Class VIII Session 2024-25
Subject - Mathematics
Sample Question Paper - 9

Time Allowed: 3 hours **Maximum Marks: 80**

General Instructions:

1. This Question Paper has 4 Sections A-D.
2. Section A has 20 MCQs carrying 1 mark each.
3. Section B has 6 questions carrying 02 marks each.
4. Section C has 8 questions carrying 03 marks each.
5. Section D has 6 questions carrying 04 marks each.
6. All Questions are compulsory.
7. Draw neat figures wherever required. Take π =22/7 wherever required if not stated

Section A

1. $\frac{13}{19} + \left(-\frac{13}{19}\right)$ = _____. **[1]**

   a) $-\frac{13}{19}$ b) 0

   c) 13 d) 19

2. Find $\frac{3}{5} + \left(-\frac{5}{12}\right) + \left(-\frac{7}{15}\right) + \frac{5}{20}$ **[1]**

   a) $\frac{-1}{30}$ b) -1

   c) 30 d) $\frac{1}{30}$

3. Solve the equation: 3x = 2x + 18 **[1]**

   a) 9 b) 12

   c) 6 d) 18

4. Solve: 8x + 4 = 3(x - 1) + 7 **[1]**

   a) 1 b) 2

   c) 0 d) 9

5. In a kite, what is false? **[1]**

   i. The diagonals are perpendicular to each other

   ii. The diagonals bisect each other

   iii. Only one pair of opposite angles is equal

   iv. All the four sides are equal

   a) Option (iii) b) Option (ii)

   c) Option (iv) d) Option (i)

6. If two adjacent angles of a parallelogram are in the ratio 3 : 2, then the measure of the angles are **[1]**

a) 100^o, 80^o b) 72^o, 36^o

c) 144^o, 36^o d) 108^o, 72^o

7. What is the probability that a leap year selected at random will contain 53 Sundays? **[1]**

a) $\frac{2}{7}$ b) $\frac{6}{7}$

c) $\frac{1}{2}$ d) $\frac{5}{7}$

8. If the three numbers are in the ratio 3 : 4 : 7, so that the sum of their squares is 1184. Find the numbers respectively. **[1]**

a) 16, 12, 28 b) 12, 16, 28

c) 28, 16, 12 d) 28, 12, 16

9. Find the perfect square number between 80 and 90. **[1]**

a) 87 b) 82

c) 81 d) 85

10. The one's digit of the cube of 23 is **[1]**

a) 7 b) 6

c) 9 d) 3

11. The least number by which 81 be divided to make a perfect cube is _____ **[1]**

a) 1 b) 3

c) 4 d) 2

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. The population of a town was decreasing every year due to migration, poverty and unemployment. The present population of the town is 6,31,680. Last year the migration was 4% and the year before last, it was 6%. What was the population two years ago? **[1]**

a) 6,00,000 b) 7,00,000

c) 9,00,000 d) 5,00,000

14. The perimeter of a triangular field is $6p^2 - 4p + 9$ and two of its sides are $p^2 - 2p + 1$ and $3p^2 - 5p + 3$. Find the third side of the field. **[1]**

a) $5p^2 - 5p + 9$ b) $8p^2 + 11p - 7$

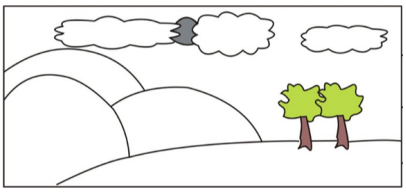
c) $2p^2 + 3p + 5$ d) $3p^2 + 5p - 4$

15. Using the suitable Identity find $(2x + 3y)^2$. **[1]**

a) 16 x^2 + 12xy + 9 y^2 b) 4 x^2 + 12xy + 16 y^2

c) 12xy d) 4 x^2 + 12xy + 9 y^2

16. The actual length of a painting was 2 m. What is its length in the photograph if the scale used is 1 mm : 20 cm. **[1]**



a) 10 mm
b) 13 mm
c) 9 mm
d) 12 mm

17. A cylinder has a volume of 965 cm^3. If the height of the cylinder is 16 cm, find the radius. **[1]**

a) 8.8 cm
b) 3.3 cm
c) 2.2 cm
d) 4.38 cm

18. 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

19. The factors of $\frac{1}{7}y^2 + y - 14$ are **[1]**

a) $\left(\frac{1}{7}y - 1\right)(y + 14)$
b) $\left(\frac{1}{7}y + 1\right)(y + 14)$
c) $\left(\frac{1}{7} - y\right)(y - 14)$
d) $\left(\frac{1}{7}y - 1\right)(y - 14)$

