Rama had bought a stock of goods for Rs. 50,000. He sold 10% of the goods at 15% profit and 40% of the goods at 10% profit. 25% of the goods were damaged by fire and the remaining goods were sold back to the manufacturing company, at a loss of 10%. What is the total loss suffered by Rama (in Rupees)?

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

Explanation:

Net worth of goods = Rs. 50,000

∴ Worth of 10% of goods = Rs. 5,000

These goods are sold at 15% profit, i.e., profit = 15% of 5000 = Rs. 750

∴ Worth of 40% of goods = Rs. 20,000

These goods are sold at 10% profit, i.e., profit = 10% of 20000 = Rs. 2,000

25% goods were lost in fire i.e., loss of Rs. 12,500.

25% goods were returned at loss of 10%. i.e., loss = Rs. 1,250

∴ Net loss = 12500 + 1250 – 750 – 2000 = Rs. 11,000

Therefore, the required answer is 11000.

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **117 secs**

Your Attempt: **Skipped**

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

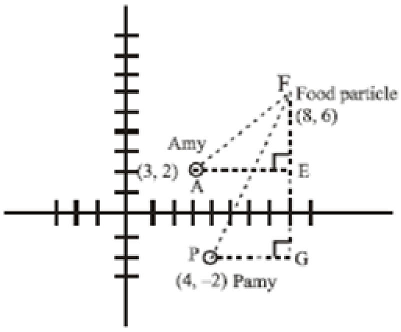
Two ants Amy and Pamy are running on a graph paper. Amy is at a distance 2 cm from the X-axis and 3 cm right of Y-axis. Pamy is directly 2 cm below the X-axis and 4 cm to the right side of Y-axis. They spot a food particle dropped on the first quadrant of the paper. The shortest distance of the food particle from the X-axis is 6 cm and 8 cm from the Y-axis. If Amy can run at a speed of 1 cm/s and Pamy at speed of 1.5 cm/s and, Pamy is further away from the food particle than Amy, then in approximately how many seconds would the food particle be grabbed by either of the ants?

- 5.2 seconds
- 7 seconds
- 6.4 seconds
- 5.9 seconds

Explanation:

From the data, we can determine the positions of Amy, Pamy and the food particle as follows:

(Since Amy is closer to the food particle than Pamy, Amy is in the first quadrant).



From the diagram above, the lengths of AF and PF can be found by distance formula.

Amy is at a distance of $\sqrt{AE^2 + FE^2} = \sqrt{5^2 + 4^2} = \sqrt{41} \approx 6.4$ cm and
Pamy is at a distance of $\sqrt{PG^2 + FG^2} = \sqrt{4^2 + 8^2} = \sqrt{80} \approx 8.9$ cm

Amy will reach the food particle in 6.4 seconds with speed 1 cm/s and Pamy will take approximately **5.9 seconds** to cover 8.9 cm at the speed of 1.5

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **111 secs**

Your Attempt: **Skipped**

% Students got it correct: **38 %**

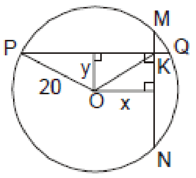
Chords PQ and MN of a circle with centre O intersect at right angles at point K. $\ell(OK) = 4\sqrt{20}$ units. The diameter of the circle is 40 units and the product of the lengths of PQ and MN is 290. Find the sum of the lengths of the two chords.

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

Sum of the length of the two chords = ______ units

06:37

Explanation:



$\because$ ℓ(OK) = $4\sqrt{20}$ units

From the figure,

$x^2 + y^2 = \left(4\sqrt{20}\right)^2 = 320$ ...(i)

Also, PQ = $2\sqrt{400 - y^2}$ and MN = $2\sqrt{400 - x^2}$

$(PQ)^2 + (MN)^2 = 4 \times 400 + 4 \times 400 - 4(x^2 + y^2)$

= 3200 − 4(320) (from (i))

= 1920

Also, (PQ).(MN) = 290

$[(PQ) + (MN)]^2$

$= (PQ)^2 + (MN)^2 + 2(PQ).(MN)$

= 1920 + 290 × 2 = 2500

$\therefore$ (PQ) + (MN) = 50 units.

Therefore, the required answer is 50.

