Maths Questions for CLAT Exam

CLAT Maths Quiz 21

Directions: Kindly study the following Questions carefully and choose the right answer:

1. The difference between a two-digit number and the number obtained by interchanging the digits is 27. If the digit at ten's place is 60% more than the digit at unit's place, what is the original number?

A. 85 B. 58

C. 75 D. 57

2. Two numbers A and B are such that the sum of 5% of A and 4% of B is two-third of the sum of 6% of A and 8% of B. Find the ratio of A : B is

A. 4 : 3 B. 3 : 4

C. 1 : 1 D. 2 : 3

3. A train passes a platform in 40 sec and a woman standing on the platform in 30 sec. If the speed of the train is 108 km/hr, what is the length of the platform?

A. 100 m B. 300 m

C. 900 m D. 1020 m

4. A committee of 3 members is to be made out of 6 men and 5 women. What is the probability that the committee has at least two women?

A. 10/33 B. 14/33

C. 14/15 D. 13/25

5. A man can do a piece of work in 5 days, but with the help of his son, he can do it in 3 days. In what time can the son do it alone?

A. $6\frac{1}{2}$ days B. 7 days

C. $7\frac{1}{2}$ days D. 8 days

6. A man can row 28/3 kmph in still water and finds that it takes him thrice as much time to row up than as to row down the same distance in the river. The speed of the current is:

A. $3\frac{1}{3}$ km/hr

B. $3\frac{1}{9}$ km/hr

C. $4\frac{1}{2}$ km/hr

D. $4\frac{2}{3}$ km/hr

7. 2 years ago, John's age was 4 times that of his son. After 1 year, his age will be 3 times that of his son. What is the difference between their present ages?

A. 16 years

B. 18 years

C. 24 years

D. 20 years

8. A bicycle is sold at a gain of 15%. If it had been sold for Rs. 20 more, 20% would have been gained. The cost price of the bicycle is:

A. 100

B. 200

C. 300

D. 400

9. In a school with 600 students, the average age of the boys is 12 years and that of the girls is 11 years. If the average age of the school is 11 years and 9 months, then the number of girls in the school is

A. 450

B. 150

C. 250

D. 350

10. A, B and C are three pipes attached to a cistern. A and B can fill it in 20 min and 30 min respectively, while C can empty it in 15 min. If A, B and C be kept open successively for 1 min each, how soon will the cistern be filled?

A. 175 min

B. 170 min

C. 150 min

D. 180 min

Correct Answers:

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

Explanations:

1. Intuitive approach:

We can straight away eliminate the options in which the digit at ten's place is greater than the digit at the unit's place. Option B and D hence get eliminated.

Taking option A into consideration, we can observe that

8 is 3 more than 5 and 3 is $(\frac{3}{5} \times 100)$ = 60% of 5

Moreover, difference between 85 and 58 is also 27.

Hence, option A is the correct answer.

2. From the equation, we get

$$5\% \text{ of } A + 4\% \text{ of } B = \frac{2}{3}(6\% \text{ of } A + 8\% \text{ of } B)$$

$\Rightarrow$ 15% of A + 12% of B = 12% of A + 16% of B

$\Rightarrow$ [15 – 12] % of A = [16 – 12] % of B

$\Rightarrow$ 3 % of A = 4% of B

$$\Rightarrow \frac{A}{B} = \frac{4}{3}$$

Therefore, A : B = 4 : 3.

Hence, option A is correct.

3.

Speed of the train = $(108 \times \frac{5}{18})$ = 30 m/sec.

Length of the train

= Distance travelled to cross the woman × Time taken

= (30 × 30) m

= 900m.

Let the length of the platform be x meters.

Then, $\frac{(x + 900)}{40} = 30 \Rightarrow x + 900 = 1200 \Rightarrow x = 300$ m.

Hence, option B is correct.

4. Number of possible combination of 3 persons in which 2 have to be women

= (2 Women out of 5 x 1 Man out of 6) or (3 Women out of 5)

= $({}^5C_2 \times {}^6C_1 + {}^5C_3)$

Total possible outcomes = ${}^{11}C_3$

$$= \frac{\frac{5!}{2! \times 3!} \times \frac{6!}{5! \times 1!} + \frac{5!}{3! \times 2!}}{\frac{11!}{3! \times 8!}} = \frac{70}{11 \times 15} = \frac{14}{33}$$

Hence, option B is correct.

5. Son's 1 day's work

$= (\frac{1}{3} - \frac{1}{5}) = \frac{2}{15}$.

∴ The son alone can do the work in

$\frac{15}{2} = 7\frac{1}{2}$days.

Hence, option C is correct.

6. To solve this question, we can apply a short trick approach;

$$\mathbf{x}\left(\frac{\mathbf{n-1}}{\mathbf{n+1}}\right)\mathbf{km/hr}$$

Given,

x = Person speed = $\frac{28}{3}$km/hr

g By the short trick approach, we get

$$\frac{28}{3}\left(\frac{3-1}{3+1}\right) = \frac{28}{3} \times \frac{2}{4}$$

$$= \frac{14}{3} = 4\frac{2}{3}\text{km/hr.}$$

Hence, option D is correct.

7. Let the present ages of John and his son be x and y years respectively.

The first situation can be written as:

$(x - 2) = 4(y - 2)$ .....**(i)**

And the second situation can be written as:

$(x + 1) = 3(y + 1)$ .....**(ii)**

Solving above equations we get

x = 26 and y = 8

Therefore the difference between their present ages = 26 – 8 = 18 years

Hence, option B is correct.

8. 120% – 115% of x = 20 $\Leftrightarrow$ 5% of x = 20.

$\Leftrightarrow$ $x = (\frac{20 \times 100}{5}) = 400.$

Hence, option D is correct.

9. Let, the number of girls = x & the number of boys = (600 – x)

Given, the average age of the boys = 12 years

$\therefore$ Total age of the boys = 12(600 – x) years

And, the average age of the girls = 11 years

$\therefore$ Total age of the boys = 11x years

Now, average age of the school = $\frac{\text{Total age of the boys + Total age of the girls}}{600}$

$\Rightarrow 11\frac{3}{4} = \frac{12(600 - x) + 11x}{600}$

$\Rightarrow \frac{47}{4} = \frac{7200 - x}{600}$

$\Rightarrow$ 7200 – x = 7050

$\Rightarrow$ x = 7200 – 7050 = 150

Hence, option B is correct.

10. Part of cistern filled in 3 min

$\Rightarrow \frac{1}{20} + \frac{1}{30} - \frac{1}{15} = \frac{1}{60}$

Thus, time taken to fill the cistern = 3 × 60 = 180 min

Hence, option D is correct.