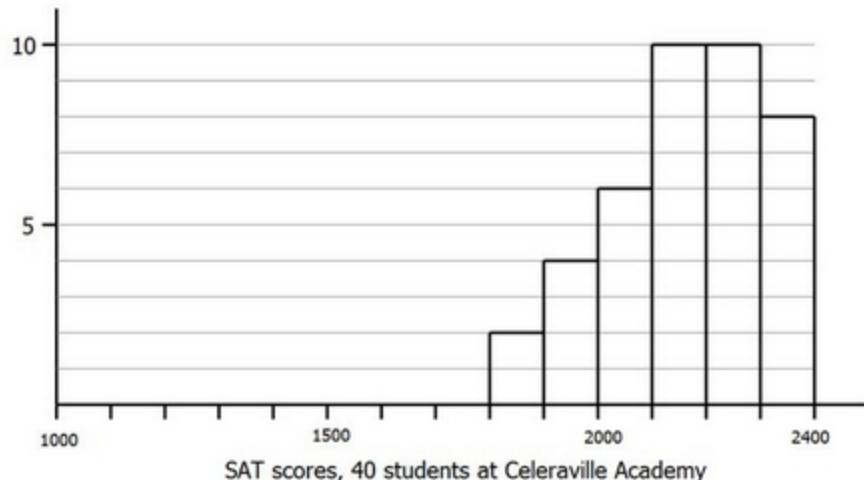
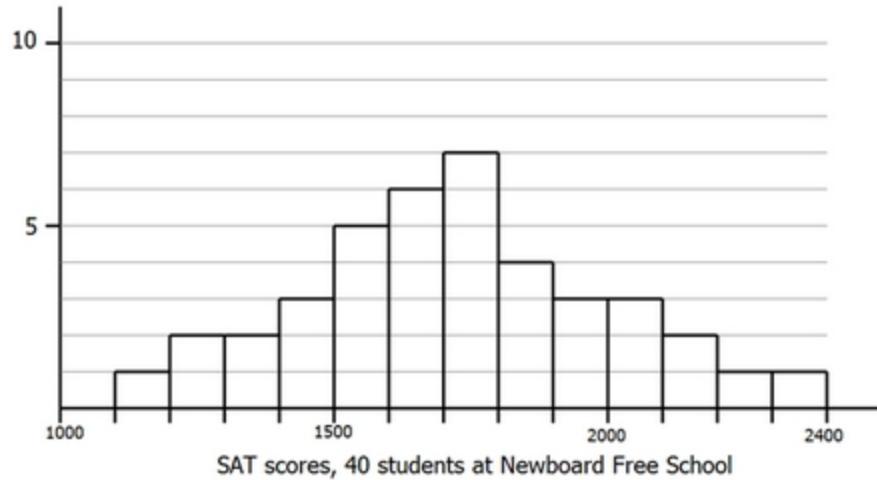
Difficulty
Very Hard

