CHAPTER 7: TRIANGLES

Q1 In ΔABC $\angle 65^{\circ}$ $\angle B=35^{\circ}$. Name the longest side of triangle. Give reasons.

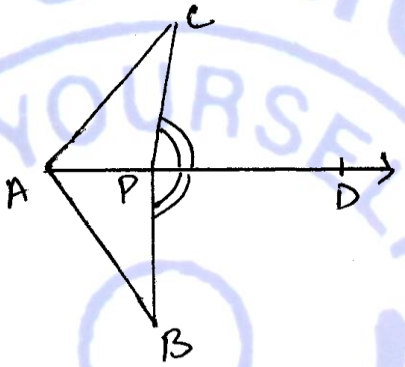
Q2 Is it possible to construct a triangle with lengths of its sides 5.4cm, 6.6cm and 13 cm? Give reasons.

Q3 Show that in a right angled triangle hypotenuse is the longest side.

Q4 Prove that in an isosceles triangle, altitude from vertex bisects the base.

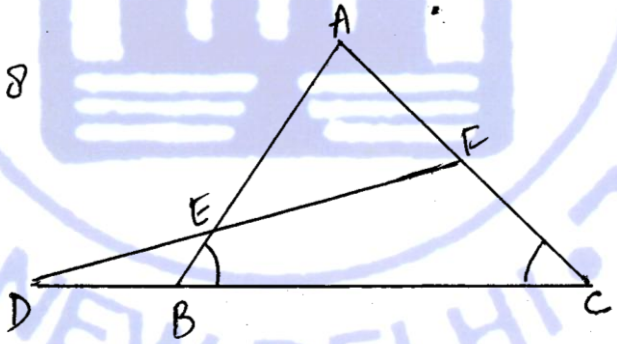
Q5 Prove that medians of an equilateral triangle are equal.

Q6 In given figure $\angle CPD = \angle BPD$ and AD is bisector of $\angle BAC$. Show that $\Delta BAD \cong \Delta CAP$

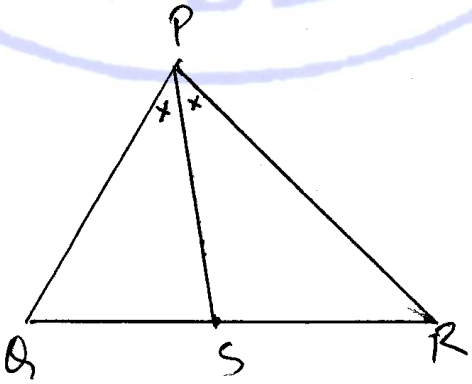


Q7 Prove that if in two triangles, two angles and included side of one triangle are equal to two angles and included side of other triangle then the two triangles are congruent.

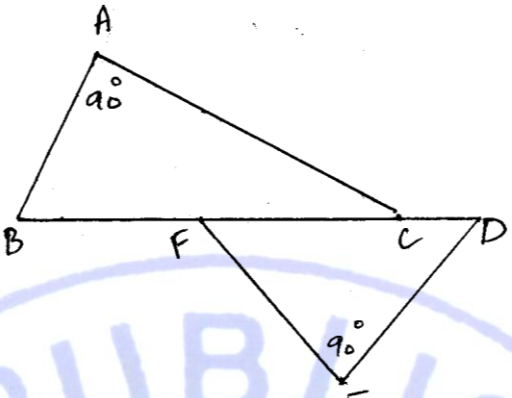
Q8 In the figure $\angle B = \angle C$ show that AE > AF



Q9 If figure PQ > PR and PS is bisector of $\angle P$. Show that $\angle PSQ > \angle PSR$



Q10 In figure BA ⊥ AC and DE ⊥ EF such that BA = DE and BF = DC. Prove that AC = EF



CHAPTER 2: COORDINATE GEOMETRY

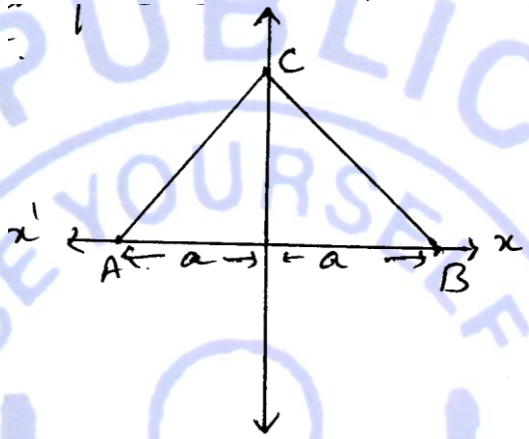
Q1 In which quadrant following points lie? A(4,2) B(–3,5) C(–2,–5) D(5,0) E(0,–8) F(2,–4)

Q2 Plot points (–6,2) and from it draw perpendiculars PM and PN on x and y axis. Write coordinates of M and N.