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **4 secs**

Your Attempt: **Skipped**

% Students got it correct: **3 %**

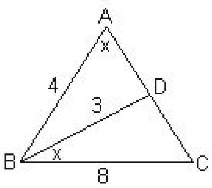
In ΔABC, point D lies on side AC such that A-D-C such that m∠DBC = m∠BAC. If ℓ(AB) = 4 cm, ℓ(BC) = 8 cm and ℓ(BD) = 3 cm, calculate ℓ(DC).

- 4 cm
- 6 cm
- 4.5 cm
- Cannot be determined

Video Explanation:

Explanation:

We have the following



$\Delta ABC \sim \Delta BDC$ using A-A test.

$\therefore \frac{AB}{BD} = \frac{AC}{BC} = \frac{BC}{DC}$

$\therefore \frac{4}{3} = \frac{8}{DC}$

$\therefore \ell\,(DC) = 6$ cm

Hence, [2].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **166 secs**

Your Attempt: **Skipped**

% Students got it correct: **75 %**

The number of real solutions of the equation $x^2 - 7|x| + 12 = 0$ is:

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

02:37

Explanation:

Since $x^2 = |x|^2$, the given equation can be written as

$|x|^2 - 7|x| + 12 = 0$

$\therefore (|x| - 4)(|x| - 3) = 0$

$\therefore |x| = 4$ or 3

$\therefore 4, -4, 3, -3$ are all possible values of x.

Therefore, the required answer is 4.

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **80 secs**

Your Attempt: **Skipped**

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

If $y = x^{\frac{3}{4}} + x^{\frac{1}{2}} - 20x^{\frac{1}{4}}$ then, for how many integer values of x is $y > 0$?

- 0
- 255
- 624
- None of these

Explanation:

$y = x^{\frac{3}{4}} + x^{\frac{1}{2}} - 20x^{\frac{1}{4}}$

Let $x = p^4$, then the equation becomes

$y = p^3 + p^2 - 20p > 0$

$\Rightarrow -5 < p < 0$ or $p > 4$.

Since, p takes infinite values x takes infinite integer values. Hence, [4].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **97 secs**

Your Attempt: **Skipped**

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

In all 64 workers start digging a trench. On every subsequent day, only half as many workers’ as had worked on the previous day worked. Finally the work was completed on the 5th day. If instead ‘n’ workers had worked on each day and finished the work in integer number of days, which of the following cannot be the value of ‘n’? (Assume all workers are equally efficient)

- 31
- 10
- 11
- 41

Video Explanation:

03:10

Explanation:

Total work done (in man-days) in the first 4 days = 64 + 32 + 16 + 8 = 120.

The number of workers on the 5th day = 4.

Therefore the total amount of work to be done is greater than 120 man-days but less than or equal to 124 man-days.

Using options:

If n = 31, one factor of 124 is 31. This is possible.

If n = 10, no factor of a number greater than 120 but less than or equal to 124 is 10. This is not possible.

If n = 11, one factor of 121 is 11. This is possible.

If n = 41, one factor of 123 is 41. This is possible.

Hence, [2].

Correct Answer:

Time taken by you: **248 secs**

Avg Time taken by all students: **88 secs**

Your Attempt: **Skipped**

% Students got it correct: **41 %**

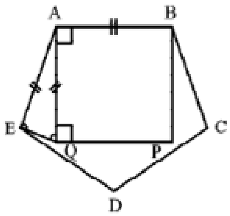
ABCDE is a regular pentagon. ABPQ is a square in the interior of the pentagon.

Give the measure of ∠QED in degrees.

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

Video Explanation:

Explanation:



$m\angle BAQ = 90°$

$m\angle BAE = 108°$ (interior angle of a regular pentagon)

$\therefore\ m\angle QAE = 18°$

$\ell(AB) = \ell(AE) = \ell(AQ)$

$\therefore\ \Delta AQE$ is an isosceles triangle.

$$\therefore\ m\angle AEQ = m\angle AQE = \frac{(180 - 18)}{2} = 81°$$

$\therefore\ m\angle QED = m\angle AED - m\angle AEQ$

$= 108° - 81°$

$= 27°.$

Therefore, the required answer is 27.

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **25 secs**

Your Attempt: **Skipped**

% Students got it correct: **13 %**

Tom left his house for Pat’s house and, after an hour, met Jerry who was also going to Pat’s house. None of them stopped on the way. Tom reached Pat’s house 4 hours after he started and stayed there for 2 hours. On his way back, Tom again met Jerry who was still going towards Pat’s house. If the ratio of Tom’s and Jerry’s speed is 7 : 2, how many hours after Tom left home did he meet Jerry for the second time?

