Answer the questions independently of each other.

There is a lawn with green area equal to 5000 m^2. The green area of the lawn decreases as the square of the number of cows grazing in the lawn. Two cows together ate 8 m^2 area of the lawn on the first day and everyday two new cows join them. The growth of grass of the lawn on a particular day is directly proportional to the cube of the number of days. If 4 m^2 area of grass grew on the first day, on which of the following days would the green area of lawn be 5000 m^2 again the first time after the 1st day?

- ○   2nd day

- ○   3rd day

- ○   4th day

- ○   5th day

Explanation:

Let D_n, C_n and G_n be the decrease in the green area, number of cows and growth in area on n^{th} day respectively and K_1, K_2 be the constants.

∴ $D_n = K_1 C_n^2$ and $G_n = K_2(n)^3$

When $D_1 = 8$, $C_1 = 2 \Rightarrow K_1 = 2$

∴ $D_2 = 2(4)^2 = 32$

$D_3 = 2(6)^2 = 72$

$D_4 = 2(8)^2 = 128$

Also when $G_1 = 4$, $n = 1$

$\Rightarrow K_2 = 4$

∴ $G_2 = 4(2)^3 = 32$

$G_3 = 4(3)^3 = 108$

$G_4 = 4(4)^3 = 256$

Hence, on the third day, the total lawn growth

$= 108 + 32 + 4 = 144 \text{ m}^2$

The total lawn decrease till the third day

$= 8 + 32 + 72 = 112 \text{ m}^2$

On the third day, the total growth is more than the decrease.

Hence, [2].

Correct Answer: ❯

Time taken by you: **91 secs**

Avg Time taken by all students: **74 secs**

Your Attempt: **Skipped**

% Students got it correct: **30 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

Two dogs start running around a 480 m circular track from the same point at the same time in opposite directions and with speeds in the ratio 7 : 9. Which of the following can be the distance of the starting point from the point where they meet for the seventh time?

○   305 m

○   30 m

○   21 m

◉   210 m ✖

😞 Oops, you got it wrong!

Previous   Next   Exit Review

Explanation: ⌄

When the two dogs meet for the 7th time, they together cover a total distance equal to 7 × 480m.

Total distance run by the slower dog $= \dfrac{7 \times 480 \times 7}{7 + 9} = 1470$ m.

Now, 1470 = 3 × 480 + 30

Hence, [2].

Correct Answer: ❯

Time taken by you: **115 secs**

Avg Time taken by all students: **122 secs**

Your Attempt: **Wrong**

% Students got it correct: **52 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

Anil and Vinit are walking towards each other at night. The heights of Anil and Vinit are 1.8 m and 1.5 m respectively. There are lamp posts behind both of them, the lamp post behind Anil being 6 m high and that behind Vinit being 5 m high. Anil and Vinit and both the poles lie on a straight line. At a certain moment when they reach 0.9 m apart from each other, they find that the shadows of their heads fall exactly at each others feet. (i.e., Anil's head's shadow falls on Vinit's feet and Vinit's head's shadow falls on Anil's feet) How far apart are the two lamp posts?

○   3.0 m

○   1.8 m

○   5.1 m

○   6.0 m

Change Section here   ▼ ⌄

04:28

Explanation: ⌄
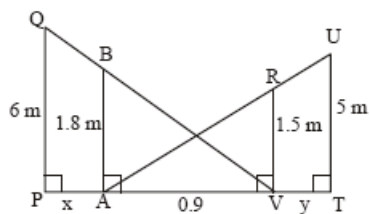
Let PQ and TU be the two poles and AB and VR represent Anil and Vinit.

$$\Delta VAB \sim \Delta VPQ \Rightarrow \frac{AB}{PQ} = \frac{AV}{PV} \text{ i.e., } \frac{1.8}{6} = \frac{0.9}{0.9+x}$$

i.e., x = 3 − 0.9 = 2.1 ⟹ AP = 2.1 m.
Similarly, $\Delta AVR \sim \Delta ATU$

$$\Rightarrow \frac{VR}{TU} = \frac{AV}{AT} \text{ i.e., } \frac{1.5}{5} = \frac{0.9}{0.9+y} \text{ i.e., } y = 2.1$$

⟹ TV = 2.1 m
∴ The two poles are 2.1 + 0.9 + 2.1 = 5.1 m apart.
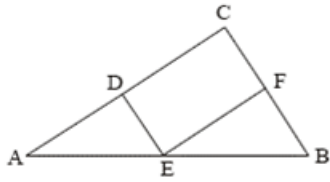Hence, [3].

Correct Answer: ❯

Time taken by you: **20 secs**

Avg Time taken by all students: **193 secs**

Your Attempt: **Skipped**

% Students got it correct: **76 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

In the given figure, CDEF is a rectangle.
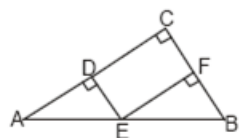
$DE = \frac{1}{3}BC$, AB = 15 units and AC = 9 units.

Find the area (in sq. units) of ΔEFB.

Enter your response (as an integer) using the virtual keyboard in the box provided below.

24

Congratulations, you solved the question correctly and took less than average time!

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Explanation: ⌄

▭CDEF is a rectangle.

∴ m∠ACB = 90° and DE ∥ BC and AC ∥ EF

∴ By AA rule, △ADE ~ △ACB and △ACB ~ △EFB

∴ $\dfrac{AE}{AB} = \dfrac{AD}{AC} = \dfrac{DE}{BC} = \dfrac{1}{3}$

⇒ AE = 5 units and AD = 3 units

∴ EB = AB − AE = 10 units

and DC = AC − AD = 6 units

In right-angled △EFB,

EF = 6 units and EB = 10 units

⇒ FB = 8 units (using pythagoras theorem)

∴ A(△EFB) = $\dfrac{1}{2}$ × 6 × 8 = 24 sq. units.

