Q1. What is the fourth proportional of 0.006, 1.2 & 6/25?

A. 36

B. 48

C. 4.8

D. 3.6

Answer: Option B

Explanation:

Let the fourth proportional be x

Then,

0.006: 1.2 :: 6/25 : x

0.006 * x = 1.2 * 6/25 (Since Product of means = Product of extremes)

x = (1.2*6)/(25*0.006)

x = 7.2/0.15

x = 48

Q2. Two ants of length 1 cm and 1.2 cm crawl in opposite directions with average speeds of 2 and 3 mm per second respectively. How many seconds will they take to cross each other?

A. 4.4

B. 2.8

C. 0.4

D. 1.5

Answer: Option A

Explanation:

Relative distance to be covered = Sum of the lengths of ants

= 1 + 1.2

= 2.2 cm

= 22 mm (1 cm = 10 mm)

Relative speed when bodies move in opposite directions = Sum of the speeds

= 2 + 3

= 5 mm per second

Time taken to cross each other = Relative distance / Relative speed

= 22/5

= 4.4 seconds

Q3. The index numbers of five commodities are 121, 123, 125, 126, 128 and the weights assigned to these are respectively 5, 11, 10, 8, 6. Then what is the weighted average index number?

A. 123.8

B. 124.2

C. 124.6

D. 125.2

Answer: Option C

Explanation:

Weighted average = Sum of all the weights / Total number of weights

Sum of all the weights = 121*5 + 123*11 + 125*10 + 126*8 + 128*6

= 605 + 1353 + 1250 + 1008 + 768

= 4984

Number of weights = 5 + 11 + 10 + 8 + 6

= 40

Weighted average = 4984 / 40

= 124.6

Q4. Which one among the following has the least value?

A. √75 - √74

B. √74 - √73

C. √77 - √76

D. √76 - √75

Answer: Option C

Explanation:

Rationalizing the options

√75 - √74 * (√75 + √74)/(√75 + √74) = 1/(√75 + √74)

√74 - √73 * (√74 + √73)/(√74 + √73) = 1/(√74 + √73)

√77 - √76 * (√77 + √76)/(√77 + √76) = 1/(√77 + √76)

√75 - √74 * (√75 + √74)/(√75 + √74) = 1/(√75 + √74)

Comparing all the fractions, 1/(√77 + √76) is the least value as its denominator is the greatest

Q5. A sum was lent to Ravi for three years by an organization that fixed a yearly rate of 10% compound Interest for repayment along with the condition of recovery in equal instalments of Rs.31944.

What percentage (correct to two decimal places) above the borrowed amount Ravi had to pay the organization?

A. 18.43

B. 21.25

C. 16.52

D. 20.63

Answer: Option D

Explanation:

Let x be the amount borrowed.

After one year amount will be = 1.1 x

Amount remaining after paying the first instalment = 1.1x - 31944

For the next year, this amount acts as the principal

After second year amount will be = 1.1 (1.1x - 31944)

= 1.21x - 35138.4

Amount remaining after paying the second instalment = 1.21x - 35138.4 - 31944

= 1.21x - 67082.4

This acts as principal for the third year

After third year, amount will be = 1.1(1.21x - 67082.4)

= 1.331x - 73790.64

This amount should exactly be equal to the final instalment.

Hence, 1.331x - 73790.64 = 31944

1.331x = 105734.64

x = 105734.64/1.331

x = 79440

Borrowed amount = 79440

Amount paid = 31944*3

= 95832

Percentage of extra amount paid = (95832-79440)/79440 * 100

= (16392/79440) * 100

= 20.63%

Q6. A retailer purchased 25 identical toys for a price of Rs P and sold some of them for Rs P. If he calculated his profit as 8%, with selling price as base instead of cost price then how many did he sell?

A. 24

B. 20

C. 21

D. 23

Answer: Option D

Explanation:

CP of 25 toys = P

CP of each toy = P/25

Let the number of toys he sold be 'x'

CP of the toys sold = xP/25

SP of the toys sold = P

Profit % = (SP-CP)/CP * 100

In this case, profit percentage was calculated with selling price as base

So, formulae used is-

Profit % = (SP-CP)/SP * 100

8/100 = (P - xP/25)/ P

x = 23

Q7. A sum of Rs.12500 is invested on 1st January 2016 at 4% simple interest p.a. How much interest in Rs. gets accrued on the end of the day on 1st July 2016?