- $\frac{56}{9}$ hours
- $\frac{25}{3}$ hours
- $\frac{44}{7}$ hours
- $\frac{65}{9}$ hours

Explanation:

Let A and B be Tom's and Pat's houses respectively. Let C and D be the places where Tom met Jerry for the first time and for the second time respectively. Tom's speed : Jerry's speed = 7 : 2.

Let Tom's and Jerry's speed be 7x km/hr and 2x km/hr respectively.

The time taken by Tom to reach B from C = 3 hrs.

$\therefore$ CB = 3 × 7x = 21x km.

When Tom started back from B, Jerry had travelled for (3 + 2) = 5 hrs, i.e., he had travelled = 5 × 2x = 10x km.

$\therefore$ When Tom started back from Pat's house, the distance between Tom and Jerry = 21x – 10x = 11x km.

Their relative speed = 7x + 2x = 9x km/hr.

$\therefore$ Time taken by them to travel 11x km

$= \frac{11x}{9x} = \frac{11}{9}$ hrs.

$\therefore$ Total time required $= 4 + 2 + \frac{11}{9} = \frac{65}{9}$ hrs.

Hence, [4].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **182 secs**

Your Attempt: **Skipped**

% Students got it correct: **60 %**

The remainder when (x^2 + mx + 3) is divided by (x + 1) is same as the remainder when it is divided by (x + 2). What is the value of ‘m’?

- 3
- 2
- −2
- Cannot be determined

01:22

Explanation:

The remainder when divided by (x + 1) is same as the remainder when divided by (x + 2).

Let the remainder be ‘k’.

Remainder when $(x^2 + mx + 3)$ is divided by (x + 1) must be a constant (degree of remainder is less than degree of the divisor).

$(x^2 + mx + 3) = \{(x + 1) \times p(x)\} + k$, where p(x) is another 1-degree polynomial and ‘k’ is a constant.

$(x^2 + mx + 3) = \{(x + 2) \times q(x)\} + k$, where q(x) is another 1-degree polynomial and ‘k’ is a constant.

Combining both these facts we conclude that $x^2 + mx + 3 = (x + 1)(x + 2) + k = x^2 + 3x + (2 + k)$ for some ‘k’. So, m = 3 (and k = 1).

Hence, [1].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **123 secs**

Your Attempt: **Skipped**

% Students got it correct: **81 %**

In Country X, when a foreign car is imported, two taxes- custom tax and sales tax are levied. The custom tax is in the range of 50%-60% of the import price. The dealer's price is obtained by taking a mark-up of 10%-15% on the price obtained after the levy of custom tax on the import price. The sales tax (paid by the customer) is applicable on the dealer's price after mark-up. The final selling price (paid by the customer) is 84%-98% more than the import price. Sales tax could vary anywhere between –

- 9.1%-20%
- 7.6%-9.1%
- 0%-20%
- 7.6%-20%

Explanation:

Assume that the import price of the car is Rs. 100.

Therefore, the final selling price is in the range of Rs. 184 to Rs. 198.

Applying customs tax first, Import price + Custom tax would be in the range of Rs. 150 to Rs. 160.

Applying mark-up (for Dealer's price) on this, the price before sales tax could range from (150 × 1.1 =)Rs. 165 to (160 × 1.15 =) Rs. 184.

If the final selling price is same as the dealer price, then the sales tax levy will be zero.

If the final selling price is Rs. 198 and the dealer's price is Rs. 165, then the Sales tax will be

$$\frac{198-165}{165} \times 100 = 20\%$$

Thus, the Sales tax could vary anywhere between 0% - 20%.

Hence, [3].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **93 secs**

Your Attempt: **Skipped**

% Students got it correct: **40 %**

A mixture of liquids A and B contains 70% of B by volume. Liquid C is added till the final solution contains 12% by volume of A. What is the ratio (by volume) of B to C in the final mixture?

- 7 : 15
- 3 : 11
- 7 : 25
- 1 : 5

Video Explanation:

Explanation:

Let the initial mixture is 100 units by volume and contains 30 units of A and 70 units of B.

After C is added, A is still 30 units, and is 12% of the full mixture; hence the mixture must now be

$100 \times \frac{30}{12}$ = 250 units, and C must be 150 units.

Hence, the ratio of B to C by volume is 70 : 150, i.e., 7 : 15.