Therefore, the required answer is 24.

Correct Answer: ❯

Time taken by you: **80 secs**

Avg Time taken by all students: **139 secs**

Your Attempt: **Correct**

% Students got it correct: **57 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

A true-false test has twelve questions. If you randomly answer six questions 'true' and six 'false', your score is guaranteed to be at least five. How many answer keys are there for which this is true?

- ○ 24

- ○ 26

- ○ 22

- ○ None of these

Explanation:

If answers to all the 12 questions are either True or False, then no matter which 6 questions we choose to answer True or False, the score is guaranteed to be more than 5.

If the answers to 11 out of 12 questions are true and the answer to the remaining question is False, we can still get definitely get a score of 5 no matter which 6 questions we choose to answer True of False. Same holds true if the answers to 11 out of 12 questions are False.

However, if the answers to 10 or less than 10 questions out of 12 are true (or false).

We cannot guarantee a score of at least 5.

The number of answer keys when all 12 answers are true or false = 2.

The number of answer keys when 11 out of 12 answers are true or false $= \dfrac{12!}{11!} \times 2 = 24$.

∴ Total number of answer keys = 2 + 24 = 26.

Hence, [2].

Correct Answer: ❯

Time taken by you: **30 secs**

Avg Time taken by all students: **19 secs**

Your Attempt: **Skipped**

% Students got it correct: **15 %**

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Change Section here ▼

Answer the questions independently of each other.

A number $N = 2^3 \times 3^3 \times 5^2 \times 7^2$ What is the number of factors of N that are not divisible by 6?

○   69

○   76

○   63

◉   81 ✘

😓 Oops, you got it wrong!

Answer the questions independently of each other.

A number $N = 2^3 \times 3^3 \times 5^2 \times 7^2$ What is the number of factors of N that are not divisible by 6?

○   69

○   76

Previous   Next   Exit Review

Explanation: ⌄

The total number of factors of the number
$N = 2^3 \times 3^3 \times 5^2 \times 7^2$ is given by
$= (3 + 1) \times (3 + 1) \times (2 + 1) \times (2 + 1)$
$= 4 \times 4 \times 3 \times 3 = 144$
Number of factors divisible by six containing prime number combinations of (2, 3)
(2, 3, 5) (2, 3, 7) (2, 3, 5, 7) is given by:
$2^3 \times 3^3 (3 \times 3)$ = 9 factors
$2^3 \times 3^3 \times 5^2 (3 \times 3 \times 2)$ = 18 factors
$2^3 \times 3^3 \times 7^2 (3 \times 3 \times 2)$ = 18 factors
$2^3 \times 3^3 \times 5^2 \times 7^2 (3 \times 3 \times 2 \times 2) = \underline{36\ factors}$
                                                       = 81 factors
∴ The number of factors not divisible by 6
$= 144 - 81 = 63$
Hence, [3].

Correct Answer: ❯

Time taken by you: **46 secs**

Avg Time taken by all students: **74 secs**

Your Attempt: **Wrong**

% Students got it correct: **45 %**

Answer the questions independently of each other.

What is the number of integer values that x can take for both the equations $x^2 - 6x - 72 < 0$ and $x^2 - 20x + 100 > 0$?

- ⦿ 15 ✖

- ○ 0

- ○ 16

- ○ 10

😞 Oops, you got it wrong!

Answer the questions independently of each other.

What is the number of integer values that x can take for both the equations $x^2 - 6x - 72 < 0$ and $x^2 - 20x + 100 > 0$?

- ⦿ 15 ✖

- ○ 0

Change Section here ▼ ⌄

Explanation: ⌄

Consider $x^2 - 20x + 100 > 0$

$\therefore (x - 10)^2 > 0$

This is true for all real values of x except 10.

And, $x^2 - 6x - 72 < 0$

$\therefore (x - 12)(x + 6) < 0$

$\therefore -6 < x < 12$

$\therefore x = -5, -4, -3, -2, -1, 0, 1, 2, ..., 11$ except 10

$\therefore$ Number of integer values of x are 16.

Hence, [3].

Correct Answer: ➤

Time taken by you: **233 secs**

Avg Time taken by all students: **104 secs**

Your Attempt: **Wrong**

% Students got it correct: **45 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

Rajeev Chopra lives in a joint family. Averages age of all 'n' family members as on 31st Dec 2012 was 31 years. Below is list of all incidents which affected the average in next few years.

	Incident	New Average
31st Dec 2014	Death of Rajeev's Grandmother - 'm' years old	28 years
31st Dec 2016	Birth of Rajeev's daughter	-
31st Dec 2017	Rajeev's brother adopted a son - 7 years old	25 years
31st Dec 2018	Death of Rajeev's grandfather	20 years

What was the age of Rajeev's grandfather when he died?

○   60 years

○   68 years

○   74 years

○   76 years

Explanation: ⌄

Let the age of his grandfather was 'x' years.

Year	Total of Ages
2012	31n
2013	32n
2014	$33n - m = 28n - 28$
2015	$29n - 29$
2016	$30n - 30$
2017	$31n - 31 + 1 + 7 = 25n + 25$
2018	$26n + 26 - x = 20n$

From the information for the year 2017 we get,

$31n - 31 + 8 = 25n + 25$

$\Rightarrow n = 8$

Now, from the information for the year 2018 we get,

$26n + 26 - x = 20n$

$\Rightarrow x = 26 + 6n = 26 + 48 = 74$

Hence, [3].

