

Sample Question Paper - 3

Maximum Marks: 80

Read the following instructions carefully and follow them:

11. Use of calculators is not allowed.

4. In a bar graph if 1 cm represents 30 km, then the length of bar needed to represent 75 km is [1]

- a) 2 cm b) 3 cm
c) 2.5 cm d) 3.5 cm

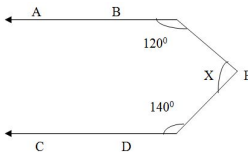
5. How many linear equations in 'x' and 'y' can be satisfied by $x = 1, y = 2$? **[1]**

- a) Three b) Infinitely many
c) Two d) Only one

6. According to Euclid's axioms, the _____ is greater than the part. [1]

- a) Semi b) half
c) large d) whole

7. In figure, AB and CD are parallel to each other. The value of x is: **[1]**



- a) 100°
c) 120°
- b) 90°
d) 140°

8. Two adjacent angles of a parallelogram are in the ratio 4 : 5. The angles are **[1]**

- a) 60° , 120°
c) 90° , 90°
- b) 80° , 100°
d) 40° , 140°

9. If one of the zeroes of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is **[1]**

- a) 10 b) -10
c) -7 d) -2

10. The point which lies on y-axis at a distance of 3 units in the negative direction of y-axis is **[1]**

- a) $(0, 3)$
c) $(-3, 0)$
- b) $(3, 0)$
d) $(0, -3)$

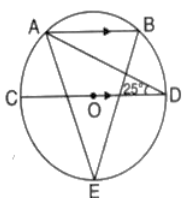
11. ABCD is a Trapezium in which $AB \parallel DC$ and $\angle A = \angle B = 45^\circ$. Find angles C and D of the Trapezium **[1]**

- a) 135° , 135°
- b) 200° , 50°
- c) 120° , 120°
- d) 150° , 150°

12. Opposite angles of a Quadrilateral ABCD are equal. If $AB = 4\text{cm}$, find the length of CD. **[1]**

- a) 2 cm b) 5 cm
c) 4 cm d) 3 cm

13. In the given figure, $AB \parallel CD$ and O is the centre of the circle. If $\angle ADC = 25^\circ$, then the measure of $\angle AEB$ is **[1]**



- a) 25° b) 60°

c) 40°

d) 80°

14. The value of $x^{p-q} x^{q-r} x^{r-p}$ is equal to [1]

a) x^{pqr}

b) 0

c) 1

d) x

15. If (a, 4) lies on the graph of $3x + y = 10$, then the value of a is [1]

a) 4

b) 1

c) 2

d) 3

16. Which of the following is not possible in case of triangle ABC? [1]

a) $AB = 5\text{cm}, BC = 8\text{cm}, CA = 7\text{cm}.$

b) $AB = 2\text{ cm}, BC = 4\text{ cm}, CA = 7\text{ cm}.$

c) $\angle A = 50^\circ, \angle B = 60^\circ, \angle C = 70^\circ$

d) $AB = 3\text{cm}, BC = 4\text{cm}, CA = 5\text{cm}.$

17. In a histogram, which of the following is proportional to the frequency of the corresponding class? [1]

a) Width of the rectangle

b) Length of the rectangle

c) Area of the rectangle

d) Perimeter of the rectangle

18. A cone and a hemisphere have equal bases and equal volumes the ratio of their heights is [1]

a) $\sqrt{2} : 1$

b) $4 : 1$

c) $2 : 1$

d) $1 : 2$

19. **Assertion (A):** The sides of a triangle are in the ratio of 25 : 14 : 12 and its perimeter is 510 cm. Then the area of the triangle is 4449.08 cm^2 . [1]

Reason (R): Perimeter of a triangle = $a + b + c$, where a, b, c are sides of a triangle.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) R is not the correct explanation of A.

d) A is false but R is true.

20. **Assertion (A):** A linear equation $2x + 3y = 5$ has a unique solution. [1]

Reason (R): A linear equation in two variables has infinitely many solutions.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

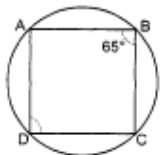
c) A is true but R is false.

d) A is false but R is true.

