PRACTICE QUESTION PAPER-3

Mathematics
Class-IX

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

General Instructions :

1.   All question are compulsory.

2.   The question paper consists of 30 questions divided into four section 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 question of marks each and Section-D comprises of 8 questions of 4 marks each.

2.   There is no overall choice in this question paper.

3.   Use of calculator is not permitted.

SECTION-A

1.   Find the value of $(625)^{0.18} \times (625)^{0.07}$

2.   Find the remainder when $x^3 + 2x^2 - 3x - 1$ is divided by $x+1$.

3.   Write the coordinates of a point P where perpendicular distance from x-axis is 2 units and perpendicular distance from y-axis is 3 units P lies in III quadrant.

4.   If AB||CD||EF and $y : z = 3 : 7$ then what will be the value of x?

5.   If the radius & length of a cone are $\frac{r}{2}$ & $2l$ respectively , what is its total surface area ?

6.   The probability of guessing the correct answer to certain question is $\frac{x}{2}$. If the probability of not guessing the correct answer to the question is $\frac{2}{3}$, then what is the value of x.
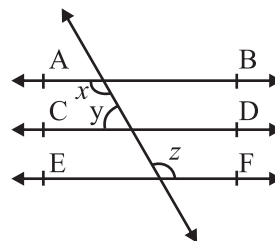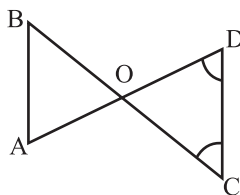
SECTION-B

7.   Find if $(-2x-5)$ is a factor of the polynomial $p(x) = 3x^4 + 5x^3 - 2x^2 - 4$ or not.

8. In the adjacent figure if $x : y = 11:19$ AD$\parallel$BE. Find $\angle$DCE.
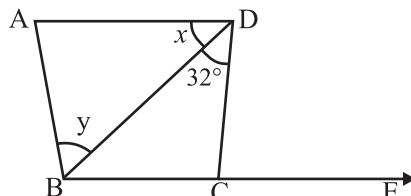
9. In the given figure, $\angle$B $< \angle$A and $\angle$C $< \angle$D. Show that AD $<$ BC.

10. Show that opposite angles of parallelogram are equal.

11. Find area of a triangle whose two sides are 8cm & 11cm and its semi perimeter is 16cm.

12. The mean of first 8 observations is 18 & the mean of last 8 observations is 20. If mean of all 15 observations is 19. Find eighth observation.


SECTION-C

13. Evaluate $\sqrt{13+4\sqrt{10}} - \sqrt{7-2\sqrt{10}}$

14. Find the values of a & b if $\dfrac{3+\sqrt{2}}{3-\sqrt{2}} = a + b\sqrt{2}$.

15. Find the value of 'a' if $(1,-1)$ is the solution of the Equation $2x + ay = 5$. Find the other two solutions of the Equation.

16. AD is a median of Δ ABC and E is the midpoint of AD, BE, Produced meets AC in F. Prove that AF $= \dfrac{1}{3}$ AC.

17. In the figure L, M and N are mid-point of the side PQ, PR and QR respectively of ΔPQR. If PQ=4.4cm, QR= 5.6cm and PR=4.8 cm. Then find the perimeter of ΔLMN.
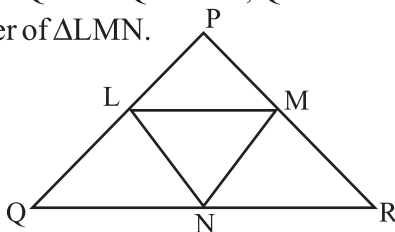
18. Construct a $\triangle STU$, in which $\angle T = 150°$, $TU = 3cm$ & $ST + US = 8cm$.

19. $1.1 cm^3$ of gold is drawn into the wire of $0.1mm$ in diameter. Find the length of the wire in meter.