Correct Answer: ❯

Time taken by you: **8 secs**

Avg Time taken by all students: **104 secs**

Your Attempt: **Skipped**

% Students got it correct: **39 %**

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Answer the questions independently of each other.

A shopkeeper purchased rice from two farmers. From one farmer, he purchased 8 kg of rice for a total of Rs. 100, while from the second farmer, he purchased 4 kg of rice for a total of Rs. 120. He had to incur transportation cost to bring the rice to his shop, which was equal to 5% of the amount he paid to the farmers. On reaching his shop, he mixed the rice purchased from the two farmers. While mixing, 2% rice fell on the ground and therefore could not be sold. At what price should he sell the rice so as to make 10% overall profit?

○   Rs. 17.6 per kg

○   Rs. 19.6 per kg

○   Rs. 21.6 per kg

◉   Rs. 25 per kg ✖

😞   Oops, you got it wrong!

Previous   Next   Exit Review

Explanation: ⌄

Rs. 5 is the transportation cost for 8 kg and Rs.6 is the transportation cost for 4 kg.

∴ Total cost price including transportation cost = 100 + 120 + 5 + 6 = Rs.231

∴ Total selling price = 1.1 × 231 = Rs.254.10

Total quantity of rice sold = 0.98 × 12 = 11.76 kg.

∴ Selling price per kg = $\frac{254.10}{11.76}$ = Rs.21.60/kg.

Hence, [3].

Correct Answer: ❯

Time taken by you: **150 secs**

Avg Time taken by all students: **237 secs**

Your Attempt: **Wrong**

% Students got it correct: **80 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

The refractive index of a medium is directly proportional to the square root of the thickness of the medium and inversely proportional to the square root of the viscosity of the medium. If the refractive index of honey is 3, when its viscosity is 4 and thickness is 9 inches, then what is the refractive index of milk with a viscosity of 16 and thickness of 64 inches?

Enter your response (as an integer) using the virtual keyboard in the box provided.

4

Congratulations, you solved the question correctly and took less than average time!

Previous   Next   Exit Review

Explanation: ⌄

Let $R = k\sqrt{\dfrac{t}{v}}$, thus putting in the values for honey, we get k = 2. This will give

the refractive index for milk = $2 \times \sqrt{\dfrac{64}{16}}$, which is equal to 4.

Therefore, the required answer is 4.
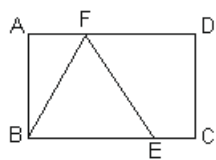
Correct Answer: ❯

Time taken by you: **48 secs**

Avg Time taken by all students: **96 secs**

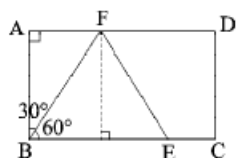Your Attempt: **Correct**

% Students got it correct: **78 %**

Answer the questions independently of each other.

ΔBEF is an equilateral triangle, drawn inside rectangle ABCD, such that A-F-D as shown in the figure. If triangle BEF covers 40% area of rectangle ABCD, then find AF : FD.

- ○ 1 : 3
- ○ 2 : 3
- ○ 3 : 4
- ○ 1 : 4

Explanation:

Let the side of the equilateral $\triangle BEF$ be 'a' units;

then, in 30°-60°-90° $\triangle BAF$, AB = $\dfrac{\sqrt{3}a}{2}$ units and AF = $\dfrac{a}{2}$ units.

Let AD = x units; then,

$$\dfrac{A(\triangle BEF)}{A(\square ABCD)} = \dfrac{40}{100} = \dfrac{2}{5}$$

$$\Rightarrow \dfrac{\dfrac{\sqrt{3}}{4}a^2}{\dfrac{\sqrt{3}}{2}a \times x} = \dfrac{2}{5} \Rightarrow \dfrac{a}{2x} = \dfrac{2}{5} \Rightarrow x = \dfrac{5a}{4}$$

$$\Rightarrow FD = AD - AF = x - \dfrac{a}{2} = \dfrac{3a}{4} \text{ units}$$

Correct Answer:

Time taken by you: **511 secs**

Avg Time taken by all students: **118 secs**

Your Attempt: **Skipped**

% Students got it correct: **56 %**

Previous   Next   Exit Review

Answer the question independently of each other.

An empty vessel is connected with 3 pipes A, B, and C. Pipe A and Pipe B can fill the empty vessel in 4 and 2 minutes respectively while the pipe C can empty the completely filled vessel in 1 minute. Pipe A is opened first and pipe B is opened after 1 minute and the outlet pipe C is opened after 1 more minute.

After how much time from the start is the vessel empty for the first time?

- ◉   2 minutes ✖

- ○   3 minutes

- ○   6 minutes

- ○   The vessel can never be empty

😖   Oops, you got it wrong!

02:55

Explanation:

At the end of 1 minute, the vessel would be 1/4th full as only pipe A was open.
At the end of 2 minutes, the vessel would be completely full as both pipes are open

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{2} = 1$$

At this point, the outlet pipe C is opened.
This pipe empties out a full vessel in 1 minute, whereas pipes A and B are able to fill only

$$\frac{1}{4} + \frac{1}{2} = \frac{3}{4} \text{th of the vessel.}$$

∴ The rate of outflow is more than the rate of inflow.
∴ After some time the vessel would be empty.
Let 't' be the time for which pipe C was opened before the vessel became empty.

$$∴ \frac{1}{1} - \frac{1}{4} - \frac{1}{2} = \frac{1}{t} ∴ t = 4$$

∴ The vessel would be empty after 2 + 4 = 6 minutes from the start.
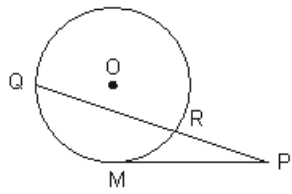Hence, [3].

