25+ CAT Quant Questions with Solutions

Q1. A dishonest shopkeeper sells sugar at a cost price, but uses faulty weights, thus gaining 25%. Now he would like to give a discount but still make a 12% profit. What percent discount should he offer?

Options:

- 1] 15.2%
- 2] 12.5%
- 3] 10.4%
- 4] 13%

Correct Answer: 3] 10.4%

Explanation:

Let CP = ₹100.

Using 25% less weight ⇒ sells 0.8 kg as 1 kg ⇒ SP = 100 / 0.8 = ₹125.

To make 12% profit ⇒ required SP = ₹112.

Discount % = (125 − 112) / 125 × 100 = **10.4%**

Q2. If $x + \frac{1}{x} = 3$, what is the value of $x^2 + \frac{1}{x^2}$?

Options:

- 1] 7
- 2] 9
- 3] 5
- 4] 6

Correct Answer: 1] 7

Explanation:

$(x + 1/x)^2 = x^2 + 1/x^2 + 2 = 9 \Rightarrow x^2 + 1/x^2 = 9 - 2 = 7$

Q3. In a triangle, the angles are in the ratio 2:3:4. What is the measure of the largest angle?

Options:

- 1] 40°

- 2] 60°

- 3] 80°

- 4] 100°

<mark>**Correct Answer:** 3] 80°</mark>

Explanation:

Sum of angles = 180°

Total ratio parts = 2 + 3 + 4 = 9

Each part = 180 / 9 = 20°

Largest angle = 4 × 20 = **80°**

Q4. Find the smallest 4-digit number divisible by 12, 15, and 18.

Options:

- 1] 1080

- 2] 1200

- 3] 1260

- 4] 1440

<mark>**Correct Answer:** 1] 1080</mark>

Explanation:

LCM(12, 15, 18) = 180

Smallest 4-digit number = 1000

1000 ÷ 180 ≈ 5.56 → next integer = 6

180 × 6 = **1080**

Q5. What is the remainder when 31003^{100} is divided by 5?

Options:

- 1] 2

- 2] 3

- 3] 1

- 4] 4

Correct Answer: 3] 1

Explanation:

Powers of 3 mod 5 cycle: 3, 4, 2, 1 (repeat every 4 terms)

100 mod 4 = 0 → 4th term in cycle = **1**

Q6. A train travels at 60 km/h for 30 min and 90 km/h for the next 30 min. What is the average speed of the train during the journey?

Options:

• 1] 72 km/h

• 2] 75 km/h

• 3] 78 km/h

• 4] 80 km/h

Correct Answer: 1] 72 km/h

Explanation:

Distance1 = 60 × 0.5 = 30 km

Distance2 = 90 × 0.5 = 45 km

Total distance = 75 km, Total time = 1 hour

Average speed = 75 / 1 = 72 km/h

Q7. If $x+\frac{1}{x}=3$, what is the value of $x^2 + \frac{1}{x^2}$?

Options:

1] 7   2] 9   3] 5   4] 6

Answer: 1] 7

Explanation:

$(x+1/x)^2 = x^2 + 1/x^2 + 2 = 9 \Rightarrow x^2 + 1/x^2 = 7$

Q8. In a triangle, the angles are in the ratio 2:3:4. What is the measure of the largest angle?

Options:
1] 40°   2] 60°   3] 80°   4] 100°
Answer: 3] 80°
Explanation:
Sum = 180°, parts = 9, each = 20° ⇒ Largest = 4×20 = **80°**

Q9. Find the smallest 4-digit number divisible by 12, 15, and 18.

Options:
1] 1080   2] 1200   3] 1260   4] 1440
Answer: 1] 1080
Explanation:
LCM(12,15,18) = 180. 180×6 = **1080**

Q10. What is the remainder when 31003^{100}3100 is divided by 5?

Options:
1] 2   2] 3   3] 1   4] 4
Answer: 3] 1
Explanation:
Powers of 3 mod 5: 3,4,2,1 → cycle length = 4.
100 mod 4 = 0 ⇒ 4th term = **1**

Q11. If $\log_{10}(2x + 3) = 1$, then what is the value of x?

Options:
• 1] 3.5
• 2] 3
• 3] 4
• 4] 5

Correct Answer: 1] 3.5

Explanation:

$\log_{10}(2x + 3) = 1$

$\Rightarrow 2x + 3 = 10^1 = 10$

$\Rightarrow 2x = 10 - 3 = 7$

$\Rightarrow x = 7 / 2 = 3.5)$

Q12. If $x + \frac{1}{x} = 3$, then what is the value of $x^2 + \frac{1}{x^2}$?

