Class VIII Session 2023-24
Subject - Maths
Sample Question Paper - 3

Time Allowed: 2 hours and 58 minutes **Maximum Marks: 80**

1. The property represented by a × (b + c) = a × b + a × c is **[1]**

   a) closure property
   b) distributive property
   c) associative property
   d) commutative property

2. Which statement is true? **[1]**

   a. -5 + 3 ≠ 3 + (-5)
   b. $\frac{-8}{12} = \frac{10}{-15}$
   c. 2 is not natural number
   d. 17 is not prime number

   a) Option (c)
   b) Option (b)
   c) Option (d)
   d) Option (a)

3. Solve: $\frac{x-5}{3} = \frac{x-3}{5}$ **[1]**

   a) 8
   b) 2
   c) 6
   d) 4

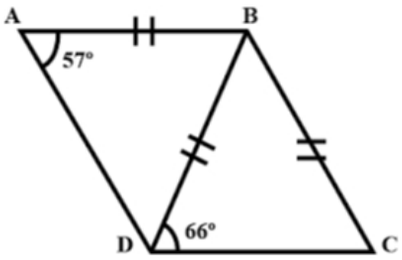
4. Solve for y : $\frac{1}{2}$(3y + 1) - $\frac{1}{3}$ (5y + 2) = y - 1 **[1]**

   a) 75
   b) $\frac{7}{5}$
   c) $\frac{-5}{7}$
   d) $\frac{5}{7}$

5. Two adjacent angles of a parallelogram are in the ratio 1 : 5. Then, all the angles of the parallelogram are **[1]**

   a) 85°, 95°, 85°, 95°
   b) 30°, 180°, 30°, 180°
   c) 45°, 135°, 45°, 135°
   d) 30°, 150°, 30°, 150°

6. In the diagram, ABD and BCD are isosceles triangles, where AB = BC = BD. The special name that is given to quadrilateral ABCD is: **[1]**



   a) parallelogram
   b) trapezium
   c) rectangle
   d) Kite

7. A card is drawn at random from a pack of 52 cards. Find the probability that the card drawn is a red king. **[1]**

a) $\frac{1}{13}$ b) $\frac{1}{26}$

c) $\frac{1}{52}$ d) $\frac{1}{2}$

8. The square of 39 is- **[1]**

a) 1521 b) none of these

c) 378 d) 1500

9. The length of each side of a cubical box is 2.4 m. Its volume is _____. **[1]**

a) 1.3824×10^7 cu. cm b) 1.3824×10^6 cu. cm

c) 13.824 cu. cm d) 13.824×10^4 cu. cm

10. The cube root of $\frac{-343}{1331}$ is **[1]**

a) $\frac{11}{7}$ b) $\frac{-11}{7}$

c) $\frac{-7}{11}$ d) $\frac{7}{11}$

11. The cost of a vehicle is ₹ 1,75, 000. If its value depreciates at the rate of 20% per annum, then the total depreciation after 3 years was **[1]**

a) ₹ 82,500 b) ₹ 86,400

c) ₹ 85,400 d) ₹ 84,500

12. A football team won 10 matches out of the total number of matches they played. If their win percentage was 40%, then how many matches did they play in all? **[1]**

a) 26 b) 30

c) 25 d) 20

13. Factorised form of r^2 - 10r + 21 is **[1]**

a) (r + 7) (r + 3) b) (r - 7)(r - 3)

c) (r - 7) (r + 3) d) (r -1) (r - 4)

14. A well 12 m deep with a diameter 3.5 m is dug up and earth from it is evenly spread to form a platform 10.5 m long and 8.8 m wide. Find the height of the platform. **[1]**

a) 2.5 m b) 1.25 m

c) 12.5 m d) 1.5 m

15. What is the surface area of the four walls of the water tank, if its length is 8 ft, width 5 ft and height 5 ft? **[1]**

a) 132 ft^2 b) 130 ft^2

c) 128 ft^2 d) 126 ft^2

16. $\left(-\frac{5}{7}\right)^{-5}$ is equal to **[1]**

a) $\left(-\frac{7}{5}\right)^5$ b) $\left(\frac{5}{7}\right)^5$

c) $\left(\frac{5}{7}\right)^{-5}$ d) $\left(\frac{7}{5}\right)^5$

17. Find x, if $\left(\frac{7}{9}\right)^{-8} \times \left(\frac{9}{7}\right)^6 = \left(\frac{9}{7}\right)^x$. **[1]**

a) 10 b) 12

c) 14 d) 15

18. 30 persons can reap a field in 17 days. How many more persons should be engaged to reap the same field in 10 days? **[1]**