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

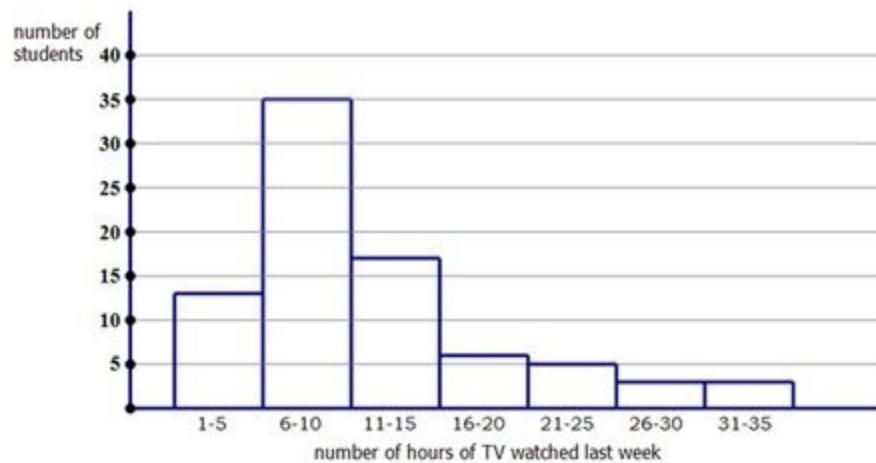
Your Result
Correct

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

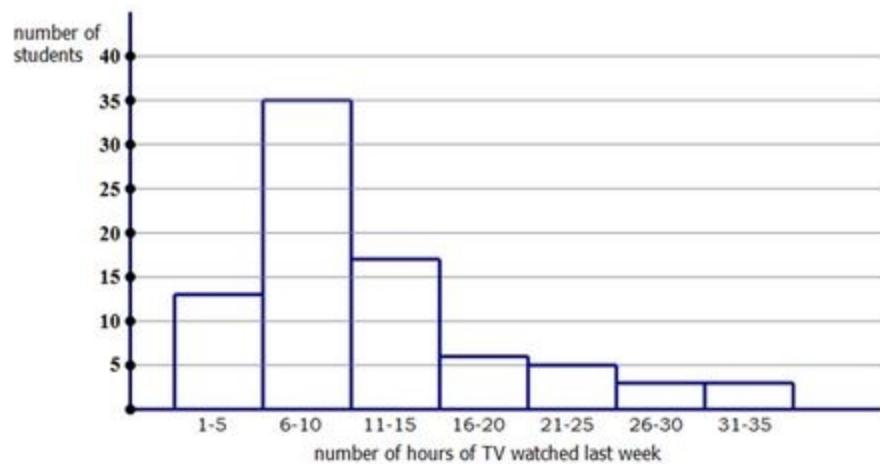
Your Result
Correct

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

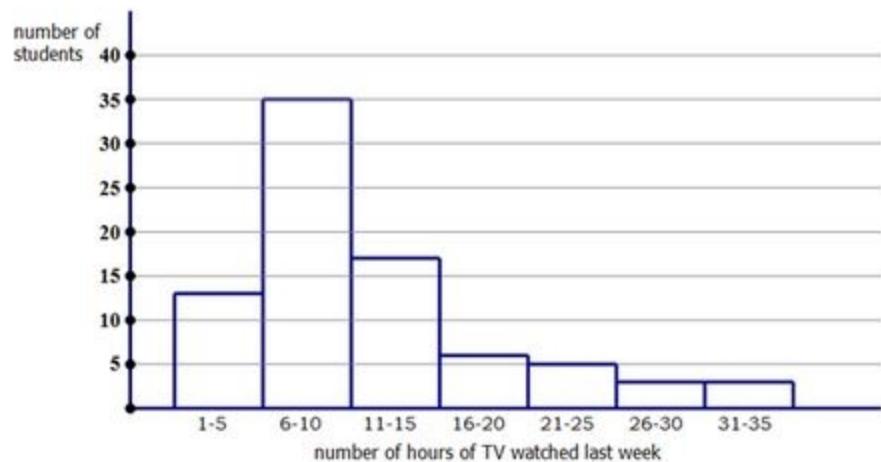
Your Result
Correct

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

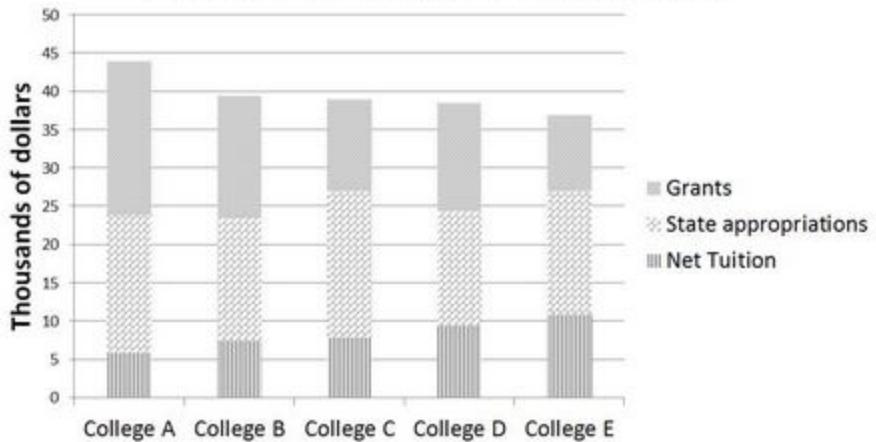
Your Result
Correct

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

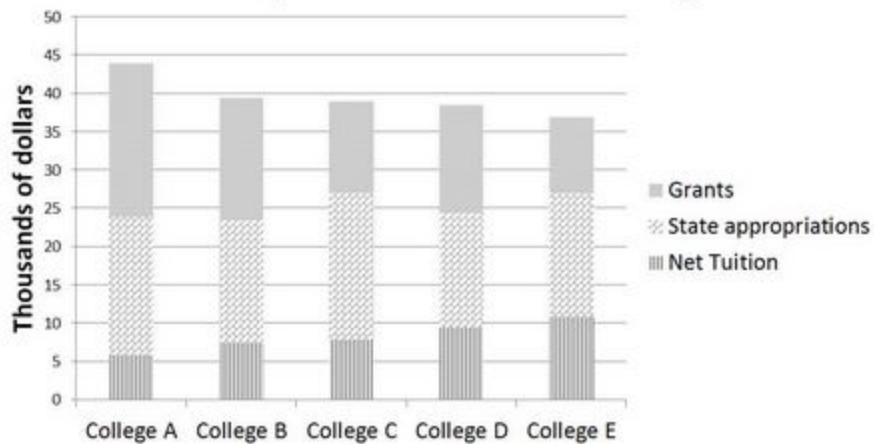
Your Result
Correct

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

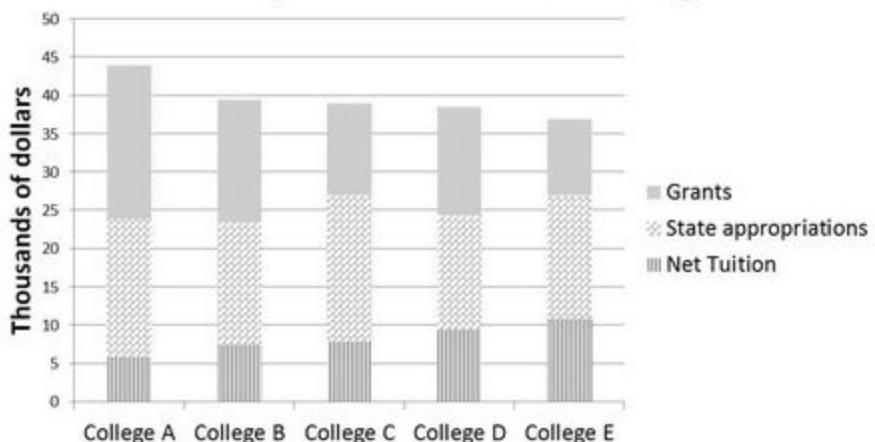
Your Result
Correct

Difficulty
Hard

Your Pace
0:25

Others' Pace
1:18

Revenue per student at five state colleges



2006 Enrollments

College A	25,000
College B	12,000
College C	33,000
College D	36,000
College E	85,000