Section B

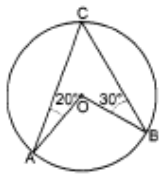
21. The altitude of an equilateral triangle is $3\sqrt{3}\text{ cm}$. Find its area. [2]

22. In given figure, ABCD is a cyclic quadrilateral in which $AB \parallel CD$. If $\angle B = 65^\circ$, then find other angles. [2]



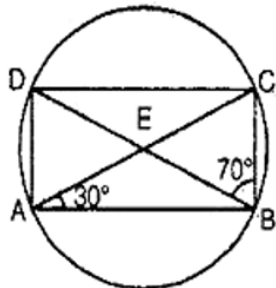
23. If the radius and slant height of a cone are in the ratio 7 : 13 and its curved surface area is 286 cm^2 , find its radius. [2]

24. In the given figure, If O is the centre of the circle then find $\angle AOB$. [2]



OR

ABCD is a cyclic quadrilateral whose diagonals intersect at a point E. $\angle DBC = 70^\circ$ $\angle BAC$ is 30° find $\angle BCD$.
Further if $AB = BC$, find $\angle ECD$.



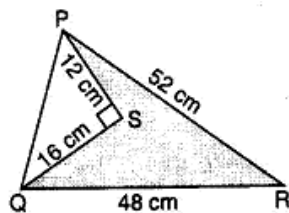
25. Express the linear equation $x = 3y$ in the form $ax + by + c = 0$ and indicate the value of a , b and c in case. [2]

OR

The cost of a notebook is twice the cost of a pen. Write a linear equation in two variables to represent this statement.
(Take the cost of a notebook to be ₹ x and that of a pen to be ₹ y).

Section C

26. Find the values of a and b in each of $\frac{3-\sqrt{5}}{3+2\sqrt{5}} = a\sqrt{5} - \frac{b}{11}$ [3]
27. Prove that: $a^3 + b^3 + c^3 - 3abc = \frac{1}{2}(a+b+c)\{(a-b)^2 + (b-c)^2 + (c-a)^2\}$ [3]
28. Find the area of the shaded region in figure. [3]

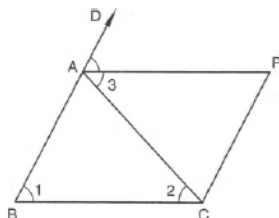


OR

The sides of a triangular field are 41m, 40m and 9m. Find the number of rose beds that can be prepared in the field, if each rose bed on an average needs 900 cm^2 space.

29. If the work done by a body on application of a constant force is directly proportional to the distance traveled by the body, express this in the form of an equation in two variables and draw the graph of the same by taking the constant force as 5 units. Also read from the graph the work done when the distance traveled by the body is 2 units. [3]
30. In the figure, ABC is an isosceles triangle in which $AB = AC$. $CP \parallel AB$ and AP is the bisector of exterior $\angle CAD$ of $\triangle ABC$. [3]

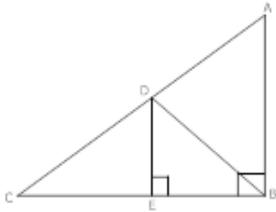
Prove that (i) $\angle PAC = \angle BCA$ and (ii) ABCP is a parallelogram.



OR

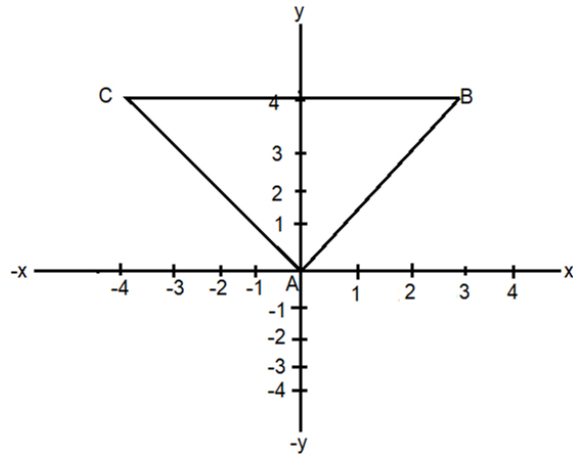
In fig $\angle B$ is a right angle in $\triangle ABC$ and D is the mid-point of AC. Also, $DE \parallel AB$ and DE intersects BC at E. show that

- i. E is the mid-point of BC
- ii. $DE \perp BC$
- iii. $BD = AD$



31. In fig find the vertices' co-ordinates of $\triangle ABC$

[3]



Section D

32. Represent each of the numbers $\sqrt{2}$, $\sqrt{3}$ and $\sqrt{5}$ on the real line.

[5]

OR

If $a = \frac{1}{7-4\sqrt{3}}$ and $b = \frac{1}{7+4\sqrt{3}}$, then find the value of:

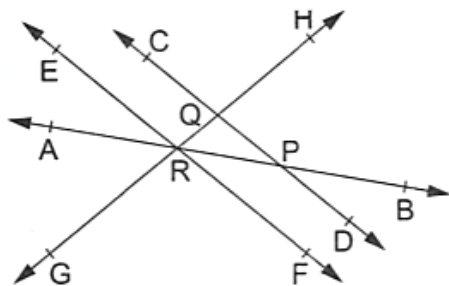
i. $a^2 + b^2$

ii. $a^3 + b^3$

33. In the adjoining figure, name:

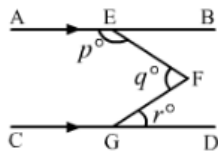
[5]

- i. Two pairs of intersecting lines and their corresponding points of intersection
- ii. Three concurrent lines and their points of intersection
- iii. Three rays
- iv. Two line segments



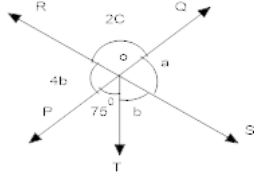
34. In the given figure, $AB \parallel CD$. Prove that $p + q - r = 180$.

[5]



OR

In fig two straight lines PQ and RS intersect each other at O, if $\angle POT = 75^\circ$ Find the values of a, b and c

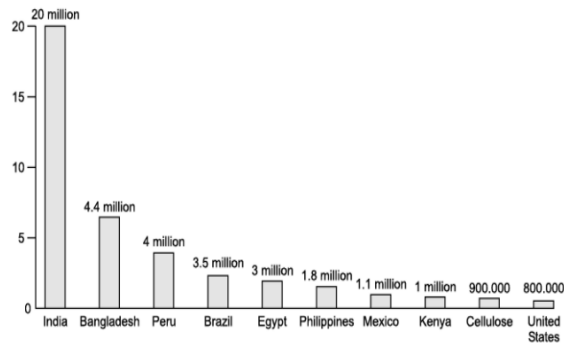


35. If $(ax^3 + bx^2 - 5x + 2)$ has $(x + 2)$ as a factor and leaves a remainder 12 when divided by $(x - 2)$, find the values of a and b. [5]

Section E

36. Read the following text carefully and answer the questions that follow: [4]

Child labour refers to any work or activity that deprives children of their childhood. It is a violation of children's rights. This can harm them mentally or physically. It also exposes them to hazardous situations or stops them from going to school. Naman got data on the number of child laborers (in million) in different countries that is given below.



- What is the difference between highest no. of child labor and the minimum no. of child labor? (1)
- What is the percentage of no. of child labor in Peru over the no. of child labor in India? (1)
- What is the total no. of child labor in the countries having child labor more than 2 million? (2)

OR

How many countries are having child labor more than Mexico? (2)

37. Read the following text carefully and answer the questions that follow: [4]

Vinod and Basant have an adventure tourism business in Rishikesh. They have a resort in Rishikesh but now they are planning to build some tent houses too.

The newly built tent house will have all the basic amenities and it will attract the young tourists coming for

adventure. Their conical tent is 9 m high and the radius of its base is 12 m.



- What is the cost of the canvas required to make it, if 1 m^2 canvas costs ₹ 10? (1)
- How many persons can be accommodated in the tent, if each person requires 2 m^2 on the ground? (1)
- How many persons can be accommodated in the tent, if each person requires 15 m^3 of space to breathe in? (2)

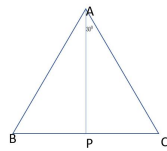
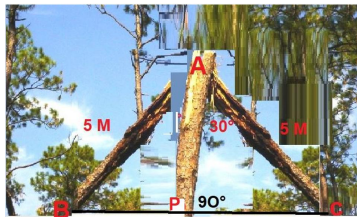
OR

If each person requires 20 m^3 of space to breathe in and 100 person can be accommodated then what should be height of tent? (2)

38. **Read the following text carefully and answer the questions that follow:**

[4]

In a forest, a big tree got broken due to heavy rain and wind. Due to this rain the big branches AB and AC with lengths 5m fell down on the ground. Branch AC makes an angle of 30° with the main tree AP. The distance of Point B from P is 4 m. You can observe that $\triangle ABP$ is congruent to $\triangle ACP$.



- Show that $\triangle ACP$ and $\triangle ABP$ are congruent. (1)
- Find the value of $\angle ACP$? (1)
- Find the value of $\angle BAP$? (2)

OR

What is the total height of the tree? (2)