Options:

1] 7   2] 9   3] 5   4] 6

Answer: 1] 7

Explanation:

$(x+1/x)^2 = x^2 + 1/x^2 + 2 \Rightarrow 9 = x^2 + 1/x^2 + 2 \Rightarrow x^2 + 1/x^2 = 7$

Q13. In a triangle, the angles are in the ratio 2:3:4. What is the measure of the largest angle?

Options:

1] 40°   2] 60°   3] 80°   4] 100°

Answer: 3] 80°

Explanation:
Total sum of angles = 180°
Ratio = 2:3:4 → Total parts = 9
Each part = 180 ÷ 9 = 20°
Largest angle = 4 × 20 = **80°**

Q14. What is the smallest 4-digit number that is divisible by 12, 15, and 18?

Options:

1] 1080   2] 1200   3] 1260   4] 1440

Answer: 1] 1080

Explanation:
LCM of 12, 15, and 18 = 180

Smallest 4-digit number = 1000
Next multiple of 180 after 1000 = 180 × 6 = **1080**

Q15. A person invests ₹5000 at 8% simple interest per annum. How long will it take for the investment to amount to ₹6200?

Options:
1] 3 years   2] 4 years   3] 5 years   4] 6 years

<mark>**Answer:** 2] 4 years</mark>

Explanation:
Simple Interest = P × R × T / 100
Here, SI = 6200 − 5000 = ₹1200
1200 = 5000 × 8 × T / 100 ⇒ T = (1200 × 100) / (5000 × 8) = 4 years

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Q16. The sum of two numbers is 40 and their product is 375. What is the sum of their reciprocals?

Options:
1] 1/6   2] 1/5   3] 1/4   4] 1/3
<mark>**Answer:** 2] 1/5</mark>

Explanation:
Let numbers be x and y.
Given: $x + y = 40$, $xy = 375$
Sum of reciprocals:

$$\frac{1}{x} + \frac{1}{y} = \frac{x + y}{xy} = \frac{40}{375} = \frac{8}{75} \approx \frac{1}{5}$$

Q17. A train travels from A to B at 60 km/h and returns at 40 km/h. What is the average speed for the whole journey?

Options:
1] 50 km/h   2] 48 km/h   3] 52 km/h   4] 45 km/h
<mark>**Answer:** 2] 48 km/h</mark>

Explanation:

Average speed = 2aba+b=2×60×4060+40=4800100=48$\frac{2ab}{a + b} = \frac{2 × 60 × 40}{60 + 40} = \frac{4800}{100} = 48$ km/h

Q18. If x2+1x2=10$x^2 + \frac{1}{x^2} = 10$, what is the value of x+1x$x + \frac{1}{x}$?

Options:

1] 3   2] 4   3] √10   4] Cannot be determined

Answer: 4] Cannot be determined

Explanation:

From x2+1x2$x^2 + \frac{1}{x^2}$, we cannot uniquely determine x+1x$x + \frac{1}{x}$ without knowing the sign of xx. Multiple values possible.

Q19. The base of a triangle is 10 cm and its height is 6 cm. What is the area of the triangle?

Options:

1] 30 cm²   2] 60 cm²   3] 25 cm²   4] 40 cm²

Answer: 1] 30 cm²

Explanation:

Area = 12×base×height=12×10×6=30 cm2$\frac{1}{2} × \text{base} × \text{height} = \frac{1}{2} × 10 × 6 = 30 \, \text{cm}^2$

Q20. The average age of 5 people is 24. If one person leaves and one new person joins, the new average is 22. What is the age of new person if the person who left was 28 years old?

Options:

1] 301   2] 421   3] 721   4] 841

Answer: 1] 301

Explanation:

LCM(3,4,5,6) = 60. Try numbers of the form 60k + 1.

60×5 + 1 = 301 and 301 ÷ 7 = 43 ⇒ **301 is divisible by 7**

Q16. If the simple interest on ₹2500 at 8% per annum is ₹400, what is the time period?

Options:

1] 1.5 years   2] 2 years   3] 3 years   4] 4 years

Answer: 2] 2 years

Explanation:

SI = P × R × T / 100 ⇒ 400 = 2500 × 8 × T / 100

T = (400×100) / (2500×8) = **2 years**

Q17. What is the least number which when divided by 8, 9 and 12 leaves a remainder of 3 in each case?

Options:

1] 99   2] 123   3] 147   4] 195

Answer: 3] 147

Explanation:

LCM(8, 9, 12) = 72

Required number = 72k + 3. Try k = 2 ⇒ 72×2 + 3 = **147**

Try k = 2.5 ⇒ invalid. Try k = 2 ⇒ **147**

Q18. A 20 litre mixture is composed of milk and water in the ratio of 3:2. How much water should be added to the mixture to make the mixture equivalent to the ratio of 1:1?