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

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Title
Colleges

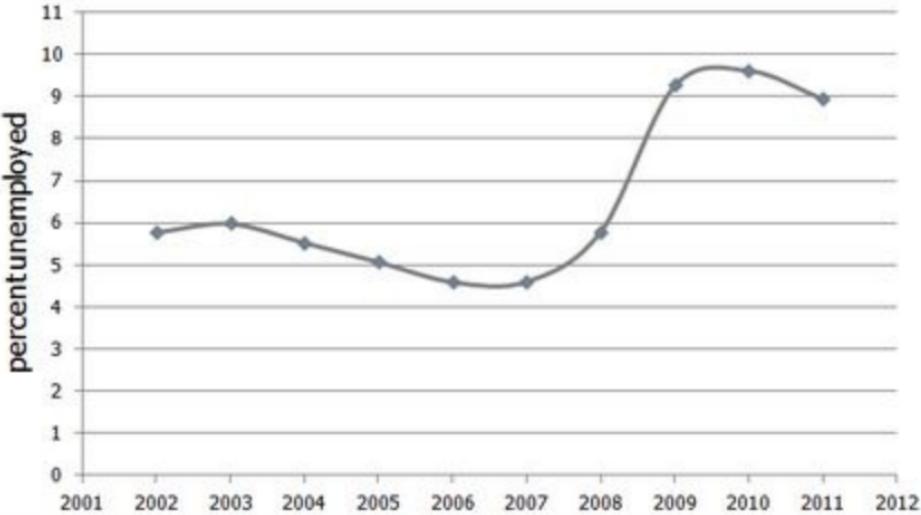
Your Result
Correct

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

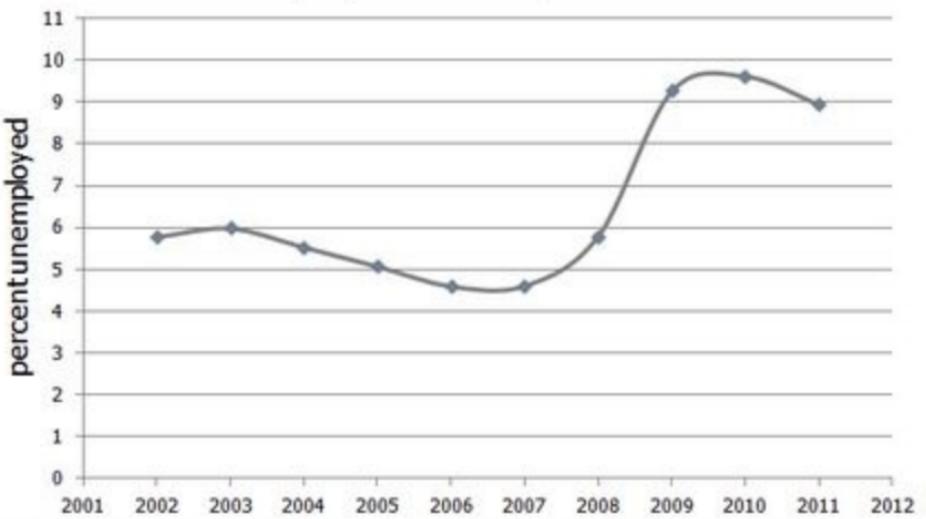
Your Result
Correct

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

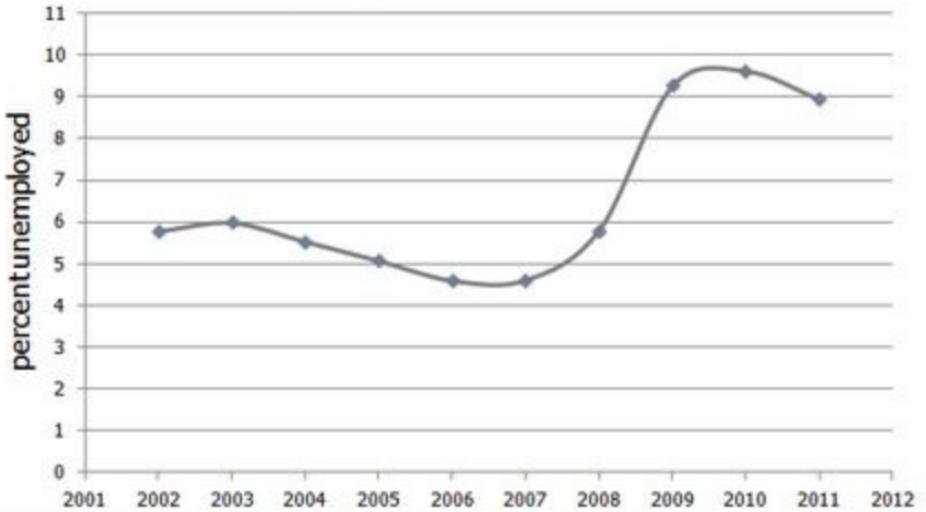
Your Result
Correct

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

