# Maths Questions for CLAT Exam

## CLAT Maths Quiz 31

**Directions: Read the following Questions carefully and choose the right answer:**

**1. How many natural numbers divisible by 7 are there between 2 and 300?**

A. 30

B. 32

C. 35

D. 42

**2. If the average marks of three batches of 55, 60 and 45 students is 50, 55 and 60 respectively, then the average marks of all the students is**

A. 58

B. 56.69

C. 54.68

D. 60

**3. The ratio of the income of P and Q is 3 : 4 and the ratio of their expenditure is 2 : 3. If both of them save Rs. 6000, the income of P is**

A. 13000

B. 15000

C. 18000

D. 20500

**4. If 15% of (A + B) = 25% of (A − B) then what percent of B is A ?**

A. 110%

B. 250%

C. 300%

D. 400%

**5. A man purchased an article and sold it to B at a profit of 25% and B sold it to C at a loss of 10% and C paid Rs. 675 for it. For how much did A purchase it.**

A. Rs. 350

B. Rs. 500

C. Rs. 600

D. Rs. 450

**6. A and B together can complete a work in 3 days. They start together. But, after 2 days, B left the work. If the work is completed after 2 more days, B alone could do the work in**

A. 3 days

B. 5 days

C. 6 days

D. 9 days

**7. The speed of the current is 5 km/hr. A motor boat goes 10 km upstream and back again to the startng point in 50 minutes. The speed of motor boat in still water is**

A. 30 km/hr

B. 25 km/hr

C. 28 km/hr

D. 22 km/hr

**8. The volume of a cubical box is 3.375 cubic meters. The length of the edge of the box is**
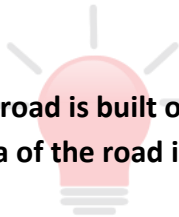
A. 1.125 m

B. 2.5 m

C. 7.5 m

D. 1.5 m

**9. A part of Rs. 1500 was lent at 10% p.a. and the rest at 7% per annum Simple interest. The total interest earned in three years was Rs. 396. The sum lent at 10% was**

A. Rs. 700

B. Rs. 800

C. Rs. 900

D. Rs. 600

**10. A 7m wide road is built outside around circular park, whose circumference is 176m. The area of the road is**

A. 1386 m$^2$

B. 1472 m$^2$

C. 1512 m$^2$

D. 1760 m$^2$

**Correct Answers:**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|----|
| D | C | C | D | C | C | B | D | C | A |

**Explanations:**

**1.** First number which is greater than 2 and is divisible by 7 is 7.

Number just smaller than 300, which is divisible by 7 is 294.

Here, a = 7, $a_n$ = 274, d = 7 and

$a_n$ = a + (n − 1) d

294 = 7 + (n − 1) 7

⇒ 294 − 7 = (n − 1) 7

$$\Rightarrow \frac{287}{7} = n - 1$$

41 = n − 1

n = 1 + 41 = 42

**Shortcut :** Divide 300 by 7 = 42
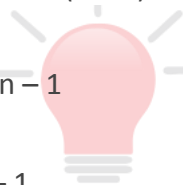
The quotient is our answer.

Hence, option D is correct.

**2.** Average marks of

55 Students Batch = 50

60 Students Batch = 55

45 Students Batch = 60

Applying weighted average

$$\Rightarrow \frac{50 \times 55 + 60 \times 55 + 45 \times 60}{55 + 60 + 45}$$

$$\Rightarrow \frac{2750 + 3300 + 2700}{160}$$

$$\Rightarrow \frac{8750}{160}$$

$$\Rightarrow 54.68$$

Hence, option C is correct.

**3.**    Let the income of P and Q be Rs. 3x and 4x respectively.

Again, let their expenditure be Rs. 2y and 3y respetively.

Saving = Income – Expenditure

$3x - 2y = 6000$ ...................(i)

$4x - 3y = 6000$ .................(ii)

so, $3x - 2y = 4x - 3y$

$\Rightarrow 3y - 2y = 4x - 3x$

$y = x$

putting in eq. (i)

$3x - 2x = 6000$

$x = 6000$

As income of P is Rs. 3x = 3 × 6000 = 18000

Hence, option C is correct.

