

2020
CLASS VIII
MATHEMATICS

Total marks : 80

Time : 3 hours

General Instructions:

- i) The question paper consists of 25 questions.
- ii) Internal choice has been provided in some questions.
- iii) Marks allocated to every question are indicated against it.

N.B: Check that all pages of the question paper is complete as indicated on the top left side.

Section - A

1. Choose the correct answer from the given alternatives.

- (a) The additive inverse of $-\frac{5}{9}$ is **1**
- (i) $\frac{9}{5}$ (ii) $\frac{5}{9}$ (iii) $-\frac{9}{5}$ (iv) $-\frac{5}{9}$
- (b) The value of $\left(\frac{2}{3}\right)^{-3}$ is equal to **1**
- (i) $\frac{27}{8}$ (ii) $\frac{8}{27}$ (iii) $-\frac{27}{8}$ (iv) $-\frac{8}{27}$
- (c) The square of 45 is **1**
- (i) 2025 (ii) 2125 (iii) 2225 (iv) 2325
- (d) If a car uses 4 litres of petrol to travel a distance of 60 km, then how far will it travel using 12 litres? **1**
- (i) 120 km (ii) 180 km (iii) 240 km (iv) 300 km
- (e) Two quantities x and y are said to vary in inverse proportion, if **1**
- (i) $\frac{x}{y} = k$ (ii) $xy = k$ (iii) $\frac{x}{k} = y$ (iv) $\frac{y}{y} = x$
- (f) The coefficient of p in $-5pq^2$ is **1**
- (i) -5 (ii) 5 (iii) $-5q^2$ (iv) $5q^2$

- (g) Number of diagonals in a regular hexagon is 1
 (i) 3 (ii) 6 (iii) 9 (iv) 12
- (h) The sum of the measures of the external angles of any polygon is 1
 (i) 180° (ii) 360° (iii) 540° (iv) 720°
- (i) If the diagonals of a rhombus are 7.5 cm and 12 cm, then its area is 1
 (i) 45cm^2 (ii) 65cm^2 (iii) 75cm^2 (iv) 90cm^2
- (j) The total surface area of a cuboid is 1
 (i) $(lb + lh + bh)$ (ii) $2(lb + lh + bh)$
 (iii) $3(lb + lh + bh)$ (iv) $2(lb - lh - bh)$

Section – B

2. Multiply $\frac{6}{13}$ by the reciprocal of $\frac{-7}{16}$ 2
3. Find two rational numbers between $\frac{1}{4}$ and $\frac{1}{2}$ 2
4. Simplify: $(3^{-7} \div 3^{-10}) \times 3^{-5}$ 2
5. Find the value of $\left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-2} + \left(\frac{1}{4}\right)^{-2}$ 2
6. A machine in a soft-drink factory fills 840 bottles in six hours. How many bottles will it fill in five hours? 2
7. Find the product of $\left(\frac{2}{3}x^2y^2\right) \times \left(\frac{-9}{10}x^3y^3\right)$ 2
8. Find the measure of each exterior angle of a regular polygon of 9 sides. 2
9. A closed cylindrical tank of radius 7 m and height 3 m is made from a sheet of metal. How much sheet of metal is required? 2

Section – C

10. Find the smallest whole number by which 1008 should be multiplied so as to get a perfect square number. Also, find the square root of the square number so obtained. 3

11. Find the square root of 5776 by division method. 3

12. If a box of sweets is divided among 24 children, they will get 5 sweets each. How many would each get, if the number of children is reduced by 4? 3

13. Rashmi has a road map with a scale of 1 cm representing 18 km. She drives on a road for 72 km. What would be her distance covered in the map? 3

14. a. Find the product: $(5 - 2x)(3 + x)$
Or 3

b. Use the identity $(x + a)(x + b) = x^2 + (a + b)x + ab$ to find the product of $(2x + 5y)(2x + 3y)$

15. a. Factorise: $p^2 + 10p + 25$
Or 3

b. Factorise: $144x^5 - 16x^3$

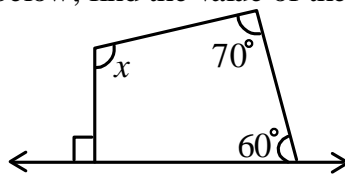
16. a. Solve: $\frac{2x}{3} + 1 = \frac{7x}{15} + 3$
Or 3

b. Solve: $\frac{3y + 4}{2 - 6y} = \frac{-2}{5}$

17. a. The measures of two adjacent angles of a parallelogram are in the ratio 3 : 2. Find the measure of each of the angles of the parallelogram.