Correct Answer:

Time taken by you: **82 secs**

Avg Time taken by all students: **101 secs**

Your Attempt: **Wrong**

% Students got it correct: **52 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

In the above figure, PR = QR = 5 cm, radius = $5\sqrt{2}$ cm and O is the centre of the circle. PM is tangent to the circle at M. Find the length of OP.

○ $10\sqrt{2}$ cm

◉ 10 cm✔

○ $\frac{15}{2}\sqrt{2}$ cm

○ $15\sqrt{2}$ cm

Congratulations, you got it correct!

Previous   **Next**   **Exit Review**

Explanation: ⌄

PM is the tangent to the circle and PQ is the secant.

$\Rightarrow PM^2 = PR \times PQ$ ... (tangent-secant theorem)

$\therefore PM^2 = 5 \times 10$

$\therefore PM = 5\sqrt{2}$ cm.

OM is perpendicular to PM at M and

$\ell(OM) = 5\sqrt{2}$ cm ... (radius)

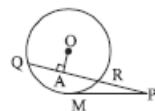$\therefore$ In $\triangle OMP$ by Pythagoras theorem,

$OM^2 + PM^2 = OP^2$

$\therefore OP^2 = 50 + 50 = 100$

$\therefore \ell(OP) = 10$ cm.

Hence, [2].

Alternatively,

$(OA)^2 = (OR)^2 - (AR)^2$

$= 50 - (2.5)^2$

$(OP)^2 = (OA)^2 + (AP)^2$

$= 50 - (2.5)^2 + (7.5)^2 = 50 + 10 \times 5 = 100$

$\therefore OP = 10$ cm

Correct Answer: ❯

Time taken by you: **197 secs**

Avg Time taken by all students: **110 secs**

Your Attempt: **Correct**

% Students got it correct: **71 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

If 'x' pens are distributed equally among a certain number of students, 14 pens remain undistributed. But, if 'x^2' pens are distributed equally among the same number of students, 11 pens remain undistributed. Which of the following can be the total number of students?

○   37

⦿   25 ✘

○   35

○   29

😔 Oops, you got it wrong!

Previous   Next   Exit Review

Change Section here ▾ ⌄

Explanation: ⌄

Let the number of students be n; then,
x = ny + 14, where 'y' is the number of pens given to each student and n > 14.
⇒ $x^2 = n^2y^2 + 28ny + 196$.
Now, $n^2y^2 + 28ny$ is divisible by 'n'.
'196', when divided by 'n', gives a remainder 11.
Thus, 196 − 11 = 185 is divisible by 'n'.
Now, 185 = 37 × 5
Since, n > 14 ⇒ n = 37. Hence, [1].
Alternatively,
Total number of pens = n × y + 14.

We need to check whether $\dfrac{(ny+14)^2}{n}$ leaves a remainder 11, i.e., we should only

check whether $\dfrac{(14)^2}{n}$ leaves a remainder 11.

Among the options, only 37 satisfies this.

Correct Answer: ➤

Time taken by you: **141 secs**

Avg Time taken by all students: **125 secs**

Your Attempt: **Wrong**

% Students got it correct: **56 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

In a shoe manufacturing factory, 18 men manufacture 20 shoes in 10 days working for 7.5 hours a day. How long will it take for 36 men to manufacture 40 shoes working 6 hours a day? It is also known that 4 men in the latter case do as much work as 6 men in the former.

○ $\frac{20}{3}$ days

◉ $\frac{25}{3}$ days ✔

○ $\frac{35}{3}$ days

○   Cannot be determined

Congratulations, you solved the question correctly and took less than average time!

Previous   Next   Exit Review

Explanation: ⌄

It is known that 4 men in the latter case do as much work as 6 men in the former case. So, we can say that 36 men in the latter case do as much work as 54 men in the former case. Hence, we can now say that since 18 × 7.5 × 10 man hours are required to manufacture 20 shoes.

∴ 2 × 18 × 7.5 × 10 man hours are required to manufacture 40 shoes.

Now, there are 54 men working 6 hours a day for say 'd' days.

i.e., 54 × 6 × d = 2 × 18 × 7.5 × 10

∴ d = $\frac{25}{3}$ days. Hence, [2]

Correct Answer: ❯

Time taken by you: **166 secs**

Avg Time taken by all students: **184 secs**

Your Attempt: **Correct**

% Students got it correct: **82 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

A certain quantity of a mixture of oil and water in the ratio 5 : 8, (called mixture A) is mixed with equal volume of another mixture of oil and water (called mixture B), such that the ratio of oil and water in the resultant mixture is 7 : 6. What is the ratio of oil and water in the mixture B?

○   9 : 13

◉   9 : 4 ✔

○   8 : 5

○   None of these

Congratulations, you solved the question correctly and took less than average time!

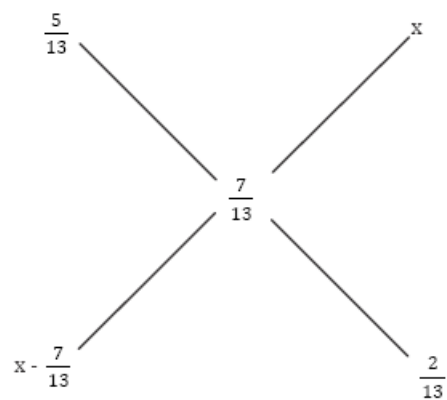
Previous   Next   Exit Review

Explanation: ⌄

By using alligation rule on proportion of oil in both the mixtures,

$$x - \frac{7}{13} = \frac{2}{13}$$

$$\Rightarrow x = \frac{9}{13}$$

Hence the ratio of oil and water is 9:4. Hence, [2].