Hence, [1].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **145 secs**

Your Attempt: **Skipped**

% Students got it correct: **88 %**

Swanand was asked to add all the numbers less than 1000 which were divisible by 16 but left a remainder of 1 when divided by 15. Instead he added all the numbers less than 1000 which were divisible by 15 but left a remainder of 1 when divided by 16. By how much did his answer differ from the correct answer?

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

Explanation:

The numbers that Swanand wrote must be of the form 16k+1 such that 15 divides 16k + 1, i.e. 15 divides k+1 (as 15 divides 15k) The first such number will be for k = 14, i.e. 16(14)+1 = 225. The next numbers will be for k = 29, 44, etc. Note that the next number will exceed the previous by 15x16 = 240. So, the next numbers will be 225+240, 225+480, 225+720.
His sum = 225(4) + 240(0+1+2+3) = 900+1440 = 2340
The first number that satisfies the given condition is 16. The next numbers are: 16+240, 16+480, 16+720 and 16+960. Required sum = 16(5) + 240(0+1+2+3+4) = 80+2400 = 2480
So, the difference in the answers = 2480 – 2340 = 140.

Therefore, the required answer is 140.

Correct Answer:

Time taken by you: **0 secs**

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

Your Attempt: **Skipped**

% Students got it correct: **9 %**

Find 'm', if the roots of the equation $x^3 - 24x^2 + mx - 384 = 0$ are in arithmetic progression (AP).

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

Explanation:

$x^3 – 24x^2 + mx – 384 = 0$

Let the roots of the equation be (a – d), (a) and (a + d).

? (a – d) + (a) + (a + d) = 24

? a = 8

Also, (a – d) × (a) × (a + d) = 384

? $(a^2 – d^2)(a) = 384$

? $(64 – d^2)(8) = 384$

Solving this we get d = ±4

Therefore, the roots are 4, 8 and 12.

? m = 4 × 8 + 8 × 12 + 12 × 4 = 176

Therefore, the required answer is 176.

Alternatively,

Consider the roots (a – d), (a) and (a + d).

? (x - a + d)(x - a)(x - a - d) = 0

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **127 secs**

Your Attempt: **Skipped**

% Students got it correct: **65 %**

In how many ways can a cube be colored using 6 colors if each color should be used at least once?

- 720
- 120
- 20
- 30

Explanation:

As the faces are not distinct, first of the six colors can be used on any face in only one way. Now, for the face opposite to this, we have 5 colors to choose. Now, 4 more faces are remaining. First color out of remaining 4 can be chosen in only one way again as they are all identical. And the remaining three colors can be used on remaining three faces in 3! = 6 ways.

Hence, total number of ways = 5 × 6 = 30.

Hence, [4].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **20 secs**

Your Attempt: **Skipped**

% Students got it correct: **12 %**

An empty tank can be filled completely in 16 minutes. If the tank develops a leak when the tank is half full, the tank can be completely filled in 32 minutes. Had the tank developed the leak right at the beginning when the tank started getting filled, how many minutes would it take for the tank to be filled completely?

- 60 minutes
- 36 minutes
- 48 minutes
- The tank will never be full

Video Explanation:

02:17

Explanation:

Given: If the leak develops when the tank is half full, it would take 32 minutes to fill the tank completely.

The time taken to fill the first half of the tank = $\frac{16}{2}$ = 8 minutes.

In the absence of leak, the time taken to fill the second half = 8 minutes.

In the presence of leak, the time taken to fill the second half = 32 – 8 = 24 minutes.

∴ The time taken to fill the tank if the leak had developed right at the beginning = 2 × 24 = 48 minutes.

Hence, [3].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **131 secs**

Your Attempt: **Skipped**

% Students got it correct: **67 %**

Find the ratio of the sum of the first 43 terms of an AP to the common difference if the sum of the first 15 terms and that of the first 27 terms of this AP is equal.

- 1 : 1
- 3 : 4
- 21 : 1
- 43 : 2

Explanation:

Let the first term of the AP be 'a' and the common difference be 'd'.

$$\frac{15}{2}[2a + 14d] = \frac{27}{2}[2a + 26d]$$

$\therefore 2a + 41d = 0$

Sum of the first 43 terms $= \frac{43}{2}[2a + 42d] = \frac{43}{2}[0 + d] = \frac{43}{2}d$

$\therefore$ The required ratio = 43 : 2

Hence, [4].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **196 secs**

Your Attempt: **Skipped**

% Students got it correct: **81 %**

In a test, Sam answers 7 of the first 10 questions correctly and 40% of remaining questions correctly. He got 44% of the total marks in the test. How many questions were there in the test, if all questions carried equal marks and that there were no negative marks for wrong answers?