Q3 Plot points A(1,3) B(1,–1) C(7,–1) and D(7,3) on graph. Join them respectively and name the figure so formed. Also calculate its area.

Q4 Find image of point (2,5) under (a) x-axis (b) y-axis

Q5 Given ΔABC is equilateral, If AB=2a find coordinates of A, B and C



Q6 Point A(5,3) B(–2,3) and D(5,–4) are three vertices of a square. Plot them on graph paper and find coordinates of C.

HOTS

Q7 Write coordinates of a rectangle whose length and breadth are 5 and 3 units respectively. One vertex lies on origin and longer side lies on x-axis and one of the vertices lie in the third quadrant.

Q8 For ΔABC A(1,1) B(4,3) C(7,2)
Plot the points and form ΔABC. Draw the mirror image of ΔABC in (a) x-axis (b) y-axis

CHAPTER 2: POLYNOMIALS

Q1 Find the value of $p(x) = x^5 + 2x^3 - 3x^2 - 5x$ at $x = -1$

Q2 Find zeros of polynomial (a) $p(x) = 8x$ (b) $p(x) = (x+2)(x+3)$

Q3 Show that $x^2 + 4x + 7$ has no zeros

Q4 If ½ is zero of polynomial $p(x) = 2x^4 - ax^3 + 4x^2 + 2x + 1$ then find 'a'.

Q5 Show that ⅓ and –2 are zeros of polynomial $3x^2 + 5x + 2$

Q6 Find remainder when $p(x) = (9x^3 - 3x^2 + x - 5)$ is divided by $\left(x - \frac{2}{3}\right)$

Q7 Factorise

a) $2x^2 + 2\sqrt{6}xy + 3y^2$ b) $7\sqrt{2}x^2 - 10x - 4\sqrt{2}$

Q8 Using suitable identity evaluate $(55)^3 - (20)^3 - (35)^3$

Q9 Factorise

a) $x^4 + 2x^2 + 1$ b) $(x^2 - y^2)^3 + (y^2 - z^2)^3 + (z^2 - x^2)^3$

c) $3(6x^2+5x^2) - 10(6x^2+5x) - 8$

Q10 If 2 and –2 are zeros of polynomial $p(x) = ax^4 + 2x^3 - 3x^2 + bx = 4$ then find 'a' and 'b'.

Q11 If both (x–2) and (x–½) are factors of $px^2 + 5x + r$ then show that p–r=0

Q12 Factorise $x^3 + 13x^2 + 31x - 45$ given that (x – 9) is a factor.

Q13 Show that polynomial $2x^3 + 5x^2 - 5x - 1$ has no integral zeros

Q14 Using suitable identity expand

a) $(2a - 3b + 7c)^2$ c) $(⅔x - y)^3$

b) $(9a - ½b)^3$ d) $(5a - 2b)^3$

Q15 Factorise

a) $27x^3 - 108xy^2 + 144xy^2 - 64y^3$

b) $5\sqrt{5}a^3 + 81\sqrt{3}b^3$

c) $(2m - 4)^3 + (3m - 7)^3$

d) $27 - 125x^3 - 135x + 225x^2$

e) $4x^2 + y^2 + z^2 - 4xy - 2yz + 4xz$

Q16 For what value of 'p' polynomial $x^3 + 2x^3 - 3ax - 8$ is a multiple of (x – 4)?

HOTS

Q17 If $a^2 + b^2 + c^2 - ab - bc - ca = 0$ prove that a = b = c

Q18 Without actual division show that $x^4 - 5x^3 + 8x^2 - 10x + 12$ is divisible by $(x^2 - 5x + 6)$

Q19 Show that (x – 1) is a factor of $(x^{20} - 1)$

Q20 If $f(x) = x^3 + mx^2 + nx + 6$ has (x – 2) as factor and leaves remainder 3 when divided by (x – 3) then find the value of 'm' and 'n'