Correct Answer: ❯

Time taken by you: **43 secs**

Avg Time taken by all students: **120 secs**

Your Attempt: **Correct**

% Students got it correct: **74 %**

Previous　　　Next　　　Exit Review

Answer the questions independently.

$f(x) = \dfrac{4^x}{4^x + 2}$. Find the value of

$f\left(\dfrac{2}{57}\right) + f\left(\dfrac{3}{57}\right) + f\left(\dfrac{4}{57}\right) + \ldots + f\left(\dfrac{54}{57}\right) + f\left(\dfrac{55}{57}\right)$

- ○ 1

- ○ $\dfrac{54}{55}$

- ○ $\dfrac{55}{(57)^{54}}$

- ○ 27

Previous   **Next**   **Exit Review**

Explanation:

$$f(x) = \frac{4^x}{4^x + 2}$$

$$f(1 - x) = \frac{\dfrac{4}{4^x}}{\dfrac{4}{4^x} + 2} = \frac{4}{4 + 2 \cdot 4^x} = \frac{2}{2 + 4^x}$$

$\therefore$ $f(x) + f(1 - x) = 1$

$$f\left(\frac{2}{57}\right) + f\left(\frac{3}{57}\right) + f\left(\frac{4}{57}\right)$$

$$+ \ldots \quad f\left(1 - \frac{3}{57}\right) + f\left(1 - \frac{2}{57}\right)$$

$= 1 + 1 + 1 + \ldots 27 \text{ times} = 27.$

Hence, [4].

Correct Answer: ❯

Time taken by you: **11 secs**

Avg Time taken by all students: **85 secs**

Your Attempt: **Skipped**

% Students got it correct: **53 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

Find the number of points with integer coordinates which are at a distance of less than 5 units from the point (1, 2) on the x-y plane.

- ○ 61 ✖
- ○ 69
- ○ 81
- ○ 105

😞 Oops, you got it wrong!

- ○ 61 ✖

Previous   Next   Exit Review

Explanation: ⌄

We need to find the number of points with integer coordinates inside the circle of radius 5 units and centre at (1, 2). The number of points will be the same for a circle at centre (0, 0) and radius of length 5 units.

Then the equation of this circle is $x^2 + y^2 = 25$.

Consider the first quadrant. The total number of integral points lying inside the circle but not on the axes in the first quadrant are the number of integer solutions of $x^2 + y^2 < 25$.

$x \neq 0$, $y \neq 0$.

Thus, (x, y) = (1, 1), (1, 2), (1, 3), (1, 4), (2, 1), (2, 2), (2, 3), (2, 4), (3, 1), (3, 2), (3, 3), (4, 1), (4, 2).

∴ Number of such points = 13

∴ Number of such points in all the four quadrants = 52

Points on the axes are (0, 0), (0, 1), (0, 2), (0, 3), (0, 4), (0, −1), (0, −2), (0, −3), (0, −4), (1, 0), (2, 0), (3, 0), (4, 0), (−1, 0), (−2, 0), (−3, 0), (−4, 0)

∴ Number of such points = 17

∴ Total number of required points = 52 + 17 = 69

Hence, [2].

Correct Answer: ❯

Time taken by you: **49 secs**

Avg Time taken by all students: **58 secs**

Your Attempt: **Wrong**

% Students got it correct: **31 %**

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Answer the questions independently of each other.

Two candles of equal height but of different thickness are lit simultaneously. If the first burns off completely in 6 hours and the second in 8 hours, when will the first candle be half the height of the second?

○   4 hours

○ $3\frac{4}{5}$ hours

○ $4\frac{4}{5}$ hours

○ $5\frac{3}{5}$ hours

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Section : Quantitative Ability   ▼ ⌄

01:51

Explanation: ⌄

Let the candles burn for x hours to fulfill the given condition.

Fraction of length of the 1st candle left $= 1 - \dfrac{x}{6} = \dfrac{6-x}{6}$

Fraction of length of the 2nd candle left $= 1 - \dfrac{x}{8} = \dfrac{8-x}{8}$

$\therefore \dfrac{1}{2}\left(\dfrac{8-x}{8}\right) = \dfrac{6-x}{6}$ $\therefore x = 4\dfrac{4}{5}$ hours. Hence, [3].

Correct Answer: ❯

Time taken by you: **69 secs**

Avg Time taken by all students: **95 secs**

Your Attempt: **Skipped**

% Students got it correct: **47 %**

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Answer the questions independently of each other.

In a class, there are 5 Students, A, B, C, D and E, who have to sit in a row from left to right in ascending order of their scores in a test. D and B got higher score than E and C respectively. They are also ranked according to these scores. If C got a rank better than the median rank of the class, then how many arrangements are possible?

- ○ 1

- ○ 3

- ○ 12

- ○ 21

Explanation: ﹀

The median rank in the class will be 3 since there are 5 students.

C has a better rank than the median rank. Therefore, C's rank is either 1 or 2.

B got higher marks than C. Therefore, B's rank will be 1.

D got a higher score than E.

D's rank will be either 3 or 4.

Hence, E's rank will be either 4 or 5 and A's rank will be either 3 or 4 or 5.

The 3 possible arrangements from left to right are AEDCB; EADCB or EDACB.

Hence, [2].

Correct Answer: ❯

Time taken by you: **43 secs**

Avg Time taken by all students: **119 secs**

Your Attempt: **Skipped**

% Students got it correct: **74 %**

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Answer the questions independently of each other.

'P' persons are sitting at the corners of a 'P' sided table. They are asked to pass around a bag of coins. There are two rules to be followed.

(i) A person cannot pass the bag to his neighbour.

(ii) There should be exactly one give and take between all possible pairs of persons.

