# Co-Ordinate Geometry - Exercises [Yr 10]

**Q1:** Find the (a) gradient (b) length (c) Mid-point of each of the following intervals AB, defined by:

(i) A = (2, 5) B = (6, 3) (ii) A = (5, 4) B = (1, −4) (iii) A = (−1, −1) B = (−3, 6)

**Q2:** Re-arrange to the form $y = mx + b$ (make "y" the subject)

(i) $3x - 2y = 6$ (ii) $x + 3y - 6 = 0$ (iii) $\frac{x}{2} - \frac{y}{3} = 5$

**Q3:** Find the equation of the following lines (in general form):-

(a) thru (3, −4) with gradient $m = 2$ (ii) Thru (−2, 5) and (1, −1) (iii) Through (5, 1) and parallel to $y = 5 - 3x$

**Ans:** Q1: (i) $m = -\frac{1}{2}$, $l = 2\sqrt{5}$, $M = 4, 4$ (ii) $m = 2$, $l = 4\sqrt{5}$, $M = (3, 0)$
(iii) $m = -\frac{7}{2}$, $l = \sqrt{53}$, $M = (-2, 2 \cdot 5)$

Q2: (i) $y = \frac{3}{2}x - 3$ (ii) $y = -\frac{1}{3}x + 2$ (iii) $y = \frac{3}{2}x - 15$.

Q3: (a) $2x - y - 10 = 0$ (b) $2x + y - 1 = 0$ (c) $3x + y - 16 = 0$

# Lesson (32)

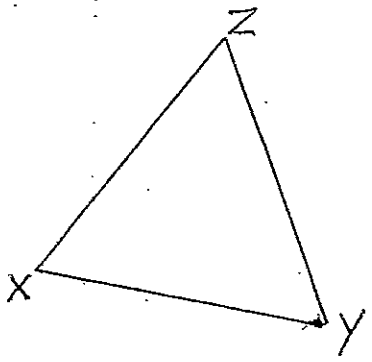
## Quest (1)

In a triangle $\Delta XYZ$

$X=(-1,-3)$ $Y=(7,3)$ $Z=(5,5)$

a) Show $\Delta XYZ$ is isosceles (2 = sides)

b) Find the perimeter of the triangle.




## Quest (2)

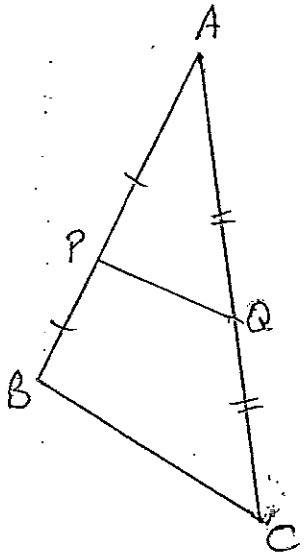
$A=(1,7)$ $B=(-1,-1)$ $C=(3,-3)$

are the vertices of the $\Delta ABC \rightarrow$

P and Q are the mid-points of AB & AC.

a) Find the co-ordinates of P & Q

b) Show that $PQ \parallel BC$




ANSWERS | lesson 32 / 33

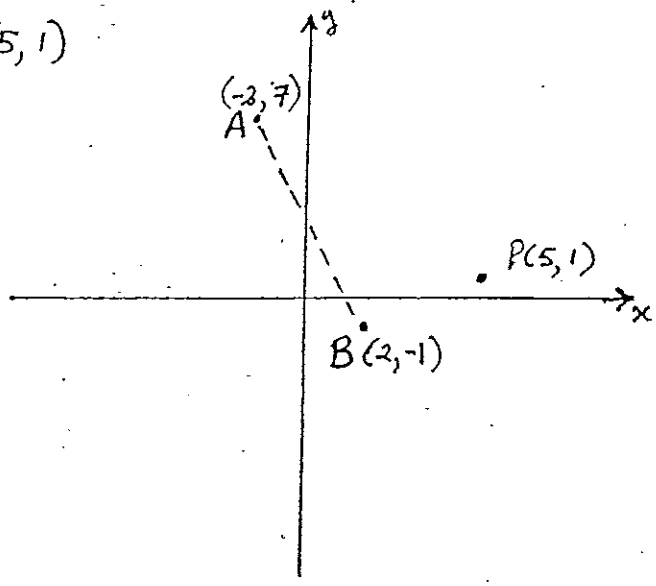
(1) $XY=10$ $XZ=10$ $YZ=\sqrt{8}$ Per = 22.83 (2) $P=(0,3)$ $Q=(2,2)$ $m_{PQ}=-\frac{1}{2}$ $m_{BC}=-\frac{1}{2}$