a) 51 b) 17

c) 30 d) 21

19. If x and y vary inversely as each other, and x = 10 when y = 6. Find y when x = 15. **[1]**

a) 6 b) 4

c) 3 d) 2

20. Factorise: $x^2 + 19x - 150$ **[1]**

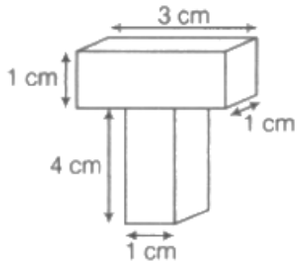
a) (x - 25) (x + 6) b) (x - 6) (x - 25)

c) (x - 25) (x - 6) d) (x + 25) (x - 6)

21. Using prime factorization, show that 729 is a perfect cube. **[2]**

22. How many bricks of size 22 cm × 10 cm × 7 cm are required to construct a wall 11 m long, 3.5 m high and 40 cm thick if the cement and sand used in the construction occupy (1/10)th part of the wall? **[2]**

23. Work out the surface area of the shape:(Use π = 3.14) **[2]**



24. Simplify and write in exponential form :$(-2)^{-3} \times (-2)^{-4}$ **[2]**

25. Find the factors of $y^2 - 7y + 12$. **[2]**

26. Plot the following points. Verify if they lie on a line. (1, 3), (2, 3), (3, 3), (4, 3) **[2]**

27. using appropriate properties find : $\frac{2}{5} \times \left(-\frac{3}{7}\right) - \frac{1}{6} \times \frac{3}{2} + \frac{1}{14} \times \frac{2}{5}$. **[3]**

28. Solve the linear equation $\frac{x-5}{3} = \frac{x-3}{5}$. **[3]**

29. The adjacent angles of a parallelogram are (2x - 4)° and (3x - 1)°. Find the measures of all angles of the parallelogram. **[3]**

30. Find the length of the side of a square, if the length of its diagonal is 10 cm. **[3]**

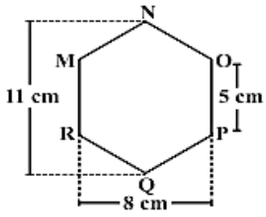
31. The population of a place increased to 54,000 in 2003 at a rate of 5% per annum. what would be its population in 2005. **[3]**

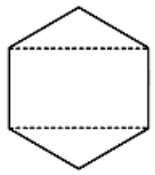
32. What must be added to $2m^2 - 3mn + 3n^2$ to get $5m^2 + 2mn + 7n^2$? **[3]**

33. What price should a shopkeeper mark on article that costs him ₹600 to gain 20%, after allowing a discount of 10%? **[4]**

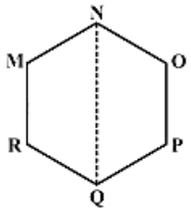
34. Simplify x(2x – 1) + 5 and find its value at x = –4. **[4]**

35. There is a hexagon MNOPQR of side 5 cm (Fig.). Aman and Ridhima divided it in two different ways (Fig). Find the area of this hexagon using both ways. **[4]**





Ridhima's method



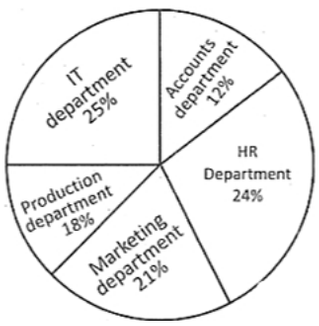
Aman's method

36. A 5m 60cm high vertical pole casts a shadow 3m 20cm long. Find at the same time the length of the shadow cast by another pole 10m 50cm high. **[4]**

37. Factorize $a^2 - 1 + 2x - x^2$. **[4]**

Question No. 38 to 42 are based on the given text. Read the text carefully and answer the questions: **[5]**

Read the following pie chart carefully:



Percentage of Employees in different departments of an organization = 3600

38. What is the number of employees of accounts department?

a) 362 b) 432

c) 512 d) 482

39. The ration of the number of employees of Production department to HR Department is _____.

a) 4 : 7 b) 3 : 8

c) 3 : 4 d) 7 : 12

40. If 400 new employees are hired in the marketing department, then find the ratio of number of employees of the marketing department to the number of employees in the IT department.

a) 19 : 16 b) 17 : 196

c) 17 : 15 d) 289 : 225

41. If 300 employees are shifted from HR department to production department, then new ratio of number of employees of HR department to the production department is _____.

a) 91 : 37 b) 97 : 29

c) 38 : 17 d) 28 : 59

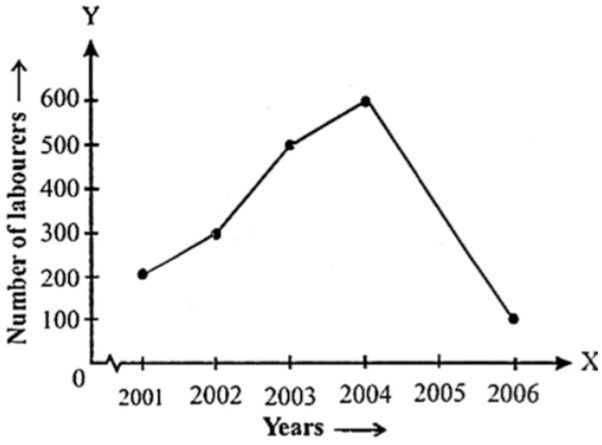
42. If 200 new employees are hired in accounts department and 100 employees of IT department left the organization, then new ratio of number of employees of IT department to accounts department is _____.

a) 79 : 100 b) 81 : 100

c) 85 : 97 d) 77 : 97

Question No. 43 to 47 are based on the given text. Read the text carefully and answer the questions: **[5]**

Read the graph:



43. In which year was the number of labourers maximum?

a) 2002 b) 2003

c) 2001 d) 2004

44. In Which year was the number of labourers minimum?

a) 2004 b) 2005

c) 2003 d) 2006

45. What was the difference of the number of labourers in the years 2002 and 2003?

a) 400 b) 200

c) 100 d) 300

46. Find the rise in the number of labourers from 2001 to 2004.

a) 500 b) 300

c) 200 d) 400

47. Find the sum of the number of labourers in the years 2004 and 2006.

a) 500 b) 200

c) 700 d) 600

Solution

1.

(b) distributive property

Explanation: Distributive property

2.

(b) Option (b)

Explanation: By options,

a. -5 + 3 = -2 and 3 + (-5) = -2, whoch are equal.

b. $\frac{-8}{12} = \frac{10}{-15} \Rightarrow \frac{-2}{3} = \frac{-2}{3}$, which are equal.

c. 2 is not natural number.

d. 17 is not prime number.

3. **(a)** 8

Explanation: $\frac{x-5}{3} = \frac{x-3}{5}$

by cross multiplication

or, 5(x - 5) = 3(x - 3)

or, 5x - 25 = 3x - 9

by transposing

or, 5x - 3x = -9 + 25

or, 2x = 16

or, x = $\frac{16}{2}$

or, x = 8

4.

(d) $\frac{5}{7}$

Explanation: Given equation is

$\frac{1}{2}$(3y + 1) - $\frac{-1}{3}$(5y + 2) = y - 1

To remove fractions, we multiply the equation on both sides by LCM of 2 & 3 i.e

6[$\frac{1}{2}$(3y + 1) - $\frac{-1}{3}$(5y + 2) = 6 (y - 1)

$\Rightarrow$ 3(3y + 1) - 2(5y + 2) = 6y - 6

$\Rightarrow$ 9y + 3 - 10y - 4 = 6y - 6

$\Rightarrow$ 9y - 10y - 6y = -6 + 4 - 3

$\Rightarrow$ -7y = -5

$\Rightarrow$ y = $\frac{5}{7}$

5.

(d) 30°, 150°, 30°, 150°

Explanation: Let the adjacent angles of a parallelogram be x and 5x, respectively.

Then, x + 5x = 180° [$\because$ adjacent angles of a parallelogram are supplementary]

$\Rightarrow$ 6x = 180°

$\Rightarrow$ x = 30°

$\therefore$ The adjacent angles are 30° and 150°.