Each time the bag is handed over, a bell rings. If after all the possible transactions are over, the bell has rung 90 times, find the number of people.

Enter your response (as an integer) using the virtual keyboard in the box provided.

13

😔 Oops, you got it wrong!

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Explanation:

The rules imply that a person, say P_1, can pass the bag to any other person, say P_2, sitting diagonally opposite to him and that P_2 cannot pass it back to P_1. Thus, the number of transactions is equal to the number of diagonals of the p-sided table.

$\therefore$ $^PC_2 - P = 90$

$\therefore$ $\dfrac{P(P-1)}{2} - P = 90$

$\therefore$ $P^2 - P - 2P = 180$

$\therefore$ $P^2 - 3P - 180 = 0$

$\therefore$ $(P - 15)(P + 12) = 0$

$\therefore$ $P = 15$

$\therefore$ Number of people = 15.

Therefore, the required answer is 15.

Correct Answer:
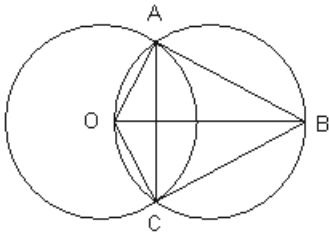
Time taken by you: **67 secs**

Avg Time taken by all students: **41 secs**

Your Attempt: **Wrong**

% Students got it correct: **30 %**

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Answer the questions independently of each other.

In the figure, O is the centre of one of the circles and m∠COA = 120° and AB = AC. If OB ⊥ AC, and BC = 3 cm, then find AC.

○ $\dfrac{3\sqrt{3}}{2}$ cm

○ $\dfrac{5}{2}$ cm
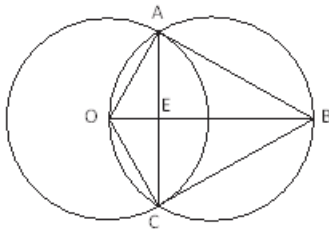
◉   3 cm ✓

○ $2\sqrt{2}$ cm

🤖 Congratulations, you solved the question correctly and took less than average time!

Explanation:

OB ⊥ AC ⟹ OB bisects AC. Let AE = CE = x

∴ AB = 2x

AE = CE, m∠AEB = m∠CEB and BE is common side ⟹ ΔAEB ≅ ΔCEB by SAS test

In ΔAEB, m∠AEB = 90°, AE = x and AB = 2x

⟹ m∠ABE = 30°

⟹ m∠CBE = 30°

⟹ m∠ABC = 60°

⟹ ΔABC is an equilateral triangle.

Correct Answer:

Time taken by you: **48 secs**

Avg Time taken by all students: **148 secs**

Your Attempt: **Correct**

% Students got it correct: **87 %**

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Answer the questions independently of each other.

A total of 'x' workers start working on a project on the first day. On the second, fourth, sixth and eighth days, half of the workers working on the project the previous day left the project, while on the third, fifth and the seventh day, one third of the workers working on the project the previous day left the project. The project was completed in 8 days. If only one employee worked on the project on the 8th day, what is the value of 'x'?

○   45

◉   36 ✖

○   60

○   54

😞 Oops, you got it wrong!

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Explanation:

Based on the given information, the man-power requirement can be tabulated in the following format.

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
Man-power remaining to work	x	x/2	x/3	x/6	x/9	x/18	x/27	x/54
Man-power leaving		x/2	x/6	x/6	x/18	x/18	x/54	

On Day - 8, $\frac{x}{54} = 1 \Rightarrow x = 54$

Hence, [4].

Correct Answer: ❯

Time taken by you: **110 secs**

Avg Time taken by all students: **176 secs**

Your Attempt: **Wrong**

% Students got it correct: **85 %**

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Answer the questions independently of each other.

If in the following equation x and y are integers, then how many sets of solutions do the equation have?

$$\log_3(y-13) + \log_3(y+13) = \log_3(x+17) + \log_3(x-17)$$

Enter your response (as an integer) using the virtual keyboard in the box provided

16

😖 Oops, you got it wrong!

Answer the questions independently of each other.

$$\log_3(y-13) + \log_3(y+13) = \log_3(x+17) + \log_3(x-17)$$

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Explanation:

The equation can be reduced to (y + 13)(y − 13) = (x + 17)(x − 17)

$\Rightarrow x^2 - y^2 = 120$

i.e., (x + y)(x − y) = 2 × 2 × 2 × 3 × 5

Taking (x − y) = 2;

(x + y) = 2 × 2 × 3 × 5 = 60

This gives x = 31 and y = 29.

Taking (x − y) = 4; (x + y) = 30

This gives x = 17 and y = 13.

If x − y = 6, x + y = 20. This gives x = 13, y = 7 and if x − y = 10, x + y = 12. This gives x = 11, y = 1.

We cannot have x − y = 5 or 8.

But for the given equation to hold true we cannot have y ≤ 13 and x ≤ 17.

This implies x = 31 and y = 29 is the only solution.

Therefore, the required answer is 1.

Correct Answer:

Time taken by you: **55 secs**

Avg Time taken by all students: **32 secs**

Your Attempt: **Wrong**

% Students got it correct: **20 %**

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Answer the questions independently of each other.

The fourth term of a geometric progression with common ratio same as the first term is 6561. If all the terms of the progression are positive, find the remainder when the sum of the first eight terms is divided by 6.

Enter your response (as an integer) using the virtual keyboard in the box provided below.

0

Congratulations, you solved the question correctly and took less than average time!

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Explanation: ⌄

Let the first term = common ratio = a

Now, $T_4 = 6561$
$\Rightarrow a.a^{4-1} = 6561$
$\Rightarrow a^4 = 9^4$
$\Rightarrow a = 9$ (∵ all the terms are positive)

The sum of first eight terms = $9^1 + 9^2 + 9^3 + ... + 9^8$.

