

Gujarat Board Class IX Mathematics Sample Paper- Set 2

Time: 3 hrs

Total Marks: 80

General Instructions:

1. All questions are **compulsory**.
2. The question paper consists of **30** questions divided into **four sections** A, B, C, and D. **Section A** comprises of **6** questions of 1 mark each, **Section B** comprises of **6** questions of 2 marks each, **Section C** comprises of **10** questions of 3 marks each and **Section D** comprises of **8** questions of 4 marks each.
3. Use of calculator is **not** permitted.

Section A

(Questions 1 to 6 carry 1 mark each)

1. Simplify: $4x^2 + 14 + 8x - 16 + 7x^2 - 2x$.
2. Find the value of the polynomial $4x^2 - 9x + 12$ at $x = -1$.
3. In a ΔXYZ , $\angle X = 45^\circ$, $\angle Y = 75^\circ$. Find $\angle Z$.

OR

Find the area of an equilateral triangle whose side is 15 cm.

4. Solve the linear equation $\frac{3x}{4} + \frac{x}{2} = \frac{5}{8}$.
5. Find the range of data: 59, 125, 76, 90, 786, 312, 45.

OR

Find the median for the following data: 23, 76, 85, 49, 33.

6. A triangle has an area of 21cm^2 and height of the triangle is 7cm. What is the base of the triangle?

Section B

(Questions 7 to 12 carry 2 marks each)

7. If $\frac{x}{4} - \frac{x-3}{6} = 2$, find the value of x .

OR

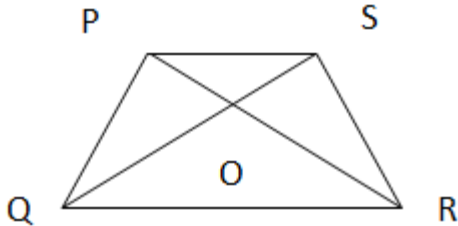
If $\frac{a}{3} = \frac{b}{4} = \frac{c}{5}$, find the value of $\frac{a+b+c}{a}$.

8. Factorise $95x^2y - 19xy^2$.

9. Where does the following point lie?

- a) $(-5, -6)$
- b) $(7, 9)$
- c) $(-3, 6)$
- d) $(4, 9)$

10. The diagonals PR and QS of a trapezium $PQRS$ with $PS \parallel QR$ intersect each other at point O . Using similarity criterion, prove that $\triangle OPS \sim \triangle ORQ$



11. Find the height of the parallelogram whose base is 5 cm and area is 20 cm^2

OR

The angles of a quadrilateral are in the ratio $5:4:2:1$. Find the angles.

12. The distance between the parallel sides of a trapezium is 20 cm . If one of the parallel sides length is 30 cm , find the length of the other side given that the area of the trapezium is 840 cm^2 .

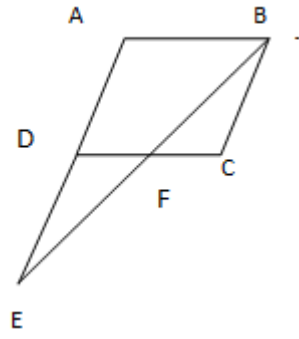
Section C

(Questions 13 to 22 carry 3 marks each)

13. Simplify :
$$\frac{(512)^{\frac{2}{3}} \times (1296)^{\frac{3}{4}}}{(32)^{\frac{5}{3}} \times (25)^{\frac{3}{2}} \times (225)^{\frac{1}{2}}}$$

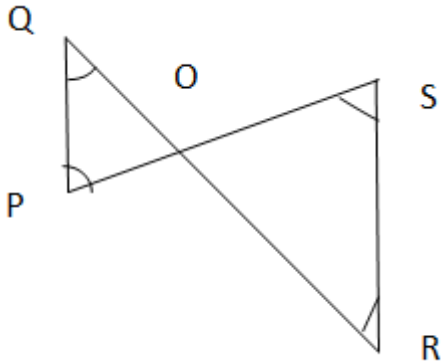
14. Use the factor theorem and determine if $(x - 2)$ is a factor or not for the polynomial : $x^4 - 2x^2 - 5x + 2$

15. E is a point on the side AD produced of a parallelogram. $ABCD$ and BE intersects CD at F . Show that $\triangle ABE \sim \triangle CFB$.



OR

If $\angle Q < \angle P, \angle R < \angle S$. Show that $PS < QR$.

