

Dwarka International School
Subject: Mathematics
CLASS – IX (2019-20) sample paper
(MID-TERM)

TIME: 3 HOURS

M.M:80

General Instruction:

- (i) All questions are compulsory.
- (ii) The question paper consists of 40 questions divided into 4 – sections A ,B ,C & D.
- (iii) Section A consists of 20 questions of 1 mark each. Section B consists of 6 questions of 2 marks each, Section C consists of 8 questions of 3 marks each & Section D consists of 6 questions of 4 marks each.

Section A

1. From the choices given below mark the co-prime numbers
- (a) 2, 3 (b) 2, 4
(c) 2, 6 (d) 2, 110
2. A rational number equivalent to $\frac{5}{7}$ is
- (a) $\frac{15}{17}$ (b) $\frac{25}{27}$
(c) $\frac{10}{14}$ (d) $\frac{10}{27}$
3. An example of a whole number is
- (a) 0 (b) $\frac{1}{2}$
(c) $\frac{11}{5}$ (d) -7
4. Which one is not a polynomial
- (a) $4x^2 + 2x - 1$ (b) $y + \frac{3}{y}$
(c) $x^3 - 1$ (d) $y^2 + 5y + 1$
5. The polynomial $px^2 + qx + rx^4 + 5$ is of type
- (a) linear (b) quadratic
(c) cubic (d) Biquadratic
6. The zero of the polynomial $p(x) = 2x + 5$ is
- (a) $\frac{2}{2}$ (b) 5
(c) $\frac{5}{5}$ (d) $-\frac{5}{2}$
7. Which point lies on x-axis?
- (a) (3, 2) (b) (-3, 2)
(c) (2, 0) (d) (-1,-2)
8. Which point lies in IV quadrant?
- (a) (-3, -4) (b) (2,-4)
(c) (-2, 3) (d) (0, 1)

9. Which graph is parallel to x-axis?

(a) $y=x+1$

(c) $x=3$

(b) $y=2$

(d) $x=2y$

10. On which of the following equations, the point of the form $(m, -m)$ lies?

(i) $x = -m$

(iii) $y = x$

(ii) $x + y = 0$

(iv) None of these

these

11. The equation $2x + 5y = 7$ has ----- number of solutions,

12. Find the angle which is four times its complement is 10° less than twice its complement.

a. 15°

c. 25°

b. 10°

d. 5°

13. If $\angle S$ and 100° form a linear pair. What is the measure of $\angle S$

a. 180°

c. 90°

b. 120°

d. 80°

14. In a right angled triangle where angle $A = 90^\circ$ and $AB=AC$. What are the values of angle B,

a. 45°

c. 75°

b. 35°

d. 65°

15. Choose the correct statement

(a) a triangle has two right angles

(b) all the angles of a triangle are more than 60°

(c) an exterior angle of a triangle is always greater than the opposite interior angles

(d) all the angles of a triangle are less than 60°

16. In two triangles, ABC and PQR, $\angle A = 30^\circ$, $\angle B = 70^\circ$, $\angle P = 70^\circ$, $\angle Q = 80^\circ$ and $AB = RP$, then

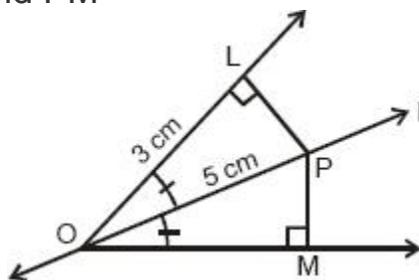
(a) $\triangle ABC \cong \triangle PQR$

(c) $\triangle ABC \cong \triangle RPQ$

(b) $\triangle ABC \cong \triangle QRP$

(d) $\triangle ABC \cong \triangle RQP$

17. In the given figure, find PM



(a) 3 cm

(c) 4 cm

(b) 5 cm

(d) 2 cm

18. What is the sum of angles of quadrilaterals?

a. 90

b. 180

c. 360

d. 270

19. A quadrilateral with only one pair of opposite sides parallel is called:

a. Trapezium

b. Square

c. Rectangle

d. Rhombus

20. The consecutive angles of a parallelogram are

a. Complementary

b. Supplementary

c. Equal

d. None of these

Section B

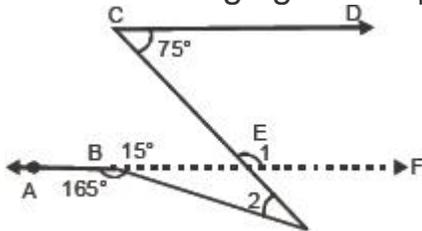
21. Express $0.\overline{245}$ as a fraction in the simplest form.

22. Write the cubes in the expanded form $(3a + 4b)^3$.

23. If the two points are A (-3,7) and B (-7,5), then what is (abscissa A)-(abscissa B)?

24. If $x = -1$ and $y = 2$ is a solution of $kx + 3y = 7$, find the value k.

25. In the following figure $AB \parallel CD$. Find the measure of $\angle BOC$.



26. The angles of quadrilateral are in the ratio 3 : 5 : 9 :13 quadrilateral.

Section C

27. If $x = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ and $y = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, find the value of $x^2 + y^2 + xy$.

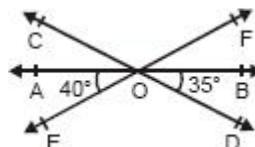
28. Using the long division method, determine the remainder when the polynomial $4x^5 + 2x^4 - x^3 + 4x^2 - 7$ is divided by $(x - 1)$.

29. The taxi fare in a town is Rs 10 for the first kilo-meter and Rs 6 per km for the subsequent distance. Taking the distance as x km and total fare as Rs. y, write a linear equation for this information, what will be the total fare for 15 km?

30. Write four solutions of $2x + 3y = 8$.

31. Plot the following points. Name the shape so formed by joining them: A(0,0), B(5,0), C(5,3) and D(0,3).

32. In the given figure, lines Ab, CD and EF intersect at O.



Find the measure of $\angle AOC$, $\angle COF$.

33. In a triangle ABC, E and F respectively are mid-points of equal sides AB and AC of ΔABC . Show that $BF = CE$.

34. If ABCD is a rhombus and P, Q, R, and S are the midpoints of AB, BC, CA, and DA. Show that PQRS is rectangle.

Section D

35. Show that: $\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2} = 5$

36. Using factor theorem, factorize each of the following polynomials: $x^3 - 6x^2 + 3x + 10$.

37. Draw the graph $x + 2y = 6$ and from the graph, find the value of x when $y = -3$.

38. If parallel lines are intersected by the transversal, prove that the bisectors of the two pairs interior angles enclose a rectangle.

39. Prove that angles opposite to equal sides of an isosceles triangle are equal.

40. A diagonal of a parallelogram divides it into how many congruent triangles?