20. From the graph, write the co-ordinates of the points A, B, C, D & E. Is a ABCD, a rectangle on joining the points. If yes, Write the name of the point where the diagonals meet.
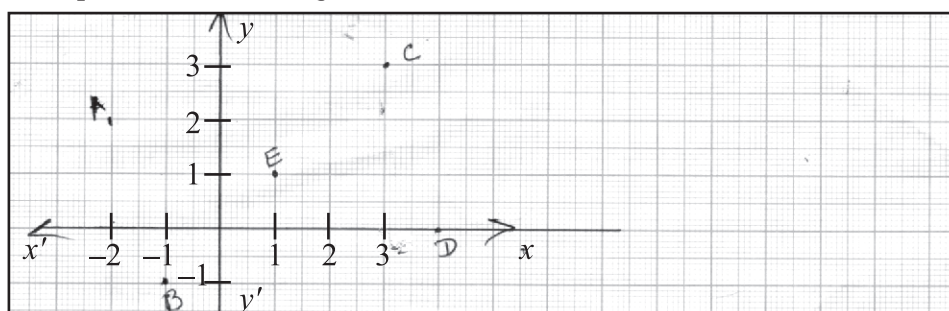
21. The volume of a sphere is 4851 cm^3. How much should its radius be reduced so that its volume become $\dfrac{4312}{3}$ cm^3?

22. 14 packets of Sugar, each marked 5kg, actually contained the following weights in Kg.

    5.095, 4.995, 4.800, 5.120, 4.890, 5.000, 5.150, 5.000, 5.995, 5.995, 5.000, 4.900, 4.995, 5.000, 5.050.

    Find the probability of the following when a packet is chosen and it.

    i) Contains more than 5kg. Sugar.

    ii) Contains correct weight.

   iii) Contains weight less than 4.995 Kg.

SECTION-D

23. Prove that.
$$\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2} = 5$$

24. Without actually calculating the cubes, Find the value of $(-1)^3 + (-2)^3 + (-3)^3 + (-4)^3 + 2(5^3)$. Write the identity used.

25. A man went to the Bank with ₹1000. He asked the cashier to give him ₹5

and 10 notes only in return. Write the linear Equation in two variable. If number of 10 notes are 25, then find the number of 5 notes? Also represent it graphically?
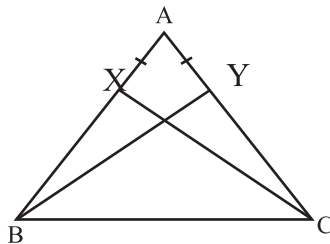
26. In the adjacent figure.

    AB‖CD, DE‖FG. Find

    i)   ∠PDE

    ii) ∠AFD

    iii) ∠DFG
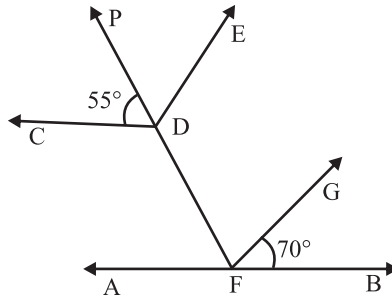
27. In the figure, X and Y are the points on equal sides AB and AC of a   Δ ABC such that AX=AY. Prove that XC=YB

28. Let the vertex of an angle ABC be located outside a circle and let the sides of the angle intersect equal chords AD and CE with the circle. Prove that ∠ABC is equal to half the difference of an angle subtended by the Chord AC and DE at the Centre. $\angle ABC = \frac{1}{2}[\angle DOE - \angle AOC]$

29. A cylinder is within the cube touching all the vertical faces. A cone is inside the cylinder. If their height are the same with the same base. Find the ratio of their volumes.

30. Mean of a class of 35 students in a Mathematics class test was found to be 15. A chance was given to improve marks of those students who score less than 8 marks. Three students score 3, 5 & 6 marks respectively. A remedial class was taken by the teacher & then test was taken again. The three students score 7,10,12 marks respectively in improvement test. What will be the new mean of the class. What values of the teacher are depicted here.

PRACTICE QUESTION PAPER-3

ANSWERS

1. 5

2. 3   17. 7.4cm

3. (−3,−2)

4. 126°   19. 140m

5. $\pi r\left(l+\dfrac{r}{4}\right)$ 20. A(2,2), B(−1,−1), D (4,0),

                                    C(3,3), E(1,1) Yes, E

6. $\dfrac{2}{3}$

7. $\dfrac{361}{16}$ 22. $\dfrac{6}{15}$, $\dfrac{4}{15}$, $\dfrac{3}{15}$

8. 65°

24. 150

25. 150

11. $8\sqrt{30}$ Sq. cm.   26. 55°, 55°, 55°

12. 19

13. $\sqrt{(2\sqrt{2}+\sqrt{5})^{2}} - \sqrt{(\sqrt{5}-\sqrt{2})^{2}}$

    $= 3\sqrt{2}$

                             29. $V_1 : V_2 : V_3 : 42 : 33 : 11$

14. $a=\dfrac{11}{7}, b=\dfrac{6}{7}$ 30. 15.7

15. a = −3