

NUMBER SYSTEM

Self – Evaluation Test

1. The LCM of two numbers is 280 and their ratio is 7 : 8 . The numbers
(a) 70, 80 (b) 54, 68
(c) 35, 40 (d) 28, 36
(e) None of these

2. Three persons start walking together and their steps measure 40 cm, 42 cm and 45 cm respectively. What is the minimum distance each should walk so that each can cover the same distance in complete steps?
(a) 25 m 20 cm (b) 50 m 40 cm
(c) 75 m 60 cm (d) 100 m 80 cm
(e) None of these

3. A man plants 15376 apple trees in his garden and arranges them so that there are as many rows as there are apples trees in each row. The number of rows is:
(a) 124 (b) 126
(c) 134 (d) 144
(e) None of these

4. In a cricket match, the number of runs scored by any team is equal to power of the number of batsmen playing in the team. Six batsmen played in team A and eleven batsmen played in team B. If team A won by 95 runs, then find the runs scored by team A.
(a) 216 (b) 220
(c) 210 (d) 230
(e) None of these

5. If the sum of a number and its square is 182, then what is the number?
(a) 15 (b) 26
(c) 28 (d) 13
(e) None of these

6. A boy has enough money to buy 20 exercise books. If each book cost 25 paise less, he could buy two more books and still have 70 paise left. How much money had he originally?
(a) 45 (b) 48
(c) 50 (d) 52
(e) None of these

7. If $a = \frac{x}{x+y}$ and $b = \frac{x}{x-y}$, then $\frac{ab}{a+b}$ is equal to:
- (a) $\frac{xy}{x^2+y^2}$ (b) $\frac{x^2+y^2}{xy}$
- (c) $\frac{x}{x+y}$ (d) $\left(\frac{y}{x+y}\right)^2$
8. In a family, each daughter has the same number of brothers as she has sisters and each son has twice as many sisters as he has brothers. How many sons are there in the family?
- (a) 2 (b) 3
- (c) 4 (d) 5
- (e) None of these
9. In a garden, there are 10 rows and 12 columns of mango trees. The distance between the two trees is 2 metres and a distance of one metre is left from all sides of the boundary of the garden. The length of the garden is:
- (a) 20m (b) 22m
- (c) 24m (d) 26m
- (e) None of these
10. At the end of a business conference the ten people present all shake hands with each other once. How many handshakes will there be altogether?
- (a) 20 (b) 45
- (c) 55 (d) 90
- (e) None of these

Answer – Key

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

Explanation

- 1.** Option (C) is correct.

Let the numbers be $7x$ and $8x$.

\Rightarrow Their HCF = X

Now, $\text{LCM} \times \text{HCF} = \text{Product of numbers}$ i.e. $280 \times x = 56x^2$ or $x = 5$

Hence, the numbers are 35 and 40.

- 2. Explanation**

Option (A) is correct.

2	40, 42, 45
2	20, 21, 45
2	10, 21, 45
5	5, 21, 45
3	1, 21, 9
3	1, 7, 3
7	1, 7, 1
	1, 1, 1

$$\text{L.C.M} = 2 \times 2 \times 2 \times 5 \times 3 \times 3 \times 7 = 2520$$

$$\text{Required distance} = 2520 \div 100 = 25 \text{ m } 20 \text{ cm}$$

- 3. Explanation**

Option (A) is correct.

	124
1	15376
	1
22	53
	44
244	976
	976
	×

∴ Number of rows = 124.

4. Explanation

Option (A) is correct.

Let the power of the terms be x and y.

$$6^x - 11^y = 95$$

Put $x = 3$, $y = 2$ (By trial and error)

$$6^3 - 11^2 = 95$$

Hence satisfied

$$\text{Score of team A} = 63 = 216$$

5. Explanation

Option (D) is correct.

Let the number be x.

$$\text{Then, } x + x^2 = 182 \Rightarrow x^2 + x - 182 = 0$$

$$\Rightarrow (x + 14)(x - 13) = 0 \Rightarrow x = 13.$$

6. Explanation

Option (B) is correct.

Let the original price of each book = Rs. x

$$\therefore 20x = 22(x - 0.25) + 0.70$$

$$\Rightarrow 2x = 4.8 \Rightarrow x = \text{Rs. } 2.4$$

$$\therefore \text{He had } 20 \times 2.40 = \text{Rs. } 48$$

7. Explanation

Option (A) is correct.

$$\frac{ab}{a+b} = \frac{\frac{x}{(x+y)} \times \frac{y}{(x-y)}}{\frac{x}{(x+y)} + \frac{y}{(x-y)}}$$

$$= \frac{xy}{x^2 - xy + xy + y^2} = \frac{xy}{x^2 + y^2}$$

8. Explanation

Option (B) is correct.

Let d and s represent the number of daughters and sons respectively.

Then, we have: $d - 1 = S$ and $2(S - 1) = d$

Solving these two equations, we get: $d = 4$, $s = 3$.

9. Explanation

Option (C) is correct.

Each row contains 12 plants.

There are 11 gaps between the two corner trees (11×2) metres and 1 metre on each side is left. Therefore, length.

$$= (22 + 2)m = 24$$

10. Explanation

Option (B) is correct.

Clearly, total number of handshakes = $(9+8+7+6+5+4+3+2+1) = 45$.