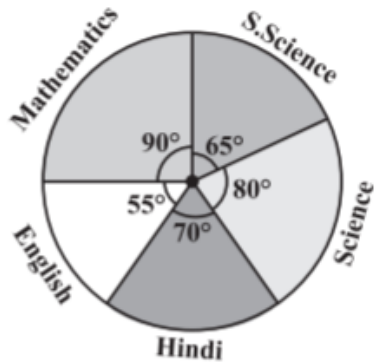
20. The factorisation of $3x^2 + 10x + 8$ is **[1]**

a) (3x + 4)(x + 2)
b) (3x - 4)(x - 2)
c) (3x + 4)(x - 2)
d) (3x - 4)(x + 2)

Section B

21. Each interior angle of a regular polygon are 158^o. Can it be an interior angle of a regular polygon? Why? **[2]**

22. The adjoining pie chart gives the marks scored in an examination by a student in Hindi, English, Mathematics, Social Science and Science. If the total marks obtained by the students were 540, answer the question. **[2]**



In which subject did the students score 105 marks? (Hint: for 540 marks, the central angle = 360°. So, for 105 marks, what is the central angle?)

23. Prove that if a number is doubled, then its cube is 8 times the cube of the given number. **[2]**

OR

Find if 2025 is a perfect cube?

24. A river 2 m deep and 45 m wide is flowing at the rate of 3 km per hour. Find the amount of water in cubic **[2]**

meters that run into the sea per minute.

25. In a repeater machine with 0 as an exponent, the base machine is applied 0 times. **[2]**

What do these machines do to a piece of chalk?

26. A car covers a distance in 40 minutes with an average speed of 60 km/h. What should be the average speed to cover the same distance in 25 minutes? **[2]**

OR

A train is moving at a uniform speed of 75 km/hour. How far will it travel in 20 minutes?

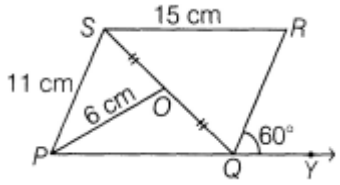
27. using appropriate properties find : $\frac{2}{5} \times \left(-\frac{3}{7}\right) - \frac{1}{6} \times \frac{3}{2} + \frac{1}{14} \times \frac{2}{5}$. **[3]**

28. Solve the linear equation $x + 7 - \frac{8x}{3} = \frac{17}{6} - \frac{5x}{2}$ **[3]**

OR

Solve the equation and check your result: 8x + 4 = 3(x – 1) + 7

29. In parallelogram PQRS, O is the mid-point of SQ. Find ∠S, ∠R, PQ, QR, and diagonal PR. **[3]**

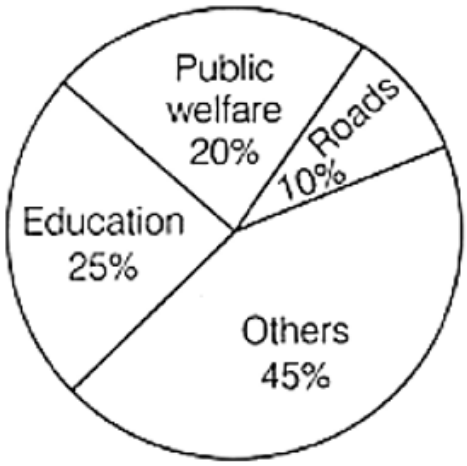


30. The following pie chart depicts the expenditure of a state government under different heads: **[3]**

i. If the total spending is 10 crore, how much money was spent on roads?

ii. How many times is the amount of money spents on education compared to the amount spent on roads?

iii. What fraction of the total expenditure is spents on both roads and public welfare together?