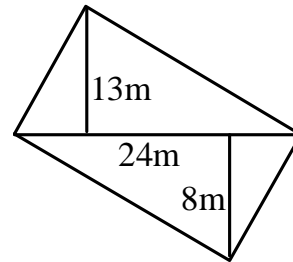
Or 3

b. In the figure given below, find the value of the angle x .



18. Construct the quadrilateral ABCD in which AB = 4.5 cm, BC = 5.5 cm, CD = 4 cm, DA = 6 cm and AC = 7 cm. (Traces of construction only is required) 3

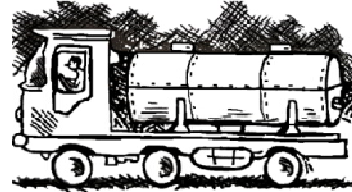
19. a. The diagonal of a quadrilateral shaped field is 24 m and the perpendiculars dropped on it from the remaining opposite vertices are 8 m and 13 m. Find the area of the field.



Or

3

- b. A milk tank is in the form of a cylinder whose radius is 1.5 m and length is 7 m. Find the quantity of milk in litres that can be stored in the tank?



Section – D

20. Two persons could fit new windows in a house in 3 days.
(i) One of the persons fell ill before the work started. How long would the job take now?
(ii) How many persons would be needed to fit the windows in one day?

4

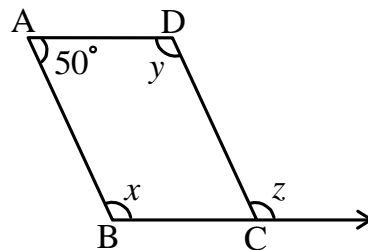
21. a. The perimeter of a rectangular swimming pool is 154 m. Its length is 2 m more than twice its breadth. What are the length and the breadth of the pool?

Or

4

- b. A man's age is three times his son's age. Ten years ago, he was five times his son's age. Find their present ages.

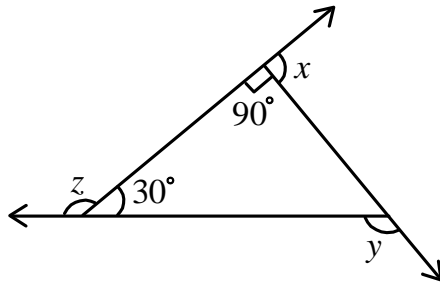
22. a. In the adjoining figure, ABCD is a parallelogram. Find the values of the unknowns x , y , z .



Or

4

b. Find $x + y + z$

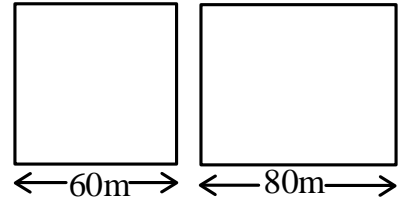


23. a. The floor of a building consists of 3000 tiles which are rhombus shaped and each of its diagonals are 45 cm and 30 cm in length. Find the total cost of polishing the floor if the cost per m^2 is ₹4

Or

4

b. A square and a rectangular field with measurements as given in the adjoining figure have the same perimeter. Which field has a larger area?



24. The weekly wages (in ₹) of 30 workers in a factory are:

- 830 835 890 810 835 836 869 845 898 890
 820 860 832 833 855 845 804 808 812 840
 885 835 835 836 878 840 868 890 806 840

Using tally marks, make a frequency table with intervals as 800-810, 810-820, and so on. Also, answer the following questions:

- (i) Which group has the maximum number of workers?
 (ii) How many workers earn ₹850 and more?

4

25. The number of students in a hostel, speaking different languages is given below. Display the data in a pie chart.

4

Languages	Hindi	English	Marathi	Tamil	Bengali	Total
Number of students	40	12	9	7	4	72