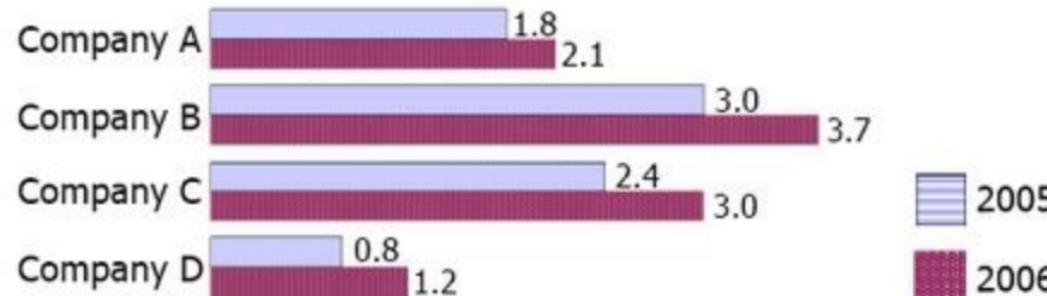
Your Result
Correct

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

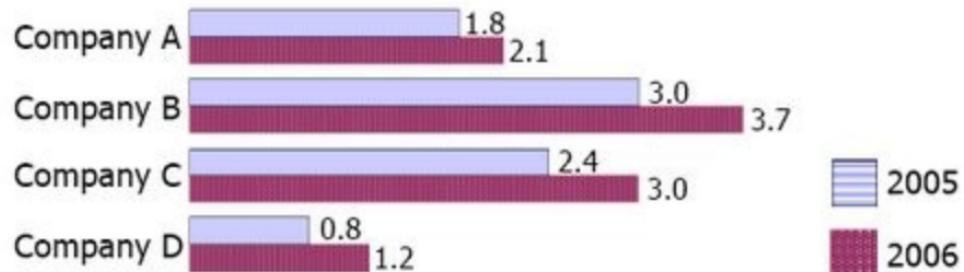
Your Result
Correct

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

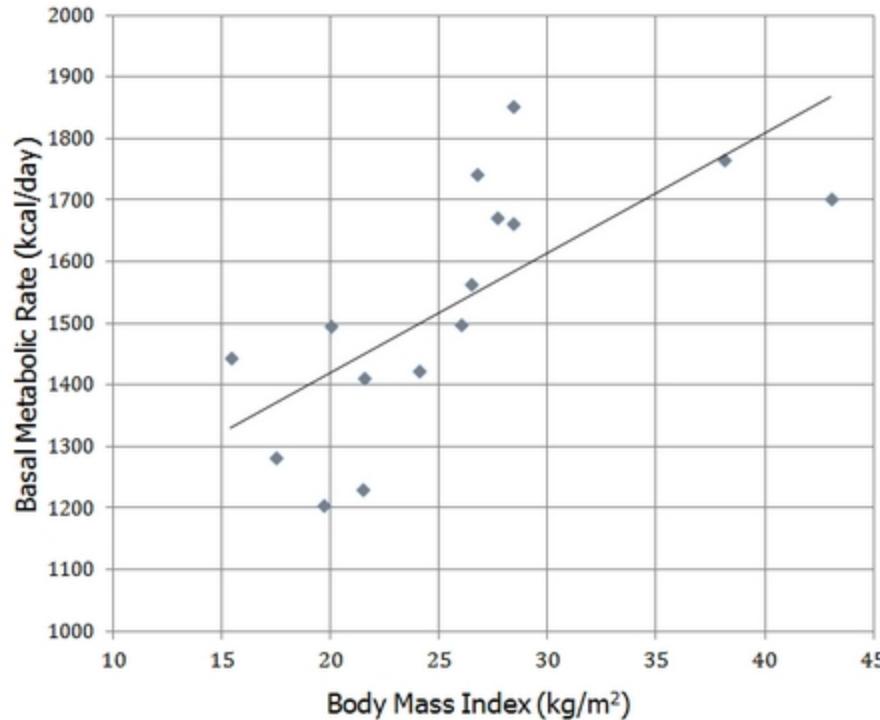
Your Result
Correct

Difficulty
Medium

Your Pace
2:54

Others' Pace
2:03

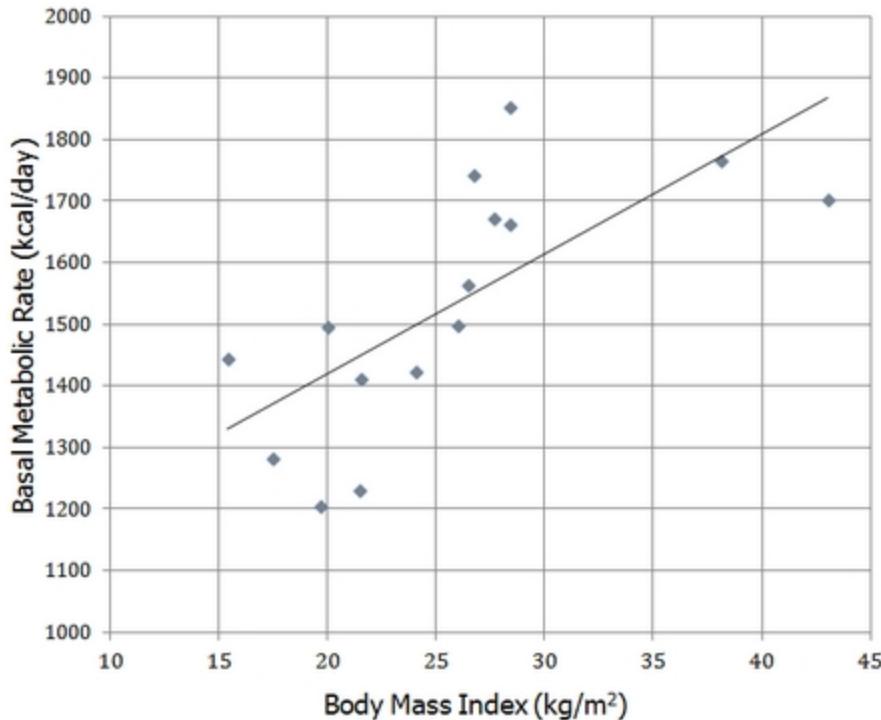
The graph below shows the Body Mass Index (BMI) and Basal Metabolic Rate (BMR) of fifteen males between the ages of 43 and 65.