Hence, the angles are 30°, 150°, 30°, 150° [$\because$ opposite angles are equal]

6.

(b) trapezium

Explanation: In $\triangle$BAD,

$\angle$BDA = $\angle$BAD = 57^o (isos. $\triangle$ property) In $\triangle$BDC,

$\angle$BCD = $\angle$BDC = 66^o (isos $\triangle$ property)

$\therefore \angle D = 57^o + 66^o = 123^o = 180^o$

$\angle A + \angle D + \angle C = 123^o + 66^o = 189^o$

Also, $\angle D + \angle C = 123^o + 66^o = 189^o$

Hence, by the property that co-int. angles are supplementary therefore lines are parallel,

we have

AB || DC and AD not || BC

Hence, ABCD is a trapezium.

7.

(b) $\frac{1}{26}$

Explanation: There are 2 red king out of 52 cards. So the probability that the card is drawn is a red king $\frac{2}{52} = \frac{1}{26}$

8. **(a)** 1521

Explanation: $39^2 = 39 \times 39 = 1521$

9. **(a)** 1.3824×10^7 cu. cm

Explanation: Side of cubical box = 2.4 m

$\therefore$ Volume = $(\text{side})^3 = (2.4 \text{ m})^3$

$= 13.824 \text{ m}^3 = 13.824 \times 10^6 \text{ cm}^3$

$= 1.3824 \times 10^7 \text{ cm}^3$

10.

(c) $\frac{-7}{11}$

Explanation: $\sqrt[3]{\frac{-343}{1331}} = \frac{\sqrt[3]{-343}}{\sqrt[3]{1331}} = \frac{\sqrt[3]{-7\times-7\times-7}}{\sqrt[3]{11\times11\times11}} = \frac{-7}{11}$

11.

(c) ₹ 85,400

Explanation: Value of the vehicle after 3 years

$= 1{,}75{,}000 \times \left(1 - \frac{20}{100}\right)^3$

$= 1{,}75{,}000 \times \frac{4}{5} \times \frac{4}{5} \times \frac{4}{5}$ = ₹ 89, 600

$\therefore$ Total depreciation = 1, 75,000 - 89,600

= ₹ 85,400

12.

(c) 25

Explanation: Let the total matches be = x

According to question,

$x \times \frac{40}{100} = 10$

or, $x = \frac{10}{40} \times 100$

or, x = 25 matches

13.

(b) (r - 7)(r - 3)

Explanation: We have, r^2 - 10r + 21

= r^2 -7r - 3r + 21 = r (r - 7) - 3(r - 7) [by splitting the middle term, so that the product of their numerical coefficients is equal constant term]

= (r - 7)(r - 3) [$\because x^2 + (a + b)x + ab = (x + a)(x + b)$]

14.

(b) 1.25 m

Explanation: Let r and h be the radius and depth of well respectively.

Volume of earth dug out = $\pi r^2 h$

$= \frac{22}{7} \times \frac{3.5}{2} \times \frac{3.5}{2} \times 12 = 115.5 \text{ m}^2$

Let x be the height of platform.

Now, volume of platform = volume of earth dug out

$\Rightarrow 10.5 \times 8.8 \times x = 115.5 \Rightarrow x = \frac{115.5}{10.5 \times 8.8} = 1.25$ m

15.

(b) 130 ft^2

Explanation: length = 8 ft. , breadth = 5 ft. and height = 5 ft.

The surface area of the four walls of the water tank = 2 × height(length + breadth)

$S = 2 \times 5(8 + 5)$

$S = 10(13) = 130\ ft^2$

The surface area of four walls of the water tank is 130 ft^2.

16. **(a)** $\left(-\frac{7}{5}\right)^5$

Explanation: Using law of exponents, $a^{-m} = \frac{1}{a^m}$ [$\because$ a is non-zero integer]

$\therefore \quad \left(\frac{-5}{7}\right)^{-5} = \frac{1}{\left(\frac{-5}{7}\right)^5} = \left(-\frac{7}{5}\right)^5$

17.

(c) 14

Explanation: We have, $\left(\frac{7}{9}\right)^{-8} \times \left(\frac{9}{7}\right)^6 = \left(\frac{9}{7}\right)^x$

$\Rightarrow \left(\frac{9}{7}\right)^8 \times \left(\frac{9}{7}\right)^6 = \left(\frac{9}{7}\right)^x \Rightarrow \left(\frac{9}{7}\right)^{8+6} = \left(\frac{9}{7}\right)^x$

$\Rightarrow x = 8 + 6 = 14$

18.