31. Find the least number which must be added to 1750 so as to get a perfect square. Also find the square root of the perfect square so obtained. **[3]**

32. The cost price of an article is ₹375. Find the marked price of the article so as to gain 8%, after allowing a discount of 25%? **[3]**

OR

If Chameli had ₹ 600 left after spending 75% of her money, how much did she have in the beginning?

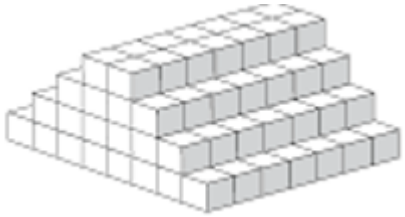
33. Add: 10mn, $-\frac{3}{8}mn$ and $-\frac{1}{4}mn$ **[3]**

34. Use the table below to draw line graph. Population (in thousands) of men and women in a village in different years. **[3]**

Year	2003	2004	2005	2006	2007
Number of Men	12	12.5	13	13.2	13.5
Number of Women	11.3	11.9	13	13.6	12.8

35. Raheem runs a readymade garment shop. He mark the garments at such a price that even after allowing a discount of 12.5%, gain a profit of 25%. Find the marked price of a jacket which costs him Rs. 2,100. **[4]**

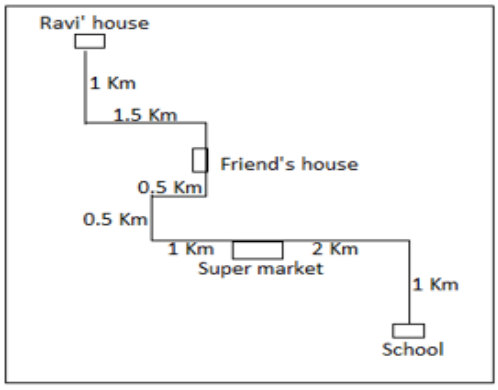
36. Find the number of cubes in each of the following solids and draw their front view, right side view and top view. **[4]**

a. 

b. 

OR

Here is a map of Ravi's house to his school. Read the map clearly and answer the questions that follow.



Find the distance between

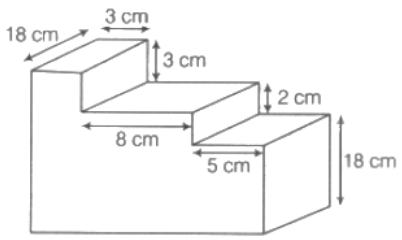
i. Ravi's house to school

ii. Ravi's house to supermarket

iii. Ravi's house to friend's house

iv. Supermarket to school.

37. Find out the surface area (Use $\pi = 3.14$) **[4]**



OR

The internal measures of a cuboidal room are $12m \times 8m \times 4m$. Find the total cost of whitewashing all four walls of a room, if the cost of white washing is ₹5 per m^2. What will be the cost of white washing if the ceiling of the room is also whitewashed?

38. Simplify $(2^5 \div 2^8)^5 \times 2^{-5}$ **[4]**

39. A photograph of a bacteria enlarged 50000 times attains a length of 5 cm as shown in the diagram. What is the actual length of the bacteria? If the photograph is enlarged 20000 times only, what be its enlarged length? **[4]**

40. Factorise the expression and divide them as directed: $4yz\ (z^2 + 6z - 16) \div 2y\ (z + 8)$ **[4]**

Solution

Section A

1.

(b) 0

Explanation: $\frac{13}{19}$ + ($\frac{-13}{19}$)

= $\frac{13}{19}$ - $\frac{13}{19}$

= 0

2. **(a)** $\frac{-1}{30}$

Explanation: $\left[\frac{3}{5}+\left(\frac{-5}{12}\right)\right]+\left[\left(\frac{-7}{15}\right)+\frac{5}{20}\right]$

$=\left[\frac{3\times12+(-5)\times5}{60}\right]+\left[\frac{-7\times4+3\times5}{60}\right]$

$=\left[\frac{36-25}{60}\right]+\left[\frac{-28+15}{60}\right]$

$=\frac{11}{60}+\left(\frac{-13}{60}\right)$

$=\frac{11-13}{60}$

$=\frac{-2}{60}$

$=\frac{-1}{30}$

3.