- The individual on this chart with the highest BMI has a BMR of approximately
- 1204
 - 1444
 - 1563
 - 1702
 - 1853

Category	BMI range (kg/m ²)
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 ²)
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

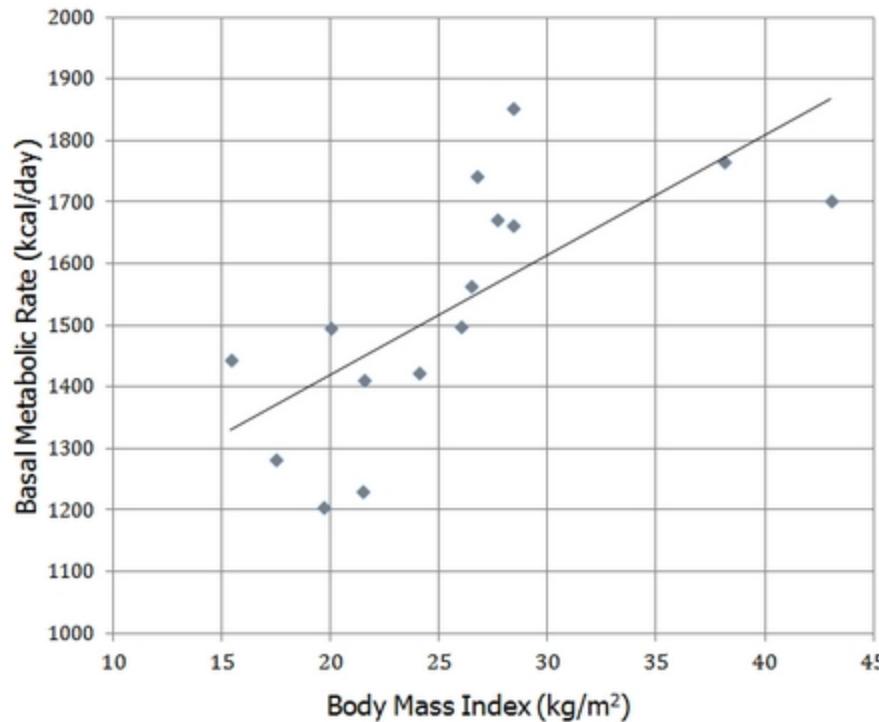
Your Result
Correct

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 ²)
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