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

Explanation:

Let there are ‘x’ questions in the test.
So out of first 10 questions 7 questions were answered correctly and out of the remaining ‘x – 10’ questions 0.4 (x – 10) are answered correctly.
Suppose each question carries 1 mark each
So, $7 + 0.4(x - 10) = 0.44x$
$\therefore 3 = 0.04x$
Which gives $x = 75$.

Therefore, the required answer is 75.

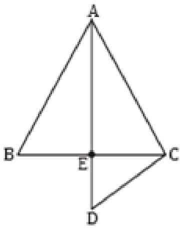
Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **108 secs**

Your Attempt: **Skipped**

% Students got it correct: **58 %**



Given ℓ(DC) = 6 units, ℓ(ED) = 4 units. 'E' is the midpoint of BC and m∠BAE = m∠EAC = m∠ECD.

Find ℓ(AC). Given m∠AEC = 90°

- 4
- $2\sqrt{5}$
- 5
- $3\sqrt{5}$

Video Explanation:

02:24

Explanation:

m∠AEC = 90° ⇒ m∠DEC = 90°

In ΔCED, ℓ(DC) = 6 units, ℓ(ED) = 4 units ⇒ ℓ(EC) = $2\sqrt{5}$ units

Given: m∠EAC = m∠ECD and m∠AEC = 90° ⇒ m∠DEC = 90°

∴ ΔAEC ~ ΔCED ...(AA test of similarity)

$\frac{AC}{CD} = \frac{EC}{ED} \Rightarrow \frac{AC}{6} = \frac{2\sqrt{5}}{4} \Rightarrow AC = 3\sqrt{5}$ units

Hence, [4].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **175 secs**

Your Attempt: **Skipped**

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

The function F is defined as $F(k) = 2k^3 - 3k^2 - 5k + 7$ and the function G is defined as $G(k) = 2k^3 + k^2 + 7k + 15$. Find the product of all values of 'k' for which F(k) and G(k) are equal.

- 2
- 1
- 8
- −2

Video Explanation:

Explanation:

If F(k) = G(k) then G(k) – F(k) = 0.

$\Rightarrow (2k^3 + k^2 + 7k + 15) - (2k^3 - 3k^2 - 5k + 7) = 0$

$\Rightarrow 4k^2 + 12k + 8 = 0$

$\Rightarrow k^2 + 3k + 2 = 0$

$\Rightarrow k = -1$ or $k = -2$.

The required product is 2.

Hence, [1].

Correct Answer:

Time taken by you: **0 secs**

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

Your Attempt: **Skipped**

% Students got it correct: **81 %**

A ball thrown upwards with a velocity of ‘u’ m/s reaches a height (in m) of $(ut - 5t^2)$ at the end of ‘t’ seconds. It attains a maximum height of 16.2 m. At what time does it reach this height?

- 1.8 seconds
- 1.2 seconds
- 1.6 seconds
- Cannot be determined

Explanation:

$(ut - 5t^2)$ denote the height attained at the end of 't' seconds.

$(ut - 5t^2) = -(5t^2 - ut)$

$$= -\left(5t^2 - ut + \frac{u^2}{20} - \frac{u^2}{20}\right) = -\left\{\left(\sqrt{5}t - \frac{u}{2\sqrt{5}}\right)^2 - \frac{u^2}{20}\right\} = \frac{u^2}{20} - \left(\sqrt{5}t - \frac{u}{2\sqrt{5}}\right)^2$$

$$\therefore \text{Maximum of } (ut - 5t^2) = \frac{u^2}{20}$$

$$\text{Maximum height is attained when } \left(\sqrt{5}t - \frac{u}{2\sqrt{5}}\right)^2 = 0$$

$$\text{i.e., } \sqrt{5}t = \frac{u}{2\sqrt{5}} \Rightarrow t = \frac{u}{10}$$

$$\therefore 16.2 = \frac{u^2}{20} \Rightarrow u = 18$$

$\therefore t = 1.8$ seconds

Correct Answer:

Time taken by you: **0 secs**

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

Your Attempt: **Skipped**

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

Change Section here ▼

	C1	C2	C3	C4
R1				
R2				

Each cell in a 4 × 2 grid given above is to be painted with one colour out of four colours red, blue, green and yellow, such that no two squares painted with the same colour are in the same row or in the same column. Find the number of ways to do this. (Note: Each cell in the grid is distinct.)