(d) 18

Explanation: 3x = 2x + 18

3x - 2x = 18

x = 18

4.

(c) 0

Explanation: 8x + 4 = 3(x - 1) + 7

or, 8x + 4 = 3x - 3 + 7 (solve bracket first)

or, 8x + 4 = 3x + 4

By transposing both sides

or, 8x - 3x = 4 - 4

or, 5x = 0

or, x = 0

5.

(c) Option (iv)

Explanation: In a kite two pairs of adjacent sides are equal.

6.

(d) 108^o, 72^o

Explanation: Let the angles be 3x and 2x.

We have, 3x + 2x = 180^o

5x = 180^o

x = 36^o

∴ The angles are

$36 \times 3, 36 \times 2 = 108^o, 72^o$.

7. **(a)** $\frac{2}{7}$

Explanation: In a leap year there are 366 days.

366 days = 52 weeks and 2 days.

These remaining two days can be

a. Sunday, Monday
b. Monday, Tuesday
c. Tuesday, Wednesday
d. Wednesday, Thursday
e. Thursday, Friday
f. Friday, Saturday
g. Saturday, Sunday

∴ Total no. of cases (a to g) = 7
No. of favourable cases (a, g) = 2
∴ Required probability = $\frac{2}{7}$

8.

(b) 12, 16, 28
Explanation: Let the numbers be 3x, 4x and 7x
According to question, we have
$(3x)^2 + (4x)^2 + (7x)^2 = 1184$
$\Rightarrow 9x^2 + 16x^2 + 49x^2 = 1184 \Rightarrow 74x^2 = 1184$
$\Rightarrow x^2 = \frac{1184}{74} = 16 \Rightarrow x = 4$
Hence, the numbers are 12, 16 and 28

9.

(c) 81
Explanation: The answer is 81 as the next square number is 100 which does not lie between 80 and 90

10. **(a)** 7
Explanation: We know that, the cubes of the numbers ending with digits 3 and 7, have 7 and 3 at one's digit, respectively. So, the one's digit of the cube of 23 is 7.

11.

(b) 3
Explanation: Prime factors of 81
$81 = 3 \times 3 \times 3 \times 3$
∵ In perfect cube numbers, the group formed of three-three factors of prime factors.
∴ To divide of 81 by 3, will be get a perfect cube number.

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) 7,00,000
Explanation: Let the population two years ago be x
After 1 year, it remained = $x - \frac{6}{100}x$
After 2 years, it remained = $\left(x - \frac{6x}{100}\right) - \left(x - \frac{6x}{100}\right) \times \frac{4}{100}$
According to question, we have
$631680 = x - \frac{6x}{100} - \frac{4x}{100} + \frac{24x}{10000}$
$\Rightarrow 631680 = \frac{10000x - 600x - 400x + 24x}{10000}$
$\Rightarrow 631680 = \frac{9024x}{10000} \Rightarrow \frac{631680 \times 10000}{9024} = x$
$\Rightarrow x = 700000$
Thus, the population two years ago was 700000

14.

(c) $2p^2 + 3p + 5$

Explanation: Perimeter of triangle = Sum of all sides

i.e. $(6p^2 - 4p + 9) = (p^2 - 2p + 1) + (3p^2 - 5p + 3) +$ Third side

$\Rightarrow$ Third side = $(6p^2 - 4p + 9) - (4p^2 - 7p + 4)$

$= 6p^2 - 4p + 9 - 4p^2 + 7p - 4 = 2p^2 + 3p + 5$

15.