(d) 21

Explanation: Since, more persons can reap a field in lesser days.

Hence, number of persons and number of days to reap a field are in inverse proportion.

Let number of persons = n and number of days = d

Here, $n_1 = 30$, $d_1 = 17$, $d_2 = 10$and n_2 =?

In case of inverse proportion,

$n_1d_1 = n_2d_2$

$\Rightarrow 30 \times 17 = n_2 \times 10$

$\Rightarrow n_2 = \frac{30 \times 17}{10} = 51$

Hence, number of more persons which should be engaged = 51 - 30 = 21

19.

(b) 4

Explanation: Since x and y vary inversely as each other, therefore the product xy always remains constant.

$\therefore 10 \times 6 = 15 \times y$

$\Rightarrow 60 = 15y$

$\Rightarrow \frac{60}{15} = y$

$\Rightarrow y = 4$

20.

(d) (x + 25) (x - 6)

Explanation: $x^2 + 19x - 150$

$= x^2 + 25x - 6x - 150$ [By splitting the middle term]

$= x(x + 25) - 6(x + 25)$

$= (x - 6)(x + 25)$

21. We have, $729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3$

Since the prime factors appear in triplets.

So, 729 is a perfect cube.

22. Volume of each brick = 22 cm × 10 cm × 7 cm

$= 1540\ cm^3 = 0.00154\ m^3$

Volume of wall = l × b × h = 11 m × 3.5 m × $\frac{40}{100}m$ [$\because$ 1 m = 100 cm]

= 11 × 3.5 × 0.4 = 15.4 m^3

If 1/10th part of the wall used in cement and sand, then part of wall used by cement and sand = $\frac{15.4}{10} m^3 = 1.54 m^3$

Remaining part = 15.4 - 1.54 = 13.86 m^3

Number of bricks $= \frac{\text{Volume of wall to be construct}}{\text{Volume of each brick}} = \frac{13.86}{0.00154}$ = 9000

23. Surface area of the figure = TSA of upper block + TSA of lower block - area of contacted part

Surface area of the figure = 2 [3 × 1 + 1 × 1 + 3 × 1] + 2 [4 × 1 + 1 × 1 + 4 × 1] - [1 × 1 + 1 × 1]

= 2 [3 + 1 + 3] + 2[4 + 1 + 4] - [1 + 1]

= 2 [7] + 2 [9] - [2]

= 14 + 18 - 2

= 32 - 2

= 30 cm^2

24. $(-2)^{-3} \times (-2)^{-4}$

$= (-2)^{(-3)+(-4)}$

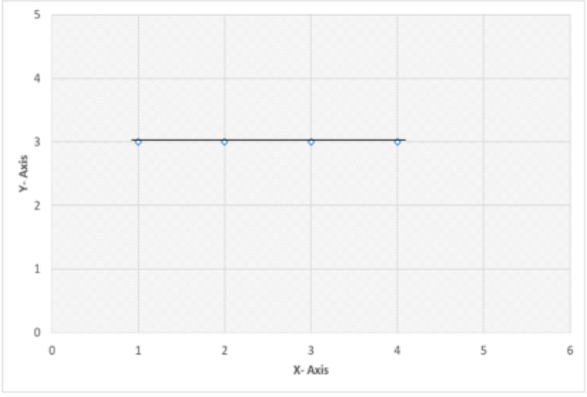
$= (-2)^{-7}$

25. $y^2 - 7y + 12 = y^2 - 3y - 4y + 12$

$= y(y-3) - 4(y-3) = (y-3)(y-4)$

Thus, the factors are (y – 3) and (y – 4).