Each term of the above sum is an odd multiple of 9.

An odd multiple of 9, when divided by 6, will give a remainder 3. [∵ (2n) × 9 = (18n)]

Thus, each term of the sum will leave a reminder 3. The sum of all the remainders = 8 × 3 = 24.

24, when divided by 6, will leave a remainder 0.

Therefore, the required answer is 0.

Correct Answer: ❯

Time taken by you: **74 secs**

Avg Time taken by all students: **110 secs**

Your Attempt: **Correct**

% Students got it correct: **59 %**

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Answer the questions independently of each other.

Two flat circular disks cut out of the same sheet of metal of uniform thickness have their radii in the ratio 3 : 5. Their combined weight is 136 gm. Find the approximate weight (in gm) of the heavier disk.

Enter your response (as an integer) using the virtual keyboard in the box provided

85

Oops, you got it wrong!

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Explanation:

Since the radii of the discs are in the ratio 3 : 5, their areas and their weight are in ratio $3^2 : 5^2$ i.e., 9 : 25.

$\therefore$ Weight of heavier disc $= \frac{25}{34} \times 136 = 100$

Therefore, the required answer is 100.

Correct Answer:

Time taken by you: **130 secs**

Avg Time taken by all students: **74 secs**

Your Attempt: **Wrong**

% Students got it correct: **54 %**

Answer the questions independently of each other.

Let m be the mean of 1, 2, 4, 8, ... , 2^{14}, 2^{15}. Also, for all real x, let [x] denote the greatest integer less than or equal to x. Then the value of [m] will be

Enter your response (as an integer) using the virtual keyboard in the box provided.

256

😔 Oops, you got it wrong!

Answer the questions independently of each other.

Let m be the mean of 1, 2, 4, 8, ... , 2^{14}, 2^{15}. Also, for all real x, let [x] denote the greatest integer less than or equal to x. Then the value of [m] will be

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Explanation:

$1 + 2 + 4 + 8 + \ldots + 2^{14} + 2^{15} = 2^{16} - 1$

Also, there are 16 terms in the sequence.

Hence, the mean $= m = \dfrac{2^{16} - 1}{16} = \dfrac{2^{16} - 1}{2^4} = 2^{12} - \dfrac{1}{2^4}$.

$2^{12} = 4096 \Rightarrow m$ will be between 4095 and 4096.

$\therefore$ [m] will be 4095.

Therefore, the required answer is 4095.

Correct Answer:

Time taken by you: **151 secs**

Avg Time taken by all students: **43 secs**

Your Attempt: **Wrong**

% Students got it correct: **28 %**

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Answer the questions independently of each other.

A tank has two inlet pipes A and B, which can fill the empty tank individually in 4 and 6 hours respectively. The tank also has one outlet pipe C, which can empty the tank completely in 4 hours. The tank is initially empty, when a man opened both inlet pipes. He wanted to open the outlet pipe, when the tank was half full. However, by mistake he started the outlet pipe when the tank was one-fourth empty. How many minutes earlier will the tank get completely filled than it would have, had he started the outlet pipe as per his original plan?

- ○ 24 minutes

- ◉ 36 minutes ✖

- ○ 48 minutes

- ○ 54 minutes

😞 Oops, you got it wrong!

Explanation:

Suppose the volume of the tank = 12 units.

Therefore, pipe A fills 3 units/hr, Pipe B fills 2 units/hr and pipe C empties 3 units/hr.

The time taken by pipes A and B to half fill the tank = $\frac{12}{2(3+2)}$ = 1.2 hrs.

After that, outlet pipe C was supposed to be opened.

The time taken to fill the remaining half = $\frac{12}{2(3+2-3)}$ = 3 hrs.

Therefore, the tank would have been filled after 1.2 + 3 = 4.2 hours.

The time taken by pipes A and B to fill the 75% tank = $\frac{12 \times 3}{4(3+2)}$ = 1.8 hrs.

If the outlet pipe C is opened, the time taken to fill the remaining quarter = $\frac{12 \times 1}{4(3+2-3)}$ = 1.5 hours.

∴ The tank will be full after 1.8 + 1.5 = 3.3 hours.

∴ Required answer = 4.2 − 3.3 = 0.9 hours = 54 minutes.

Hence, [4].

Correct Answer:

Time taken by you: **259 secs**

Avg Time taken by all students: **146 secs**

Your Attempt: **Wrong**

% Students got it correct: **56 %**

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Answer the questions independently of each other.

Four friends W, X, Y and Z carried some amount of money to a club. Total amount with W was found to be $\frac{1}{9}$ times the sum of the total amounts with remaining three. Similarly the total amount with X was found to be $\frac{1}{4}$ times the sum of the total amounts with the remaining three while the total amount with Z was found to be $\frac{2}{3}$ times the sum of the total amounts with the remaining three. What percentage of the total amount with the four friends belonged to Y?

Enter your response (as an integer) using the virtual keyboard in the box provided below.

[   ] %

Explanation:

Let w, x, y & z represent the amount carried by W, X, Y and Z respectively.

$9w = x + y + z$ ...(1)

$4x = w + y + z$

Therefore, $x = 2w$ ...(2)

Also, $3z = 2w + 2x + 2y$

$\Rightarrow 3z = 2w + 4w + 2y$

$\Rightarrow 3z = 6w + 2y$ ...(3)

From (1), $9w = 2w + y + \dfrac{(6w + 2y)}{3}$

$\Rightarrow 27w = 12w + 5y$

$\Rightarrow y = 3w$ ...(4)

From (3), we get:

$\Rightarrow 3z = 6w + 2(3w)$

$\Rightarrow z = 4w$ ...(5)

Total amount $= w + 2w + 3w + 4w$

$= 10w$

The percentage of total amount that belonged to Y

$= 3w \times \dfrac{100}{10w} = 30\%$.