- 4! × 3!
- 23 × 4!
- 9 × 3!
- 9 × 4!

Explanation:

	C1	C2	C3	C4
R1				
R2				

The first row can be filled with the four colours in 4! ways.
Once the first row is filled, the second row can be filled in d(4) ways, where d(4) is the number of derangements of 4.

$$d(4) = 4!\left[\frac{1}{2!}-\frac{1}{3!}+\frac{1}{4!}\right] = 12 - 4 + 1$$

$= 9$

$\therefore$ Total number of ways of filling the grid $= 9 \times 4!$. Hence, [4].

Correct Answer:

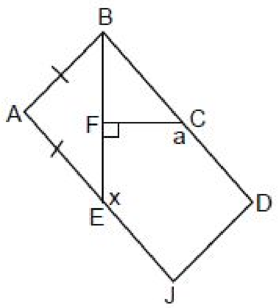
Time taken by you: **0 secs**

Avg Time taken by all students: **55 secs**

Your Attempt: **Skipped**

% Students got it correct: **32 %**

In the diagram, BE bisects ∠B. Find the value of (x + a).



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

Explanation:

Suppose m∠ABE = m∠EBC = α

Since ΔBFC is a right angled triangle, m∠BCF = 90 – α

∴ m∠FCD = 90 + α

Since ΔABE is an isosceles triangle, m∠ABE = m∠AEB = α

∴ m∠FEJ = 180 – α

∴ x + a = m∠FEJ + m∠FCD = (90 + α) + (180 – α) = 270°

Therefore, the required answer is 270.

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **97 secs**

Your Attempt: **Skipped**

% Students got it correct: **64 %**

A number is said to be a 'zeroth number', if the sum of the squares of its digits ends in a zero. How many two-digit 'zeroth numbers' are there?

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

Explanation:

Let the two-digit ‘zeroth number’ be 10x + y.

Then, $1 \le x \le 9$, $0 \le y \le 9$ and $x^2 + y^2 = 10k$

x	x^2	y^2 must end in	possible values of y
1	1	9	3, 7
2	4	6	4, 6
3	9	1	1, 9
4	16	4	2, 8
5	25	5	5
6	36	4	2, 8
7	49	1	1, 9
8	64	6	4, 6
9	81	9	3, 7

∴ The required number = 17.

Alternatively,

From 1 to 9, there are two sets of numbers whose squares end in 1, 4, 6, 9.

Thus, for every 1, there are two 9s; for every 4, there are two 6s; and so on.

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **57 secs**

Your Attempt: **Skipped**

% Students got it correct: **25 %**

Let a, b, c be distinct digits. Consider a 2-digit number 'ab' and a 3-digit number 'ccb', both defined under the usual decimal number system. If $(ab)^2$ = ccb and ccb > 300, then the value of 'b' is

- 1
- 0
- 5
- 6

Video Explanation:

Explanation:

$(ab)^2$ = ccb

'b' can be 0, 1, 5 or 6.

Also ccb > 300

With above conditions,

Largest possible square ≤ 999 is $(31)^2 = 961$

Smallest possible square > 300 is $(20)^2 = 400$

But as the square has first two digits equal, the only possible numbers is $(21)^2 = 441$.

∴ b = 1.

Hence, [1].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **107 secs**

Your Attempt: **Skipped**

% Students got it correct: **81 %**

Consider two functions $f(x) = x^2 + 6x + 9$ and $g(x) = x^2$

X_1 and X_2 respectively are the values at which functions $f(x)$ and $g(x)$ attain minimum value. Find $|X_1 - X_2|$.

- 1
- 2
- 3
- 4

Video Explanation:

Explanation:

$f(x) = (x + 3)^2$ has minimum value 0 at –3.

$\therefore X_1 = -3$

$g(x) = x^2$ has minimum value 0 at 0.

$\therefore X_2 = 0$

$|X_1 - X_2| = 3$

Hence, [3].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **93 secs**

Your Attempt: **Skipped**

% Students got it correct: **88 %**

The average marks of $\frac{1}{5}^{th}$ of the class is 60% of the average marks of the entire class. What is the ratio of the average marks of the remaining i.e., $\frac{4}{5}^{th}$ of the class to that of the entire class?