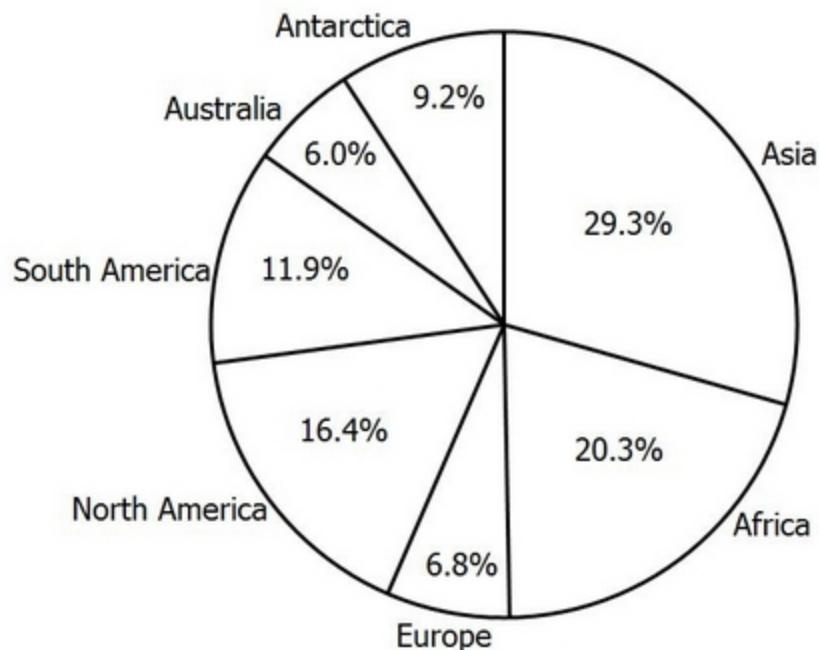
Your Result
Correct

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

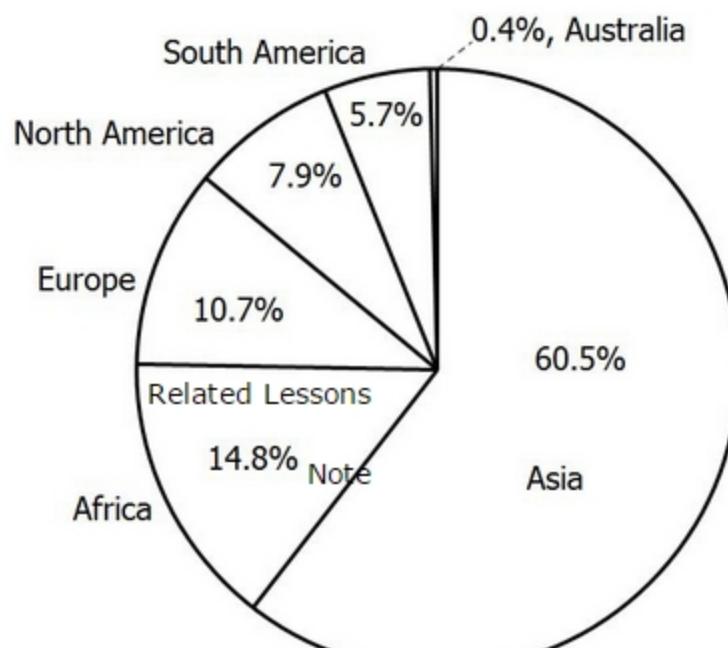
30,450,000

43,950,000

738,916,000

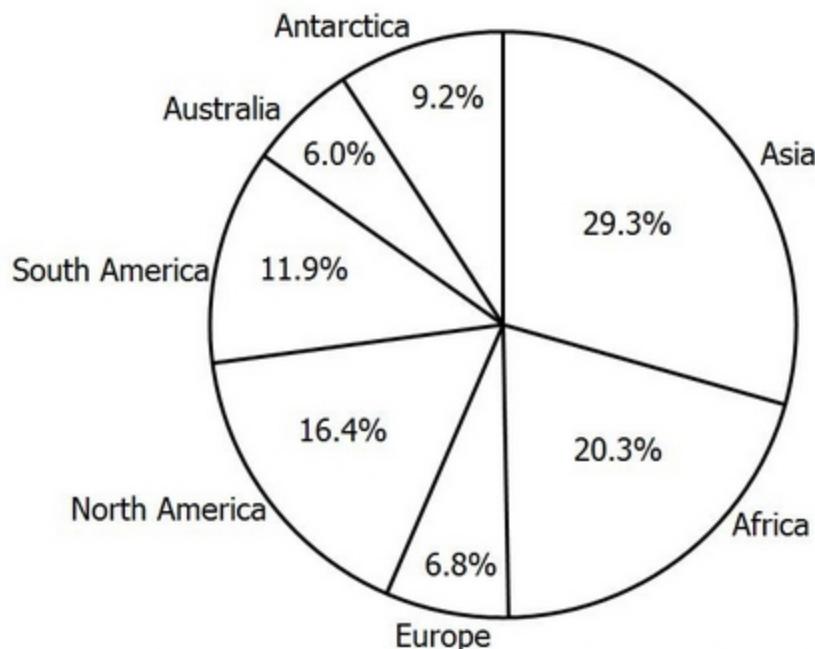
1,421,000,000

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

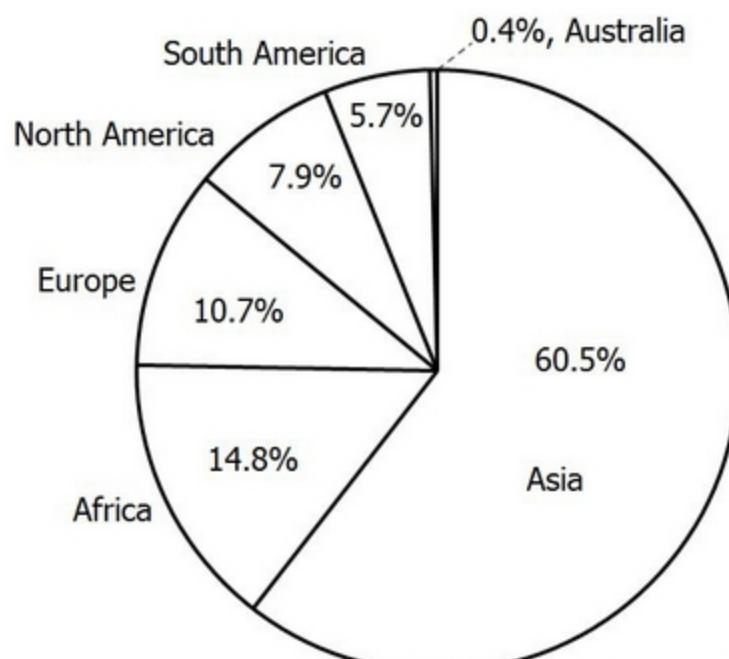
833,000,000

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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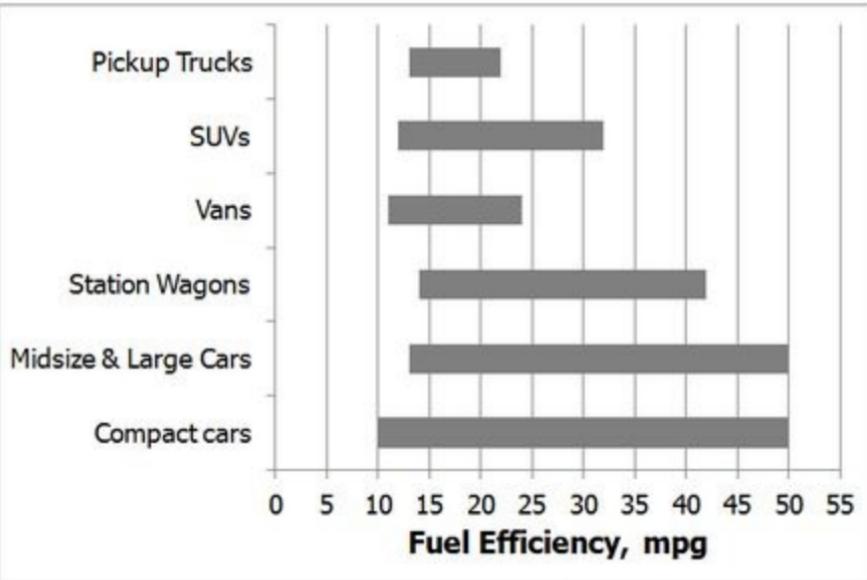