Correct Answer:

Time taken by you: **129 secs**

Avg Time taken by all students: **100 secs**

Your Attempt: **Skipped**

% Students got it correct: **48 %**

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Answer the questions independently of each other.

If the average of three natural numbers 1, x and x^2 is 7 and the average of x, x^2 and x^3 is 28, what is the value of x?

Enter your response (as an integer) using the virtual keyboard in the box provided below.

4

 Congratulations, you solved the question correctly and took less than average time!

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01:31

Explanation: ˅

We have, $1 + x + x^2 = 7 \times 3 = 21$ and

$x + x^2 + x^3 = 28 \times 3 = 84$

$\therefore x + x^2 + x^3 = x(1 + x + x^2) = x \times 21 = 84$

$\therefore x = 4$

Therefore, the required answer is 4.

Correct Answer: ›

Time taken by you: **32 secs**

Avg Time taken by all students: **128 secs**

Your Attempt: **Correct**

% Students got it correct: **92 %**

Answer the questions independently of each other.

If k, m, n > 0, 2m = k + n and km = $\dfrac{64}{n}$; then the possible values of k, m and n respectively are:

- ○ $2, 2^2, 2^3$

- ○ $2^3, 2^2, 2$

- ◉ $2^2, 2^2, 2^2$ ✔

- ○ $2, 2^3, 2^5$

Congratulations, you solved the question correctly and took less than average time!

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Explanation: ⌄

$k, m, n > 0$

$\dfrac{m - k}{n - m} = 1 \Rightarrow m - k = n - m$

$\Rightarrow k, m, n$ are in A.P.

i.e., $(m - d), m, (m + d)$ are the numbers.

As $km = \dfrac{64}{n}$ i.e., $kmn = 64$

$\therefore (m - d) \times m \times (m + d) = 64$

Minimum value is possible when $(m - d) = m = (m + d)$

$\therefore d = 0$

$\therefore m^3 = 64$

$\therefore m = 2^{\frac{6}{3}} = 2^2$

$\therefore$ The value of $k = m = n = 2^2$

Correct Answer: ❯

Time taken by you: **50 secs**

Avg Time taken by all students: **125 secs**

Your Attempt: **Correct**

% Students got it correct: **89 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

If both 'a' and 'b' belong to the set {1, 2, 3, 4, 5} then the number of equations of the form $x^2 + ax + b = 0$ having complex roots is(where 'a' and 'b' need not necessarily be distinct)

Enter your response (as an integer) using the virtual keyboard in the box provided below.

19

Oops, you got it wrong!

Explanation: ⌄

For, $x^2 + ax + b = 0$ to have complex roots,
$a^2 - 4b < 0$ i.e., $a^2 < 4b$
$a = 5$ is not possible.
If $a = 4$, $b = 5 \Rightarrow 1$ way.
If $a = 3$, $b = 3, 4, 5 \Rightarrow 3$ ways.
If $a = 2$, $b = 2, 3, 4, 5 \Rightarrow 4$ ways.
If $a = 1$, $b = 1, 2, 3, 4, 5 \Rightarrow 5$ ways.
$\therefore$ The number of equations $= 1 + 3 + 4 + 5$
$= 13$ ways.

Therefore, the required answer is 13.

Correct Answer: ❯

Time taken by you: **117 secs**

Avg Time taken by all students: **61 secs**

Your Attempt: **Wrong**

% Students got it correct: **42 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

X, Y and Z are distinct natural numbers. If (Z + 2X) is divisible by 8, find maximum possible value of Z for which X + 3Y = 24 and X + Y + Z < 24.

Enter your response (as an integer) using the virtual keyboard in the box provided below.

8

😖 Oops, you got it wrong!

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Explanation: ⌄

X + 3Y = 24 and X + Y + Z < 24 ⇒ X + Y + Z < X + 3Y ⇒ Z < 2Y

The maximum possible value of Y satisfying x + 3y = 24 is 7. Therefore, (X, Y) = (3, 7)

∴ Z < 14

Now, Z + 2X = Z + 6

As (Z + 2X) is divisible by 8 and Z < 14, the maximum value of Z = 10

Therefore, the required answer is 10.

Correct Answer: ❯

Time taken by you: **51 secs**

Avg Time taken by all students: **78 secs**

Your Attempt: **Wrong**

% Students got it correct: **33 %**

Previous   Next   Exit Review

Answer the questions independently of each other.

Aman, Raman and Kirtan invest Rs. 12,000, Rs. 15,000 and Rs. 14,500 in a business, respectively. After 3 months, Aman withdraws Rs. 2,000 while Raman invests Rs. 5,000 more. At the end of a year, they earn a total profit of Rs. 15,750. What is the difference in the shares of profit of Kirtan and Aman(in Rs.)?

Enter your response (as an integer) using the virtual keyboard in the box provided below.

1329

😞 Oops, you got it wrong!

Explanation: ⌄

Ratio of investments of Aman, Raman and Kirtan is
12000 × 3 + 10000 × 9 : 15000 × 3 + 20000 × 9 : 14500 × 12 = 126000 : 225000 : 174000

∴ Required difference

$$= \frac{174000 - 126000}{525000} \times 15750$$

$$= \frac{48}{525} \times 15750 = Rs.1440.$$

Therefore, the required answer is 1440.

Correct Answer: ❯

Time taken by you: **194 secs**

Avg Time taken by all students: **148 secs**

Your Attempt: **Wrong**

% Students got it correct: **47 %**