(d) $4\ x^2 + 12xy + 9\ y^2$

Explanation: Use identity,

$(a + b)^2 = a^2 + b^2 + 2ab$

$(2x + 3y)^2 = (2x)^2 + (3y)^2 + 2 \times 2x \times 3y$

$(2x + 3y)^2 = 4x^2 + 9y^2 + 12xy$

$(2x + 3y)^2 = 4x^2 + 12xy + 9y^2$

16. **(a)** 10 mm

Explanation: Actual length of a painting = 2 m = 200 cm Scale used = 1 mm : 20 cm

Length of painting in photograph

$= 20 \times \frac{1}{20} = 10$ mm

17.

(d) 4.38 cm

Explanation: height of cylinder = 16 cm and volume of cylinder = 965 cm^3

Volume of a cylinder = $\pi r^2 h$

$965 = \frac{22}{7} \times r^2 \times 16$

$\frac{965 \times 7}{22 \times 16} = r^2$

$\frac{6755}{352} = r^2$

$19.19 = r^2$

$\sqrt{19.19} = r$

4.38cm = radius

radius of cylinder = 4.38 cm

18.

(b) 1.25 m

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

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

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

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

19. **(a)** $\left(\frac{1}{7}y - 1\right)(y + 14)$

Explanation: $\frac{y^2}{7} + y - 14 = \frac{y^2 + 7y - 98}{7}$

$= \frac{y^2 + 14y - 7y - 98}{7}$

$= \frac{y(y+14) - 7(y+14)}{7}$

$= \frac{(y-7)(y+14)}{7}$

$= \frac{1}{7}(y - 7)(y + 14)$

20. **(a)** $(3x + 4)(x + 2)$

Explanation: $3x^2 + 10x + 8$

$= 3x^2 + 6x + 4x + 8$

$= 3x(x + 2) + 4(x + 2)$

$= (x + 2)(3x + 4)$

Section B

21. No, because each exterior angles 180° – 22° = 158°, which is not a divisor of 360°.

22. From the graph it is clear that For 540 marks, the central angle = 360°

    ∴ For 105 marks, the central angle $= \frac{360^\circ}{540} \times 105 = 70^\circ$, hence, the student scored 105 marks in Hindi.

23. Let the number be a .

    If it is doubled, it becomes 2a .

    Its cube = $(2a)^3$ = 2a × 2a × 2a = 8 a^3 .

    That is, 8 times the cube of a.

    OR

3	2025
3	675
3	225
3	75
5	25
5	5
	1

    By prime factorisation,

    2025 = 3 × 3 × 3 × 3 × 5 × 5 [grouping the factors in triplets]

    In the above factorisation, 3 and 5 × 5 remain after grouping 3's in triplets.

    Therefore, 2025 is NOT a perfect cube.

24. Depth of the river = 2 m

    Width of the river = 45 m

    Flowing rate of the water = 3 km /h

    $= 3 \times \frac{1000}{60} = \frac{3000}{60}$ [∵1 km = 1000 m and 1 h = 60 min]

    $= \frac{300}{6} = 50\text{m/min}$

    The amount of water into sea per minute

    = Depth × Width × Length of water of 1 min

    = 2 × 45 × 50

    = 4500 m^3/m

25. As we know that $3^0 = 1, 13^0 = 1, 29^0 = 1$

    Using law of exponents, $a^0 = 1$ [∵ a is non-zero integer]

    So, machine ($\times 3^0$), ($\times 13^0$) and ($\times 29^0$) produce nothing or can not change the piece 7 chalk.

26. A car covers a distance in 40 min with an average speed = 60 km/h = $\frac{60\times1000}{60}\text{m/min}$

    In 1 min, the same distance can be cover with speed = $\frac{60\times1000\times40}{60}$ = 40000 m/min

    In 25 min, the same distance can be cover with speed = $\frac{40000}{25}$ = 1600 m/min

    = $\frac{1600}{1000} \times 60 = 16 \times 6$ = 96km/h $\left[\because 1\text{m} = \frac{1}{1000}\text{km and } 1\text{min} = \frac{1}{60}\text{h}\right]$

    OR

    Let the distance travelled (in km) in 20 minutes be x.

    Time = 20 min = $\frac{20}{60}$ hr

    Speed = 75 km/hr

    Now, distance = speed × time

    x = 75 × $\frac{20}{60}$ = 25

    So, the train will cover a distance of 25 km in 20 minutes.