Title
Continents

Your Result
Correct

Difficulty
Easy

Your Pace
0:52

Others' Pace
0:47



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

Note: mpg = miles per gallon

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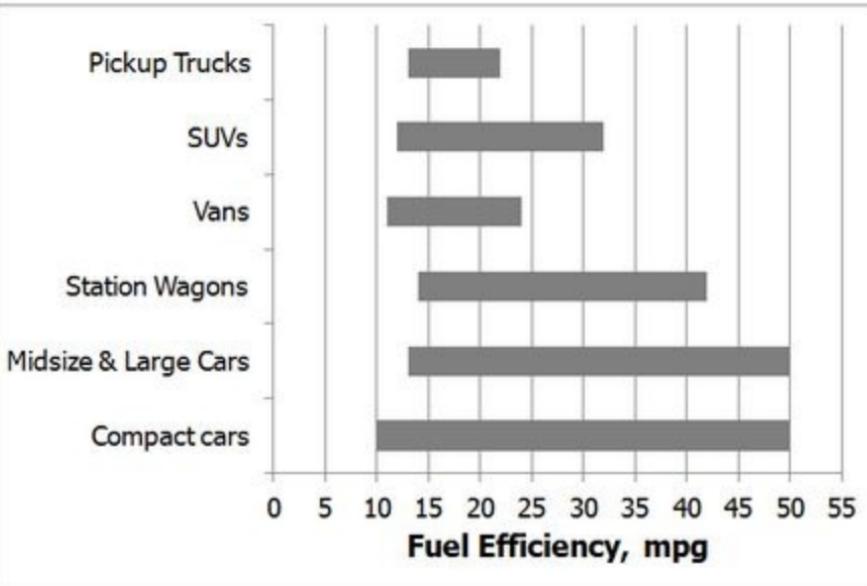
Title
Fuel efficiency of cars

Your Result
Correct

Difficulty
Medium

Your Pace
0:49

Others' Pace
0:56



Note: mpg = miles per gallon

In how many different categories is possible to select a vehicle with a fuel efficiency of 28 mpg?