- $\frac{7}{5}$
- $\frac{6}{5}$
- $\frac{11}{10}$
- $\frac{25}{8}$

Explanation:

Let 'n' be the total number of students.
Let 'x' be the average of the entire class.

Now, $\frac{1}{5}^{th}$ of the students (i.e., 0.2n) have a class average of 0.6x.
Let remaining $\frac{4}{5}^{th}$ (i.e., 0.8n) of the students have an average of y.

According to given data,
$0.2 \times 0.6x + 0.8n \times y = nx$
$0.8ny = nx - 0.12nx$
$0.8ny = 0.88nx \Rightarrow y = \frac{0.88}{0.8}x$
$\Rightarrow y = \frac{11}{10}x \Rightarrow \frac{y}{x} = \frac{11}{10}$

Hence, [3].

Correct Answer:

Time taken by you: **0 secs**

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

Your Attempt: **Skipped**

% Students got it correct: **81 %**

A hundred chairs are placed in a straight line such that the distance between any two adjacent chairs is 1 m. In how many ways can Vinit, Rohit and Mohit sit on the chairs such that Vinit is 5 m away from Rohit and Mohit is 3 m away from Vinit?

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

03:51

Explanation:

Let the chairs be numbered 1 to 100 from left to right.
Let Vinit, Rohit and Mohit sit on V^{th}, R^{th} and M^{th} chairs respectively.
Then $|V - R| = 5$ and $|V - M| = 3$
Case (i): Rohit and Mohit are both on the same side of Vinit (i.e.,R-M-V or V-M-R)
In either case, the person on the extreme left has 95 choices of chairs to sit on (1 to 95).
For each choice, the positions of the other two are fixed.
So, $95 \times 2 = 190$ possibilities.
Case (ii): Rohit and Mohit are on opposite sides of Vinit (i.e., R-V-M or M-V-R)
In either case, the person on the extreme left has 92 choices of chairs to sit on (1 to 92).
For each choice, the positions of the other two are fixed.
So, $92 \times 2 = 184$ possibilities.
So in all, there are $190 + 184 = 374$ possibilities.

Therefore, the required answer is 374.

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **15 secs**

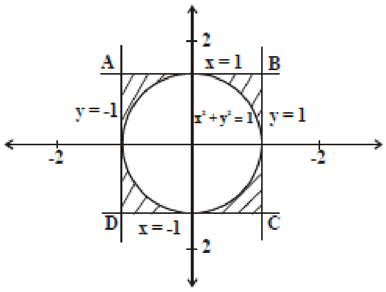
Your Attempt: **Skipped**

% Students got it correct: **8 %**

Find the area of the region satisfying $x^2 + y^2 \geq 1$, $|x| \leq 1$ and $|y| \leq 1$.

- 2
- 4
- π
- $4 - \pi$

Explanation:



Area of square ABCD = 2^2 = 4
Area of circle = πr^2 = π
$\therefore$ Bounded area = 4 − π. Hence, [4].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **62 secs**

Your Attempt: **Skipped**

% Students got it correct: **58 %**

A bag contains five 1 rupee coins, four 50 paise coins and seven 25 paise coins. Four coins are drawn from the bag one after the other and every time a coin is removed, it is replaced with a 25 paise coin. What is the probability that the 1st, 2nd, 3rd and 4th coins are 25 paise, 50 paise, 1 rupee and 50 paise coins, respectively?

- $\frac{7 \times 6 \times 5 \times 4}{(16)^4}$
- $\frac{7 \times 5 \times 4 \times 3}{(16)^4}$
- $\frac{7 \times 6 \times 5 \times 4}{16 \times 15 \times 14 \times 13}$
- $\frac{7 \times 4 \times 4 \times 3}{(16)^4}$

Explanation:

Probability of 1^{st} coin being a 25 paise coin = $\frac{7}{16}$

Probability of the 2^{nd} coin being a 50 paise coin = $\frac{4}{16}$

Probability of the 3^{rd} coin being a 1 rupee coin = $\frac{5}{16}$

Probability of the 4^{th} coin being a 50 paise coin = $\frac{3}{16}$

$\therefore$ Required probability = $\frac{7 \times 4 \times 5 \times 3}{(16)^4}$. Hence, [2].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **126 secs**

Your Attempt: **Skipped**

% Students got it correct: **83 %**

In how many ways can 10 identical chocolates be distributed among four friends?

(Note : It is possible that one or more friends get no chocolate).