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. $x + 7 - \frac{8x}{3} = \frac{17}{6} - \frac{5x}{2}$

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

$\therefore x - \frac{8x}{3} + \frac{5x}{2} = \frac{17}{6} - 7$ ... [Transposing $-\frac{5x}{2}$ to L.H.S. and 7 to R.H.S]

$\therefore \frac{6x-16x+15x}{6} = \frac{17-42}{6}$

$\therefore \frac{5x}{6} = \frac{-25}{6}$

$\therefore x = \frac{-25}{6} \times \frac{6}{5}$ ... [Multiplying both sides by $\frac{6}{5}$]

$\therefore$ x = -5 this is the required solution.

OR

8x + 4 = 3(x – 1) + 7

$\therefore$ 8x + 4 = 3x – 3 + 7

$\therefore$ 8x + 4 = 3x + 4

$\therefore$ 8x – 3x = 4 – 4 ... [Transposing 3x to L.H.S. and 4 to R.H.S.]

$\therefore$ 5x = 0

$\therefore$ x = $\frac{0}{5}$ ... [Dividing both sides by 5]

$\therefore$ x = 0 this is the required solution.

Verification,

L.H.S. = 8x + 4 = 8(0) + 4 = 4

R.H.S. = 3(x – 1) + 7 = 3(0 – 1) + 7 = 3(–1) + 7 = –3 + 7 = 4

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

29. Given, $\angle$RQY = 60°

$\therefore \angle$RQP = 120° [linear pair]

$\angle$S = 120° [$\because$ opposite angles are equal in a parallelogram]

By the angle sum property of a quadrilateral, $\angle$P + $\angle$R + $\angle$S + $\angle$Q = 360°

$\Rightarrow \quad \angle P + \angle R + 120^\circ + 120^\circ = 360^\circ$

$\Rightarrow \quad \angle P + \angle R = 120^\circ$

$\Rightarrow$ 2$\angle$P = 120°

$\Rightarrow \angle$P = 60° [$\because$ opposite angles are equal in parallelogram]

$\Rightarrow \angle$P = $\angle$R = 60°

Also, SR = 15 cm

$\therefore$ PQ = 15 cm [$\because$ opposite sides of a parallelogram are equal]

And PS = 11 cm

$\therefore$ QR = 11 cm [$\because$ opposite sides of a parallelogram are equal]

and PR = 2 $\times$ PO = 2 $\times$ 6 = 12 [$\because$ diagonals of a parallelogram bisect each other]

30. i. Money spent on roads = 10%of total spending = $\frac{10}{100} \times 10$ crore = 1 crore

ii. Money spent on education = 25% of total spending = $\frac{25}{100}\times$ Total spending

Money spent on roads = 10% of total spending = $\frac{10}{100}\times$ Total spending

Now, $\frac{\text{money spent on education}}{\text{money spent on roads}} = \frac{25}{10}$

$\Rightarrow$Money spent on education = 2.5 $\times$ Money spent on roads

iii. Fraction of the total expenditure spent on both roads and public welfare

= 10% + 20% = $\frac{10}{100} + \frac{20}{100} = \frac{(10+20)}{100} = \frac{30}{100} = \frac{3}{10}$

31.

```
     41
  ┌──────
4 │ 17 50
  │-16
  ├──────
81│  1 50
  │-  81
  ├──────
  │   69
```

This shows that $41^2 < 1750$

Next perfect square is $42^2 = 1764$

Hence, the number to be added is 42^2 – 1750 = 1764 – 1750 = 14

Therefore, the perfect square so obtained is 1750 + 14 = 1764.

Hence, $\sqrt{1764}$= 42.

32. C.P. of the article = ₹ 375

Gain = 8%

$S.P. = \frac{100+Gain\%}{100} \times C.P.$

$= \frac{100+8}{100} \times 375$

$= \frac{108}{100} \times 375 = ₹405$

Let the marked price of the article be Rs. x

Discount% = 25%

Discount $= \frac{25}{100} \times x = \frac{x}{4}$

S.P. = M.P - Discount

$405 = x - \frac{x}{4} = \frac{3x}{4}$

$x = \frac{4\times405}{3} = 4 \times 135$

x = ₹ 540.