A. 240

B. 400

C. 250

D. 500

Answer: Option C

Explanation:

Time for which money was invested = 6 months

= 1/2 year

Rate of interest = 4%

Principal = Rs. 12500

Simple Interest = PTR/100

= (12500*1/2*4)/100

= 250

Q8. What is the real value of $(0.000314 + 0.000198)^{1/3}$?

A. 0.04

B. 0.08

C. 0.8

D. 0.4

Answer: Option B

Explanation:

$(0.000314 + 0.000198)^{1/3} = (0.000512)^{1/3}$

$= ((0.08)^3)^{1/3}$

$= 0.08$

Q9. A man who has to walk 11Km finds that in 30 minutes he has travelled two-ninth of the remaining distance. What is his speed in Km/h?

A. 4.8

B. 4

C. 4.2

D. 4.5

Answer: Option B

Explanation:

Let the remaining distance he has to cover be 'x' km

So, distance covered by him = 2x/9 km

Total distance = 11 km

$x + 2x/9 = 11$

$x = 9$ km

Hence, distance he has covered in 30 minutes = 2(9)/9 = 2 km

Speed = Distance / Time

= 2 km / 30 min

= 2 km / (1/2) hr

= 4 kmph

Q10. With what value should the highest quantity in data 65, 52, 14, 26, 18, 35, 32, 38 be replaced so that the mean and median become equal?

A. 51

B. 66

C. 64

D. 53

Answer: Option D

Explanation:

Arranging the given observations in ascending order

14, 18, 26, 32, 35, 38, 52, 65

Median of these observations = Mean of 32 and 35

= (32+35)/2

= 33.5

Let the highest quantity 65 be replaced with 'x'

Given that mean and median should be equal

Mean of the data = 33.5

Sum of the observations / Total number of observations = 33.5

(14 + 18 + 26 + 32 + 35 + 38 + 52 + x) / 8 = 33.5

215 + x = 33.5 * 8

x = 268 - 215

x = 53

Q11. A work is assigned to 6 men and 12 women and they could complete it in 3 days. It was also observed that together they can

do 7 times as much work a man and a woman can do. In how many days would 14 women have done the work?

A. 10

B. 6

C. 12

D. 9

Answer: Option D

Explanation:

Let 'M' and 'W' be the efficiencies of man and woman respectively.

Total work = 3(6M + 12W)

Also,

6M + 12W = 7 (M + W)

5W = M

M/W = 5/1

Let efficiency of man = 5 units

Efficiency of woman will be = 1 unit

Total work = 3 [6(5) +12(1)]

= 126 units

Time taken by 14 women to complete the same work = 126/14

= 9 days

Q12. If the HCF of 180 and 432 is expressed as (180m + 432n), where m and n are integers, then what is the difference between m and n?

A. 3

B. 7

C. 9

D. 8

Answer: B

Explanation:

HCF of 180 and 432 is 36

Hence, 180m + 432n = 36____(1)

432 = 2(180) + 72

==> 72 = 432 - 2(180)

180 = 2(72) + 36

==> 180 = 2 [432 - 2(180)] + 36

==> 180 = 2(432) - 4(180) +36

==> 36 = 5(180) - 2(432)____(2)

Comparing equations (1) and (2)

m = 5 and n = -2

Difference between m and n = 5 - (-2)

= 7

Q13. A sales representative's commission is 6% on all sales up to Rs. 15000 and 5% on all sales exceeding this. He remits Rs. 47350 to his company after deducting his commission. What were the total sales?

A. Rs. 49000

B. Rs. 47500

C. Rs. 50500

D. Rs. 50000

Answer: Option D

Explanation:

Let the total sales be 'x'

Commission = x - 47350 ____(1)

Commission on sales up to 15000 = 6% (15000)

= 900

Commission on remaining sales = 5% (x-15000)

= 0.05x - 750

Total commission = 900 + 0.05x - 750

= 150 + 0.05x ____(2)

Equating both the equations

150 + 0.05x = x - 47350

0.95x = 47500

x = 50000

Q14. If n is an integer such that 1nn352 is a six-digit number exactly divisible by 24, what will be the sum of the possible values of n?