- 84
- 210
- 286
- 126

Explanation:

If four children get ‘a’, ‘b’, ‘c’ and ‘d’ chocolates respectively, we get a + b + c + d = 10. The required answer is the number of non-negative solutions to the equation a + b + c + d = 10.

The required answer = ${}^{(10+3)}C_3 = \frac{13!}{10!3!} = 286$

Hence, [3].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **73 secs**

Your Attempt: **Skipped**

% Students got it correct: **65 %**

A rectangular parallelopiped having length 8 cm, breadth 6 cm and height 5 cm is cut into 240 identical small cubes of side 1 cm each by cutting it using planes parallel to its faces. What can be said about the ratio of the length of the solid diagonal of the original rectangular parallelopiped to that of the length of the solid diagonal of each of the 240 small cubes formed?

- It is between 4 and 5
- It is between 5 and 6
- It is between 6 and 7
- It is between 7 and 8

Video Explanation:

Explanation:

The length of the solid diagonal of the rectangular parallelopiped = $\sqrt{8^2 + 6^2 + 5^2} = \sqrt{125}$ cm

The length of the solid diagonal of each small cube = $\sqrt{1^2 + 1^2 + 1^2} = \sqrt{3}$ cm

$\therefore$ The required ratio $= \frac{\sqrt{125}}{\sqrt{3}} = \sqrt{41\frac{2}{3}}$. This is between 6 and 7.

Hence, [3].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **107 secs**

Your Attempt: **Skipped**

% Students got it correct: **69 %**

Change Section here ▼

Aayush and Advait lent some money to Aaditya at 9% p.a. Aaditya keeps some amount for himself and lent remaining to Aarush at 12% p.a. At the end of the year, he received Rs. X as interest. Had he lent the entire amount to Aarush, he would have received Rs. Y as interest. The difference between X and Y is 4/3rd of the difference between the interest accrued by Aayush and Advait. If Aaditya took Rs. 1000 less from Aayush than Advait, how much was the amount kept by Aaditya for himself?

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

Explanation:

Let Aayush gave Rs. A and Advait gave Rs. (A + 1000) to Aaditya.

Interest accrued by Aayush = $\frac{9A}{100}$

Interest accrued by Aayush = $\frac{9A}{100} + 90$

$\therefore$ the difference between the interest accrued by Aayush and Advait = 90

Let Aaditya kept Rs. B for himself.

$\therefore X = (2A + 1000 - B) \times \frac{12}{100}$

$Y = (2A + 1000) \times \frac{12}{100}$

$\therefore Y - X = B \times \frac{12}{100}$

By the given conditions,

$B \times \frac{12}{100} = 90 \times \frac{4}{3} \Rightarrow B = \text{Rs. } 1,000$

Therefore, the required answer is 1000.

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **109 secs**

Your Attempt: **Skipped**

% Students got it correct: **41 %**

Four identical outlet pipes, which individually empty an initially full tank in 12 hours each, have been attached to the tank. The four pipes have been attached to the tank at the bottom of the tank, at 25% height from the bottom, at 50% height from the bottom and at 75% height from the bottom respectively. If the tank is initially full, after how much time will the tank be completely empty? (Note: each pipe can empty water only so long as water level in the tank is above the level of the pipe).

- 5 hours and 45 minutes
- 6 hours and 12 minutes
- 6 hours and 15 minutes
- 8 hours

Explanation:

If each pipe takes out 1 unit per hour, the volume of the tank = 12 litres.

For the top 25% volume (3 litres), all the four pipes are operational. Therefore, the time taken to empty the top 25% of the tank = $\frac{3}{4}$ hours.

For the next 25% volume (3 litres), only three pipes are operational. Therefore, the time taken to empty the next 25% of the tank = $\frac{3}{3}$ = 1 hour.

For the next 25% volume (3 litres), only two pipes are operational. Therefore, the time taken to empty the next 25% of the tank = $\frac{3}{2}$ = 1.5 hours.

For the bottommost 25% volume (3 litres), only one pipe is operational. Therefore, the time taken to empty the bottommost 25% of the tank = $\frac{3}{1}$ = 3 hours.

Therefore, the total time taken = $\frac{3}{4} + 1 + \frac{3}{2} + 3 = 6.25$ hours

Hence, [3].

Correct Answer:

Time taken by you: **0 secs**

Avg Time taken by all students: **243 secs**

Your Attempt: **Skipped**

% Students got it correct: **79 %**