Options:

1] 2 litres   2] 4 litres   3] 5 litres   4] 6 litres

Answer: 2] 4 litres

Explanation:

Milk = 12L, Water = 8L. Add x litres to water:

(12)/(8 + x) = 1 ⇒ 12 = 8 + x ⇒ x = **4 litres**

Q19. If $x+\frac{1}{x} = 2$, then find $x^3 + \frac{1}{x^3}$

Options:

1] 2   2] 3   3] 5   4] 6

Answer: 1] 2

Explanation:

$x^3+\frac{1}{x^3} = \left(x + \frac{1}{x}\right)^3 - 3\left(x + \frac{1}{x}\right)$

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

Substitute into the identity:

$x^3 + \frac{1}{x^3} = 2^3 - 3(2) = 8 - 6 = \boxed{2}$

Q20. The average age of 5 people is 24. If one person leaves and a new person joins, the new average becomes 22. Find the age of the new person if the person who left was 28 years old.

Options:
1] 16   2] 18   3] 20   4] 22
Answer: 2] 18
Explanation:
Total age before = 5×24 = 120
New total = 5×22 = 110 ⇒ New person = 110 − (120 − 28) = 110 − 92 = **18**

Q21. A man buys an article for ₹800 and sells it at a loss of 15%. What is the selling price?

Options:
1] INR650   2] INR680   3] INR680.50   4] INR700
Answer: 2] INR680
Explanation:
Loss = 15% of ₹800 = ₹120 ⇒ SP = 800 − 120 = **INR680**

Q22. If $x^2 - 5x + 6 = 0$, what is the value of $\frac{1}{x^2 - 6x + 9}$?

Options:
1] 1   2] 2   3] 3   4] 4
Answer: 1] 1
Explanation:
Factor original: (x−2)(x−3)=0 ⇒ x=2 or x=3
Now plug in x=2 ⇒ x²−6x+9 = 4−12+9 = 1
1/1 = **1**

Q23. A sum triples in 6 years at simple interest. In how many years will it double?

Options:
1] 2 years   2] 3 years   3] 4 years   4] 5 years

Answer: 2] 3 years

Explanation:

If principal = P, final = 3P ⇒ interest = 2P

Simple interest formula: SI = PRT/100 ⇒ Time ∝ Amount

If 2P in 6 years ⇒ P in 3 years ⇒ **Doubles in 3 years**

Q24. If $\log_5(2x - 1) = 2$, what is x?

Options:

1] 10   2] 11   3] 12   4] 13

Answer: 2] 13

Explanation:

$\log_5(2x-1) = 2$ ⇒ $2x-1 = 5^2 = 25$ ⇒ $2x = 26$ ⇒ x = **13**

Q25. The length and breadth of a rectangle are increased by 10% and 20% respectively. What is the % increase in area?

Options:

1] 30%   2] 32%   3] 34%   4] 28%

Answer: 2] 32%

Explanation:

Area increase = a + b + (ab/100)

= 10 + 20 + (10×20)/100 = 30 + 2 = **32%**

Q26. A sphere has a surface area of 616 cm². Find its radius. (Use π = 3.14)

Options:

1] 7 cm   2] 6 cm   3] 8 cm   4] 9 cm

Answer: 1] 7 cm

Explanation:

Surface area = $4\pi r^2$ ⇒

$616 = 4 \times 3.14 \times r^2$ ⇒ $r^2 = 616 / 12.56 = 49$ ⇒ r = **7 cm**

Q27. A pipe fills a tank in 6 hours. A leak at the bottom empties it in 9 hours. In how much time will the tank be full?

Options:
1] 12 hrs   2] 18 hrs   3] 10.8 hrs   4] 7.2 hrs
Answer: 2] 18 hrs
Explanation:

$1/6 - 1/9 = (3-2)/18 = 1/18 \Rightarrow$ Tank filled in **18 hours**

Q28. Find the number of zeroes at the end of 100!

Options:
1] 20   2] 22   3] 24   4] 25
Answer: 4] 24
Explanation:
Number of 5s = $\lfloor 100/5 \rfloor + \lfloor 100/25 \rfloor = 20 + 4 =$ **24**

Q29. If the sum of the first n natural numbers is 300, what is the value of n?

Options:
1] 24   2] 25   3] 26   4] 27
Answer: 2] 24
Explanation:
$n(n+1)/2 = 300 \Rightarrow n^2 + n - 600 = 0 \Rightarrow n = 24$

Q30. If A can do a job in 10 days and B in 15 days, how long will it take them together?

Options:
1] 5   2] 6   3] 8   4] 9
Answer: 2] 6
Explanation:
$1/10 + 1/15 = (3 + 2)/30 = 5/30 \Rightarrow 1/6 \Rightarrow$ Time = **6 days**