26. Its clear from the graph that all points lie on the same line.



27. $\frac{2}{5} \times \left(-\frac{3}{7}\right) - \frac{1}{6} \times \frac{3}{2} + \frac{1}{4} \times \frac{2}{5}$

$= \frac{2}{5} \times \left(-\frac{3}{7}\right) - \frac{1}{6} \times \frac{3}{2} + \frac{2}{5} \times \frac{1}{14}$ .... [By commutativity]

$= \frac{2}{5} \times \left(-\frac{3}{7}\right) + \frac{2}{5} \times \frac{1}{14} - \frac{1}{6} \times \frac{3}{2}$ .... [By associativity]

$= \frac{2}{5} \times \left\{\left(-\frac{3}{7}\right) + \frac{1}{14}\right\} - \frac{1}{6} \times \frac{3}{2}$ .... [By distributivity]

$= \frac{2}{5} \times \left\{\frac{(-6)+1}{14}\right\} - \frac{1}{6} \times \frac{3}{2}$

$= \frac{2}{5} \times \left\{\frac{-5}{14}\right\} - \frac{1}{6} \times \frac{3}{2} = \frac{-1}{7} - \frac{1}{4}$

$= \frac{-4-7}{28} = \frac{-11}{28}$

28. $\frac{x-5}{3} = \frac{x-3}{5}$

It is a linear equation since it involves linear expressions only.

$\therefore \frac{x}{3} - \frac{5}{3} = \frac{x}{5} - \frac{3}{5}$

$\therefore \frac{x}{3} - \frac{x}{5} = \frac{3}{5} + \frac{5}{3}$ ... [Transposing $\frac{x}{5}$ to L.H.S. and $\frac{-5}{3}$ to R.H.S.]

$\therefore \frac{5x-3x}{15} = \frac{25-9}{15}$

$\therefore \frac{2x}{5} = \frac{16}{15}$

$\therefore$ x = $\frac{16}{15} \times \frac{15}{2}$ ... [Multiplying both sides by $\frac{15}{2}$]

$\therefore$ x = 8

this is the required solution.

Verification,

L.H.S. = $\frac{8-5}{3} = \frac{3}{3}$ = 1

R.H.S. = $\frac{8-3}{5} = \frac{5}{5}$ = 1

Therefore, L.H.S. = R.H.S.

29. Since, the adjacent angles of a parallelogram are supplementary.

$\therefore (2x - 4)° + (3x - 1)° = 180°$

$\Rightarrow 5x - 5° = 180°$

$\Rightarrow 5x = 185°$

$\Rightarrow x = \frac{185^\circ}{5} \quad \Rightarrow \quad x = 37^\circ$

Thus, the adjacent angles are

$x = 37°$

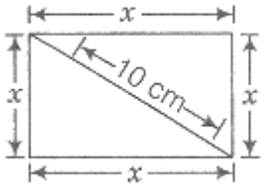
$2x - 4 = 2 \times 37° - 4 = 74 - 4 = 70°$

and $3x - 1 = 3 \times 37° - 1 = 111 - 1 = 110°$

Hence, the angles are 70°, 110°, 70°, 110°

[$\because$ opposite angles in a parallelogram are equal]

30. Given, length of diagonal = 10 cm Suppose, the length of side of a square is x cm . By using Pythagoras theorem,



$(10)^2 = x^2 + x^2$

$\Rightarrow 100 = 2x^2$

$\Rightarrow x^2 = 50$

$\Rightarrow \quad x = \sqrt{50}$ [taking square root on both sides]

$\therefore \quad x = 5\sqrt{2}\text{cm}$

Hence, the length of the side of square is $\sqrt{50}$ or $5\sqrt{2}$ cm.

31. P = 54000

R = 5% p.a.

n = 2 years

$\therefore A = P\left(1 + \frac{R}{100}\right)^n = 54000\left(1 + \frac{5}{100}\right)^2$

$= 54000\left(1 + \frac{1}{20}\right)^2 = 54000\left(1 + \frac{21}{20}\right)^2$

$= 54000 \times \frac{21}{20} \times \frac{21}{20} = 59535$

Hence, the population in 2005 would be 59535.

32. Let the number added is x ,

$(2m^2 - 3mn + 3n^2) + x = (5m^2 + 2mn + 7n^2)$

$x = (5m^2 + 2mn + 7n^2) - (2m^2 - 3mn + 3n^2)$

$x = 5m^2 + 2mn + 7n^2 - 2m^2 + 3mn - 3n^2$

$x = 3m^2 + 5\,mn + 4n^2$

So, the number is $3m^2 + 5\,mn + 4n^2$.

33. We have given that,

The cost price of the article = ₹ 600

Gain% = 20%

$\therefore$ Total Gain = $\frac{600 \times 20}{100}$ = ₹ 120

$\because$ SP = Gain + CP = ₹600 + ₹120 = ₹ 720

Let marked price be ₹ x.