Therefore, the marked price of the article is ₹ 540.

OR

Total percentage of money she didn't spent

= 100% - 75% = 25%

According to question,

$\Rightarrow$ 25% = 600

$\Rightarrow 1\% = \frac{600}{25}$

$\Rightarrow 100\% = \frac{600}{25} \times 100$ = 2400

Hence, the money she had in the beginning was ₹ 2400.

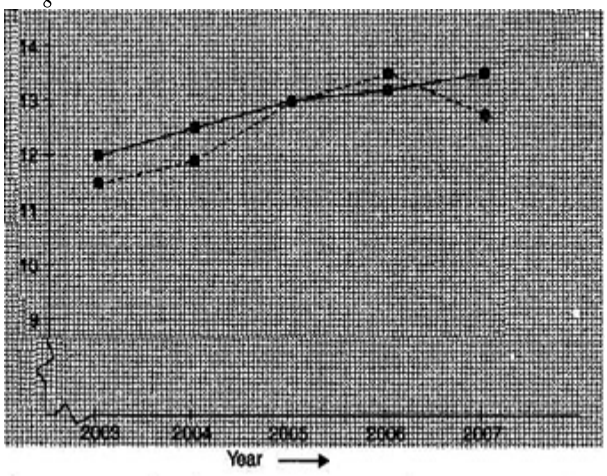
33. $10mn + \left(-\frac{3}{8}mn\right) + \left(-\frac{1}{4}mn\right)$

$= 10mn - \frac{3}{8}mn - \frac{1}{4}mn$

$= \left(10 - \frac{3}{8} - \frac{1}{4}\right)mn$

$= \frac{80-3-2}{8}mn$

$= \frac{75}{8}mn$

34. 

35. Let marked price of the garments = ₹ x

Discount% = 12.5%

Discount = 12.5% of x $= \frac{125}{10\times100} \times x = \frac{1}{8} \times x = \frac{x}{8}$

S.P. = M.P. - Discount

$= x - \frac{x}{8} = \frac{8x-x}{8} = \frac{7x}{8}$

C.P. = ₹ 2,100

Gain% = 25%

$S.P. = \frac{100+Profit\%}{100} \times C.P.$

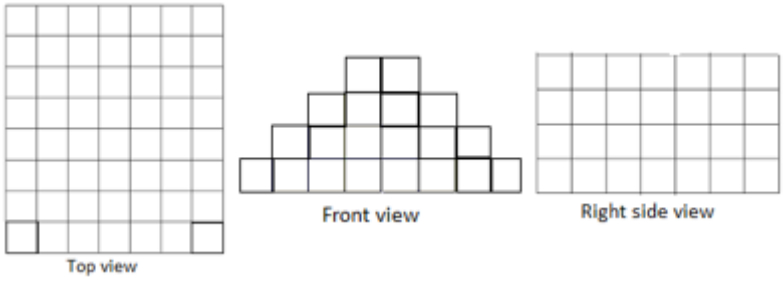
$= \frac{100+25}{100} \times 2100 = \frac{125}{100} \times 2,100 = ₹.2,625$

Therefore, $\frac{7x}{8}$ = ₹ 2,625

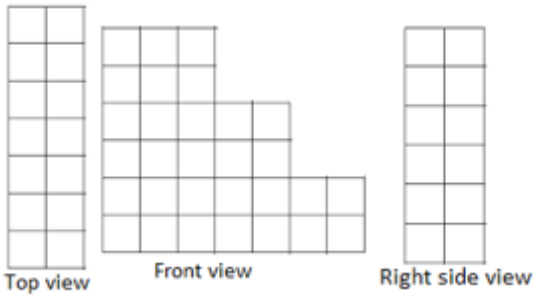
$x = \frac{2625 \times 8}{7} = 375 \times 8 = ₹3,000$

Hence, Marked Price of Garments = ₹3,000.