**4.**

$$\frac{15}{100} \text{ of } (A + B) = \frac{25}{100} \times (A - B)$$

$$\Rightarrow \frac{15A}{100} + \frac{15B}{100} = \frac{25A}{100} - \frac{25B}{100}$$

$$\Rightarrow \frac{10A}{100} = \frac{40B}{100}$$

A = 4B

Now, % of B equals to A ⇒

$$\frac{A}{B} \times 100$$

putting A = 4B

$$\frac{4B}{B} \times 100$$

= 400%

Hence, option D is correct.

**5.**    Let A purchase if for Rs. x.

He sold it to B at 25% profit

⇒ B sold it to C at 10% loss

Applying successive discount

$$+ 25 - 10 - \frac{25 \times 10}{100}$$

⇒ 15 − 2.5    ⇒ 12.5%

Now. 12.5% is profit when C profit purchase for 675

$$675 = \frac{112.5}{100}x$$

x = 600

Hence, option C is correct.

**6.**     A & B do the work in 3 days.

As, after 2 days B left the work.

Now, 1 day work of A & B is remaining.

This 1 day work is done by A in 2 days.

Therefore, the efficiency of A = efficiency of B.

Hence, the work done by A & B in 3 days,

B alone will finish in 6 days.

Hence, option C is correct.

**7.**     Let the speed of motor boat in still water be x km/hr.

$$\therefore \frac{10}{x-5} + \frac{10}{x+5} = \frac{50}{60}$$

$$\Rightarrow 10 \left( \frac{x+5+x-5}{(x+5)\ (x-5)} \right) = \frac{5}{6}$$

$$\Rightarrow x^2 - 24x - 25 = 0$$

$$\Rightarrow (x-25)\ (x+1) = 0$$

$$\Rightarrow x = 25 \text{ as } x \neq 1$$

speed of motor boat is 25 km/hr.

Hence, option B is correct.

**8.** Volume of cube = $a^3$

where a is the length of the edge of the box.

Let a be the edge of box.

So,

$3.375 = a^3$

$a = \sqrt[3]{3.375}$

$a = \sqrt[3]{(1.5)^3}$

a = 1.5 meter

Hence, option D is correct.

**9.** Let x be lent at 10% per annum

so, (1500 – x) is lent at 7% per annum

As,

$SI = \dfrac{PRT}{100}$

Now,

$\dfrac{x \times 10 \times 3}{100} + \dfrac{(1500 - x) \times 7 \times 3}{100} = 396$

$\Rightarrow 30x + 31500 - 21x = 39600$

$9x = 39600 - 31500$

$9x = 8100$

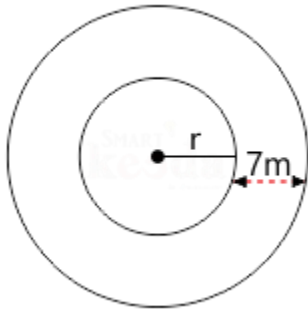x = 900

So, Rs. 900 was lent at 10% p.a.

Hence, option C is correct.

**10.**



Circumference of the park = 176 m

Circumference of circles = 2πr

let the radius of park be r m.

2πr = 176m

The path of the road is making a ring type structure.

So, the area of the path is

Area of outer circle – Area of inner circle

area of circle = $\pi r^2$

Area of outer circle = $\pi (r + 7)^2$

Area of inner circle = $\pi r^2$

Now, as, 2πr = 176

$2 \times \dfrac{22}{7} \times r = 176$

$r = \dfrac{176 \times 7}{2 \times 22}$

$= \dfrac{8 \times 7}{2} = 4 \times 7 = 28$

So, the radius = 28 meter

Now, area of outer circle = $\pi (28 + 7)^2$

= π (35)$^2$ = 1225 π

And,

Area of inner circle = πr$^2$ = π × 28$^2$ = 784π

So, Area of path = 1225π − 784π = π (1225 − 784) = 441π

= 441 × $\dfrac{22}{7}$ = 63 × 22 = 1386m$^2$

Hence, option A is correct.