4

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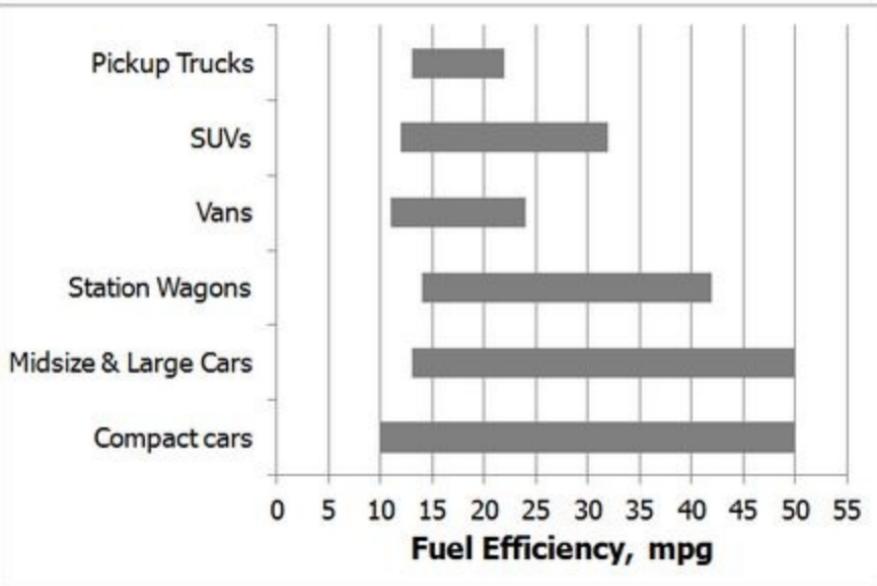
Title
Fuel efficiency of cars

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

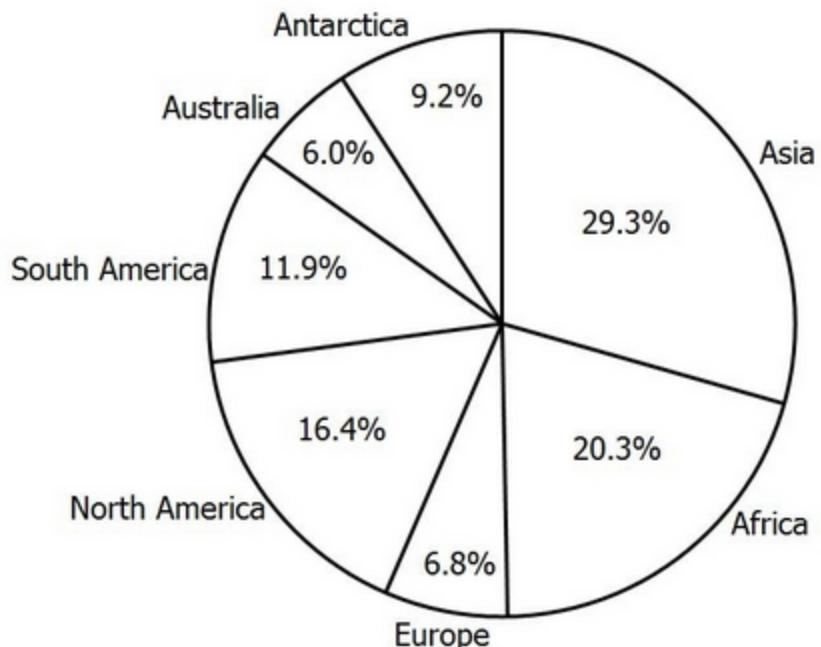
Your Result
Correct

Difficulty
Medium

Your Pace
0:41

Others' Pace
1:46

Continents by Area

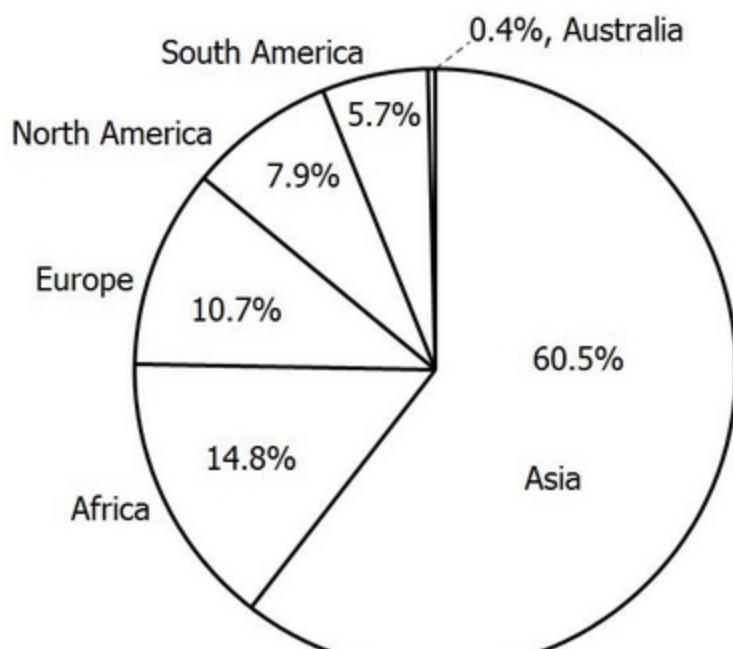


Total continental land area = 150,000,000 sq. km.

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