36. a. In fig (a), no. of cubes in Bottom layer ot top layer = 56 + 42 + 28 + 14 = 140



b. In fig (b), no. of cubes in Bottom layer to top layer = 14 + 14 + 10 + 10 + 6 + 6 = 60



OR

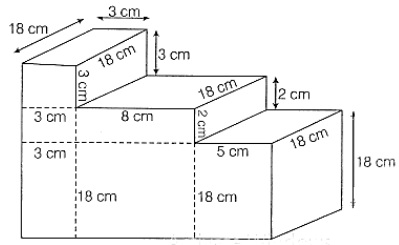
i. Ravi's house to school = 1 Km + 1.5 Km + 0.5 Km + 0.5 Km + 1 Km + 2 Km + 1 Km =7.5Km.

ii. Ravi's house to supermarket = 1 Km + 1.5 Km + 0.5 Km + 0.5 Km + 1 Km = 4.5 Km.

iii. Ravi's house to friend's house = 1 Km + 1.5 Km = 2.5 Km.

iv. Supermarket to school = 2 Km + 1 Km = 3 Km.

37. To find the total surface area, we draw the figure as given below.



∴ Upper surface area

= 18 × 3 + 8 × 18 + 5 × 18

= 54 + 144 + 90

= 288 cm^2

Lower surface area = Upper surface area = 288 cm^2

Now, Surface area of those faces which are flat from right

= 18 × 18 + 2 × 18 + 3 × 18

= 324 + 36+ 54

= 414 cm^2

Also, surface area of that face which are flat from left

= 414 cm^2

Now, Surface area of front surface

= 18 × 5 + 2 × 8 + 8 × 18 + 3 × 2 + 3 × 18 + 3 × 3

= 90 + 16 + 144 + 6 + 54 + 9

= 319 cm^2

Similarly, Surface area of the back face = 319 cm^2

∴ Total surface area

= 288 + 288 + 414 + 414 + 319 + 319

= 2042 cm^2

OR

Let the length of the room = l = 12 m

Width of the room = b = 8 m

Height of the room = h = 4 m

Area of the four walls of the room = Perimeter of the base × Height of the room

= 2 (l + b) × h = 2 (12 + 8) × 4

= 2 × 20 × 4 = 160 m^2

Cost of white washing per m^2 = ₹5

Hence, the total cost of white washing four walls of the room = ₹ (160×5) = ₹800

Area of ceiling = 12 × 8 = 96 m^2

Cost of white washing the ceiling = ₹(96 × 5) = ₹480

So, the total cost of white washing = ₹(800 + 480) = ₹1280

38. $(2^5 \div 2^8)^5 \times 2^{-5} = (2^{5-8})^5 \times 2^{-5}$

$= (2^{-3})^5 \times 2^{-5}$

$= 2^{-15} \times 2^{-5}$

$= 2^{-15-5}$

= 2^{-20}

$= \frac{1}{2^{20}}$

39. Actual length of the bacteria

$\frac{5}{50000} cm$

$= \frac{1}{10000} cm.$

= 10^{-4} cm

More the number of times a photograph of a bacteria is enlarged, more the length attained. So, the number of times a photograph of a bacteria is enlarged and the length attained are directly proportional to each other.

So, $\frac{x_1}{y_1} = \frac{x_2}{y_2}$

$\therefore \frac{50000}{5} = \frac{20000}{y_2}$

$\therefore$ 50000 y_2 = 5 × 20000

$\therefore y_2 = \frac{5 \times 20000}{50000}$

$\therefore y_2 = 2$

Hence, its enlarged length would be 2 cm.

40. 4yz (z^2 + 6z – 16) ÷ 2y (z + 8)

$= \frac{4yz(z^2+6z-16)}{2y(z+8)}$

$= \frac{2z(z^2+6z-16)}{z+8}$

$= \frac{2z(z^2+8z-2z-16)}{z+8}$. . . . [Using Identity IV]

$= \frac{2z[z(z+8)-2(z+8)]}{z+8}$

$= \frac{2z(z+8)(z-2)}{z+8}$

= 2z (z – 2)