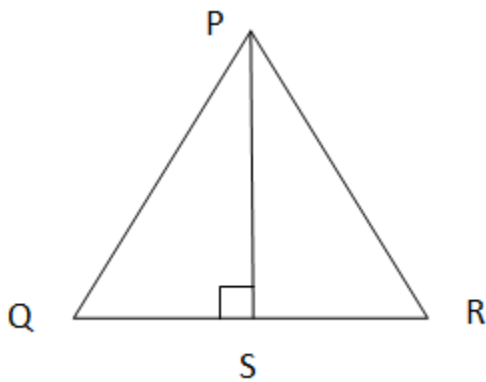


16. Find the value of k , if $(x - 2)$ is a factor of $f(x)$ in the following polynomials

(i) $f(x) = x^3 - 3x^2 + kx - 2$

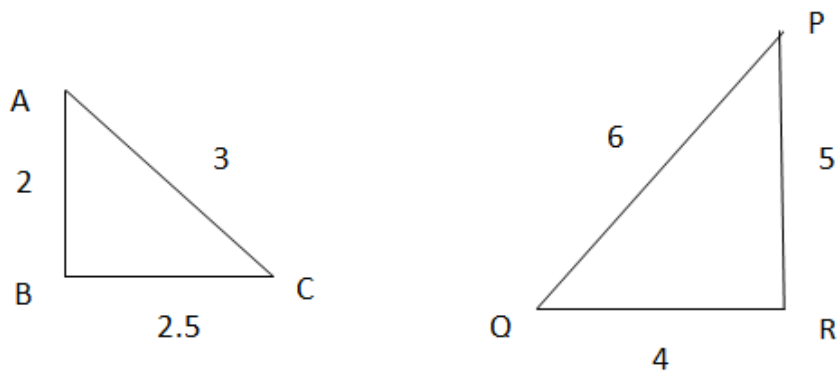
(ii) $f(x) = 2x^3 - kx^2 - 5x + 6$

17. In $\triangle PQR$, PS is the perpendicular bisector of QR . Show that $\triangle PQR$ is an isosceles triangle.



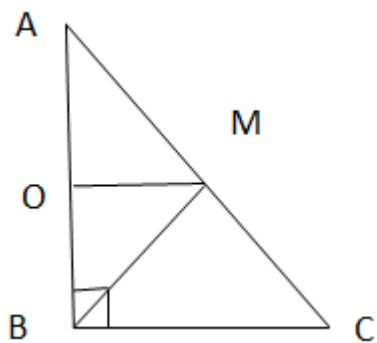
18. A box contains 8 blue balls and 8 red balls. The probability of drawing two balls of the same colour is?

19. State and prove whether the following pair of triangles are similar.



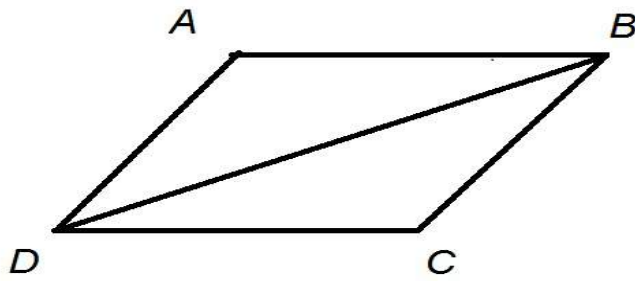
OR

ABC is a right angled triangle where *AC* is the hypotenuse. A line *OM* is drawn parallel to *BC* where *M* is the midpoint of *AC*. Show that *O* is the midpoint of *AB*.



20. Given Rhombus *ABCD* and diagonal *BD*

$\angle BCD = 124^\circ$, $\angle ADB = ?$



21. Find the radius of outer circle if the inner circumference of circular track is $660m$ and $20m$ wide.

OR

The height of a parallelogram is twice its base. If the area of the parallelogram is 50 cm^2 find its base.

22. Given below are the marks scored by students in Maths exam.

Student Name	Marks
Hari	65
Raja	75
Mahesh	85
Ganesh	80
Karthick	95

(i) Draw a bar graph to represent the result.

(ii) Find the mean of marks scored by 5 students.

OR

The test scores of 20 students are as follows:

13, 22, 12, 03, 09, 54, 36, 12, 22, 33, 78, 96, 54, 66, 40, 12, 22, 66, 54, 40

(i) Arrange these data in a frequency distribution table.

(ii) Calculate the range of the marks scored by students.

Section D

(Questions 23 to 30 carry 4 marks each)

23. Find the value of $\frac{1}{3} + \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \frac{1}{12} + \frac{1}{24}$

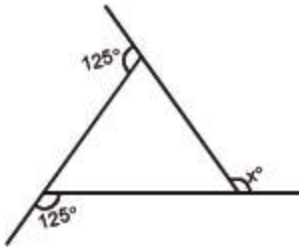
24. State Euclid's 1 and 2 postulates.

25. If $x^2 + y^2 = 117$, $xy = 54$, then find the value of $\frac{x-y}{x+y}$.

OR

Find the value of $\frac{3}{4}\left(1 + \frac{1}{3}\right)\left(1 + \frac{2}{3}\right)\left(1 - \frac{2}{5}\right)\left(1 + \frac{6}{7}\right)\left(1 - \frac{12}{13}\right)$

26. Find x in the figure

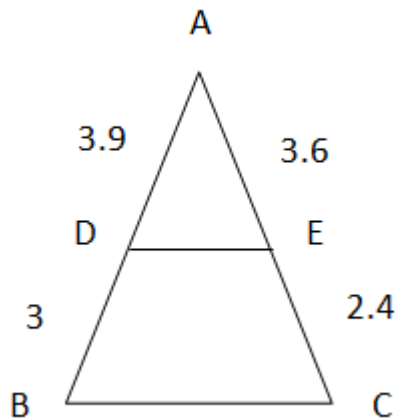


27. If 1 Kg of paint covers 10 square feet. How much will it cost to paint outside of a cube having 5 feet each side if the cost of the paint is Rs. 50 per Kg.

OR

If the capacity of a cylindrical tank is 2512 m^3 and height of the tank is 8 m. Find the diameter of its base.

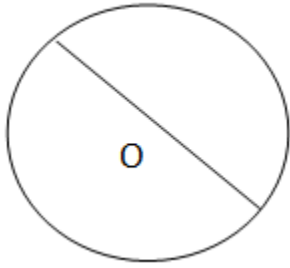
28.



D and E are points on sides AB and AC in a triangle ABC . State whether DE is \parallel to BC if $AD = 3.9 \text{ cm}$, $DB = 3 \text{ cm}$,

$AE = 3.6 \text{ cm}$, $EC = 2.4 \text{ cm}$.

29. A circle with diameter 20 cm is constructed with a chord of 0 cm. Find the radius of the circle that touches the chord.



OR

Find the area of the circle if the difference between the circumference and radius of the circle is 42cm .

30. Draw the graph for the linear equation $3x + y = 2$ by finding four solutions.

