

## X Test-1 (Write necessary steps)

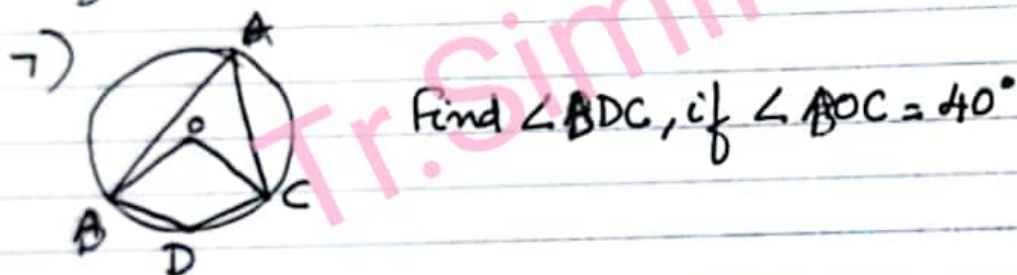
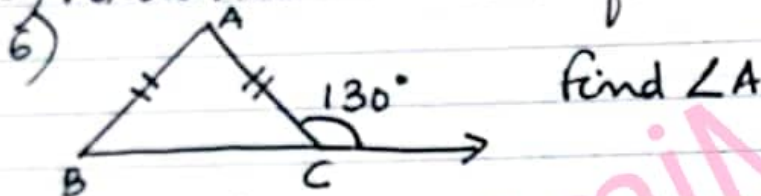
1)  $\sqrt[4]{(81)^{-2}} = \underline{\hspace{2cm}}$

2)  $4\sqrt{5} - 3\sqrt{20} + \sqrt{45} = \underline{\hspace{2cm}}$

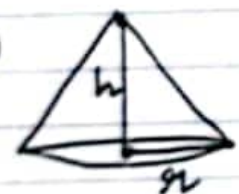
3) zero of the polynomial  $p(x) = 7x + 3$  is  $\underline{\hspace{2cm}}$

4) If  $p(x) = px^3 + x^2 - 2x + 4p - 9$  has  $(x+1)$  as a factor, then the value of  $p$  is  $\underline{\hspace{2cm}}$

5) Write two solutions for the equation  $9x + 3 = y$



8) Surface area of a sphere =  $154\text{cm}^2$   
Find its diameter.

9)   $h = 12\text{cm}$   
Volume =  $100\pi\text{cm}^3$   
Find its slant height

10) Class mark = 7  
Class width = 5  
Find the class interval.

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$$1) 81^{-\frac{2}{4}} = 81^{-\frac{1}{2}} = 9^{2 \times -\frac{1}{2}} = 9^{-1} = \frac{1}{9}$$

$$2) 4\sqrt{5} - 3 \times 2\sqrt{5} + 3\sqrt{5} \quad \begin{array}{r} 2 \overline{) 20} \\ 2 \overline{) 10} \\ 5 \end{array} \quad \begin{array}{r} 5 \overline{) 45} \\ 3 \overline{) 15} \\ 3 \end{array}$$

$$= 4\sqrt{5} - 6\sqrt{5} + 3\sqrt{5}$$

$$= \underline{\underline{\sqrt{5}}}$$

$$3) \text{ put } p(x) = 7x + 3 = 0$$

$$\Rightarrow 7x = -3$$

$$x = \underline{\underline{-\frac{3}{7}}}$$

$$4) \text{ Since } (x+1) \text{ is a factor of } p(x), p(-1) = p(-1)^3 + (-1)^2 - 2(-1) + 4p - 9 = 0$$

$$\Rightarrow -p + 1 + 2 + 4p - 9 = 0$$

$$3p = 6$$

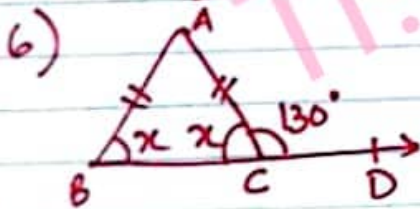
$$p = \underline{\underline{2}}$$

$$5) y = 2x + 3$$

$$\text{When } x = 0, y = 3$$

$$\text{When } x = 1, y = 2 + 3 = 5$$

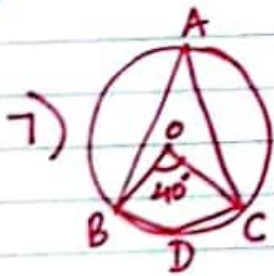
$\therefore$  The two solutions are  $(0, 3)$  and  $(1, 5)$



$$\angle ACB = 180^\circ - 130^\circ = 50^\circ \text{ (linear pair)}$$

$$\text{Since } AB = AC, x = 50^\circ \text{ [angles opposite to equal sides]}$$

$$\therefore \angle A = 180^\circ - 2x = 180^\circ - 100^\circ = 80^\circ \text{ [using angle sum property]}$$



$$\angle BAC = \frac{1}{2} \times \angle BOC = \frac{1}{2} \times 40^\circ = 20^\circ \text{ [angle subtended by arc BC at O is double the angle subtended by it at A]}$$

$$\angle BDC = 180^\circ - 20^\circ = 160^\circ \text{ [}\because \text{ABDC is a cyclic quadrilateral]}$$

$$8) \text{ Surface area of sphere} = 4\pi r^2 = 154$$

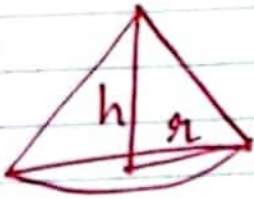
$$\Rightarrow 4 \times 22 \times r^2 = 154 \times 7$$

$$r^2 = \frac{154 \times 7}{4 \times 22} = \frac{49}{4}$$

$$r = \frac{7}{2} \text{ cm}$$

$$\therefore \text{ diameter, } 2r = 7 \text{ cm} //$$

9)



$$h = 12 \text{ cm}$$

$$\text{Volume} = 100\pi$$

$$\frac{1}{3}\pi r^2 h = 100\pi$$

$$\frac{1}{3} \times r^2 \times 12 = 100$$

$$r^2 = \frac{100 \times 3}{12} = 25$$

$$r = 5 \text{ cm}$$

$$\therefore \text{slant height, } l^2 = h^2 + r^2 = 144 + 25 = 169$$

$$\therefore l = 13 \text{ cm}$$

$$10) \text{ lower limit} = \text{class mark} - \frac{\text{class size}}{2} = 7 - \frac{5}{2} = 7 - 2.5 = \underline{\underline{4.5}}$$

$$\text{upper limit} = \text{class mark} + \frac{\text{class size}}{2} = 7 + \frac{5}{2} = 7 + 2.5 = \underline{\underline{9.5}}$$

$\therefore$  The class interval is  $4.5 - 9.5$

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