A. 15

B. 27

C. 9

D. 21

Answer: Option A

Explanation:

For a number to be divisible by 24, it should be divisible by both 8 and 3

Divisibility rule for 8: Last three digits must be divisible by 8

Divisibility rule for 3: The sum of the digits of the number should be a multiple of 3

The number is already divisible by 8 as 352 is divisible by 8

Sum of the given numbers = 1 + n + n + 3 + 5 + 2

= 11 + 2n

n should be a single-digit number and can take values of 2, 5, 8

Hence,

Sum of all possible values of n = 2 + 5 + 8

= 15

Q15. What is the mean proportional (MP) between the MPs of (2/7 & 32/343) and (2 & 1/5000)?

A. 3/35

B. 4/35

C. 2/35

D. 2/175

Answer: Option C

Explanation:

Let the MP of 2/7 and 32/343 be x

x = √(2/7)*(32/343)

= √(64/4901)

= (8/49)

Let the MP of 2 and 1/5000 be y

y = √(2)*(1/5000)

= √1/2500

= 1/50

MP of x and y = √(8/49)*(1/50)

= √8/2450

= √4/1225

= 2/35

Q16. How much percentage is (0.025% of 240% of 1.5) of 0.9?

A. 0.01

B. 10

C. 0.1

D. 1

Answer: Option C

Explanation:

(0.025/100) * (240/100) * 1.5

= 1/4000 * 24/10 * 1.5

= 9/10000

Let x% of 0.9 be 9/10000

x% (0.9) = 9/10000

(x/100) (0.9) = 9/10000

x = (9/10000)*(100/0.9)

x = 0.1

Q17. What is the mean deviation of the data: 8, 9, 12, 15, 16, 20, 24, 30, 32, 34?

A. 8

B. 10.2

C. 0

D. 9.2

Answer: Option A

Explanation:

Mean deviation = Sum of deviations from mean / Total observations

Mean = (8 + 9 + 12 + 15 + 16 + 20 + 24 + 30 + 32 + 34) /10

= 20

Mean deviation = (12 + 11 + 8 + 5 + 4 + 0 + 4 + 10 + 12 + 14) / 10

= 80/10

= 8

Q18. What is the diameter in cm of a solid right circular cylinder whose height is 6 cm and the area of the curved surface is five times the combined area of the two flat surfaces?

A. 3

B. 2.4

C. 1.2

D. 0.9

Answer: Option B

Explanation:

Flat surface area of cylinder = $2\pi r^2$

Curved surface area of cylinder = $2\pi rh$

$2\pi rh = 5 (2\pi r^2)$

$2h = 10r$

$2*6 = 10r$

$r = 1.2$

Diameter = 2r

= 2*1.2

= 2.4 cm

Q19. In a competitive exam, 5 marks are awarded for every correct answer, and for every wrong answer, 2 marks are deducted. Sathwik scored 32 marks in this examination. If 4 marks have been awarded for each correct answer and 1 mark had been deducted for each incorrect answer, Sathwik would have scored 34 marks. If Sathwik attempted all the questions, how many questions were there in the test?

A. 20

B. 14

C. 12

D. 26

Answer: Option D

Explanation:

Let the number of questions answered correct = x

Let the number of questions answered wrong = y

5x - 2y = 32

4x - 1y = 34

Solving both the equations,

x = 12 and y = 14

Number of questions in the test = x + y

= 12 + 14

= 26

Q20. A sum invested on simple interest grows to Rs 22500 and Rs 25500 in seven and nine years respectively. What is the rate percentage of the interest?

A. 7.5

B. 9.6

C. 13.5

D. 12.5

Answer: Option D

Explanation:

Amount for 7 years = Rs. 22500

Amount for 9 years = Rs. 25500

Hence,

SI for 2 years = 25500 - 22500

= 3000

So, SI for 1 year = 3000/2

= Rs. 1500

SI for 7 years = 1500 * 7

= 10500

Principal = 22500 - 10500

= 12000

Simple Interest = PTR / 100

1500 = (12000*1*R) / 100

R = (1500*100)/12000

R = 12.5%