(3) (a) $m=-2 \therefore y=-2x+3$ (b) $m=-2 \therefore y=-2x+11$ (c) $m=\frac{1}{2}$ $y=\frac{x}{2}-1\frac{1}{2}$ (d) $(0,3)$ $m=\frac{1}{2} \therefore y=\frac{x}{2}+3$

(4) (a) $M=(2,0)$ $R=(3,3)$ $m=3 \therefore y=3x-6$ (b) $x=3$ (c) Area $=\frac{1}{2}\times 6\times 3=9$ units$^2$

# LESSON 33 – HW

**Qu 3:** If $A = (-2, 7)$ $B = (2, -1)$ and $P = (5, 1)$




(a) Find equation of line through AB

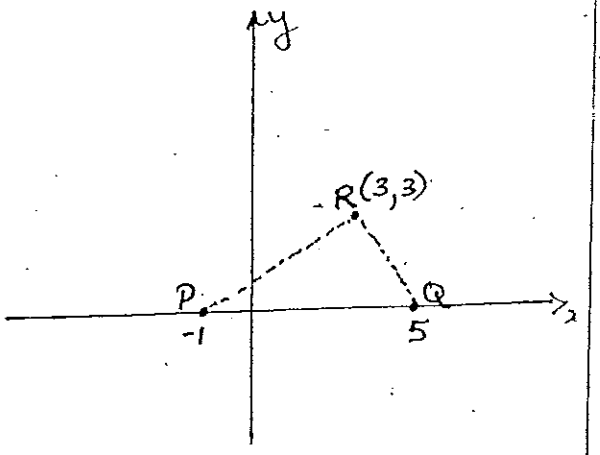
(b) Find equation of line through P, and parallel to AB

(c) Find the equation of the line through P and perpendicular to AB

(d) Find the equation of the line through the Mid-point of AB and perpendicular to AB.

**Qu 4:** P, Q, and R form a triangle, with $P = (-1, 0)$ $Q = (5, 0)$ and $R = (3, 3)$

Find: (a) The equation of the "median" from R to the side PQ




(c) The area of the $\Delta PQR$

* (b) The equation of the "altitude" from R to the side PQ

# LESSON (34) — HW

**Qu ①:**

Find the equation of the lines :—

a) Passing through $(5,-1)$ making $120°$ with the positive x-axis.

b) Through the intersection of $3x-y=9$ and $x+2y=-4$ and parallel to the line $3x-2y=6$

**Qu ②:** (a) Find "p" if $x-py=5$ passes through the point $(4,-1)$

(b) Show that $3x-y=1$ and $2x+6y=5$ and $x+y=3$ form a Right angle Triangle.

**Qu ③:**

Find the perpendicular distance of the point $(2,-5)$ from the line $3x-4y+4=0$

ANSWERS

① (a) $m=-\sqrt{3}$ $(-0.866)$ eqn: $y=-.866x+3.33$ (b) Through $(2,-3)$ $m=\frac{3}{2}$ $\rightarrow y=\frac{3}{2}x-6$

② (a) $p=1$ (b) $m_1=3$ $m_2=-\frac{1}{3}$ $m_3=-1$ $(m_1 \times m_2=-1)$ (c) $d=\frac{|6+20+4|}{5}=6$ units.