Now shopkeeper allows a discount of 10%

According to the question, x -10% of x = ₹720

$\Rightarrow \quad x - \frac{10 \times x}{100} = 720$

$\Rightarrow \quad \frac{100x - 10x}{100} = 720$

$\Rightarrow \quad \frac{90x}{100} = 720$

$\Rightarrow \quad x = \frac{720 \times 100}{90}$

x = ₹ 800

Hence, the required marked price is ₹ 800.

34. x(2x – 1) + 5

= x(2x) – x(1) + 5

= $2x^2$ – x + 5

If x = – 4

$2x^2$ – x + 5

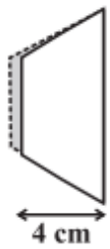
= $2(–4)^2$ –(–4) + 5

= 2(16) + 4 + 5

= 32 + 9

= 41

35. **Aman's method:** Since it is a hexagon so, NQ divides the hexagon into two congruent trapeziums. We can verify it by paper folding (Fig.)



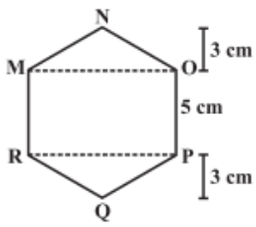
Now area of trapezium MNQR = $4 \times \frac{(11+5)}{2}$

$= 32\text{cm}^2$

So, the area of hexagon MNOPQR = 2 × 32

= 64 cm^2.

Ridhima's method: △ MNO and △ RPQ are congruent triangles with altitude 3 cm (Fig.)



We can verify this by cutting off these two triangles and placing them on one another.

Area of △ MNO = $\frac{1}{2} \times 8 \times 3$

= 12 cm^2

So, Area of △ RPQ = = 12 cm^2

Area of rectangle MOPR = 8 × 5

= 40 cm^2

Now, area of hexagon MNOPQR = 40 + 12 + 12

= 64 cm^2

36. Let the height of the vertical pole be xm and the length of the shadow by ym.

As the height of the vertical pole increases, the length of the shadow also increases in the same ratio, It is a case of direct proportion.

We make use of the relation of the type $\frac{x_1}{y_1} = \frac{x_2}{y_2}$.

Here,

x_1 = 5 m 60 cm = 5.60m

y_1 = 3 m 20 cm = 3.20m

x_2 = 10 m 50 cm = 10.50m

Therefore, $\frac{x_1}{y_1} = \frac{x_2}{y_2}$ gives

$\frac{5.6}{3.2} = \frac{10.5}{y_2}$

$\therefore 5.6y_2 = 3.2 \times 10.5$

$\therefore y_2 = \frac{3.2 \times 10.5}{5.6}$

$\therefore y_2 = 6$

Hence, the length of the shadow is 6m.

37. we have $a^2 - 1 + 2x - x^2$

$= a^2 - (1 - 2x + x^2)$

$= a^2 - (1^2 - 2 \times 1 \times x + (x)^2)$

$= a^2 - (1 - x)^2$

$= \{a - (1 - x)^2$

$= \{a - (1 - x)\}\ \{a + (1 - x\}$

$= (a - 1 + x)(a + 1 - x)$

38. **(b)** 432

Explanation: 432

39. **(c)** 3 : 4

Explanation: 3 : 4

40. **(d)** 289 : 225

Explanation: 289 : 225

41. **(b)** 97 : 29

Explanation: 97 : 29

42. **(a)** 79 : 100

Explanation: 79 : 100

43. **(d)** 2004

Explanation: 2004 $\rightarrow$ 500

44. **(d)** 2006

Explanation: 2006 $\rightarrow$ 100

45. **(b)** 200

Explanation: No. of the labourers 2002 = 300

Number of the labourers 2003 = 500

Difference of the number of labourers in year 2002 and 2003 = 500 - 300 = 200

46. **(d)** 400

Explanation: Number of the labourers 2001 = 200

Number of labourers in 2004 = 600

Rise in the labourers from 2001 to 2004 = 600 - 200 = 400

47. **(c)** 700

Explanation: Number of labourers in 2004 = 600

Number of labourers in 2006 = 100

Sum of the number of labourers in 2004 and 2006 600 + 100 = 700