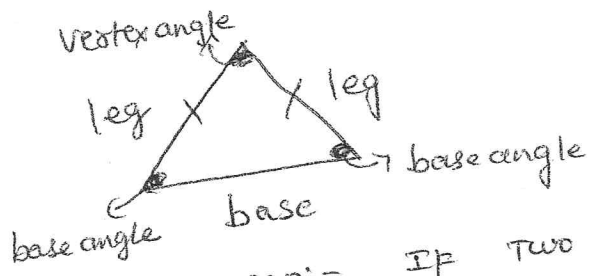
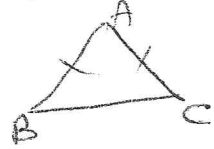


# 4.7. ISOSCELES and EQUILATERAL TRIANGLES

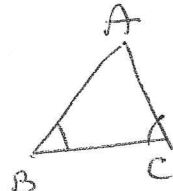


① Base Angle Theorem:- If two sides of a triangle are congruent, then the angles opposite them are congruent.



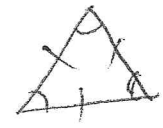
IF  $\overline{AB} \cong \overline{AC}$  then  $\angle B = \angle C$

② Converse of Base Theorem:- If two angles of a triangle are congruent, then the sides opposite them are congruent.



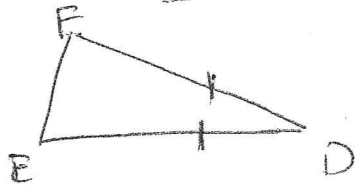
IF  $\angle B \cong \angle C$ ; then  $\overline{AB} \cong \overline{AC}$

③ IF A TRIANGLE IS EQUILATERAL, THEN IT IS EQUIANGULAR.



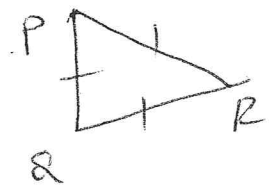
④ IF A TRIANGLE IS EQUIANGULAR, THEN IT IS EQUILATERAL.

EX. 1 IN  $\triangle DEF$ ,  $\overline{DE} \cong \overline{DF}$ ; NAME TWO CONGRUENT ANGLES.



SOL:-  $\overline{DE} \cong \overline{DF}$  So,  
 $\angle E \cong \angle F$

EX. 2



IF  $\overline{PQ} \cong \overline{QR} \cong \overline{RP}$   
Find  $m\angle P$ ,  $m\angle Q$ ,  $m\angle R$ .

SOL:-  $m\angle P + m\angle Q + m\angle R = 180^\circ$

$m\angle P = m\angle Q = m\angle R$

$3m\angle P = 180^\circ$ ;  $m\angle P = \frac{180}{3} = 60^\circ$

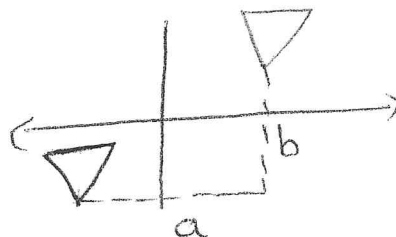
So  $m\angle P = 60^\circ$ ;  $m\angle Q = 60^\circ$ ;  $m\angle R = 60^\circ$

# H.8 CONGRUENCE TRANSFORMATIONS

MR. Reddy's  
NOTES

## I COORDINATE NOTATION FOR A TRANSLATION

$$(x, y) \rightarrow (x+a, y+b)$$

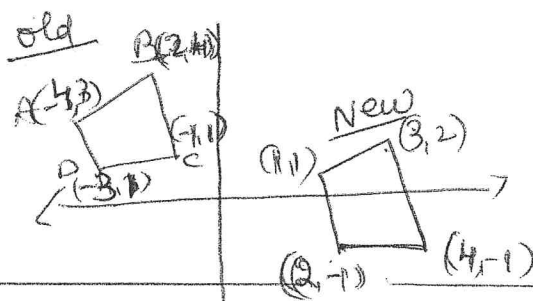


EX:1 TRANSLATE A FIGURE IN co-ordinate plane:

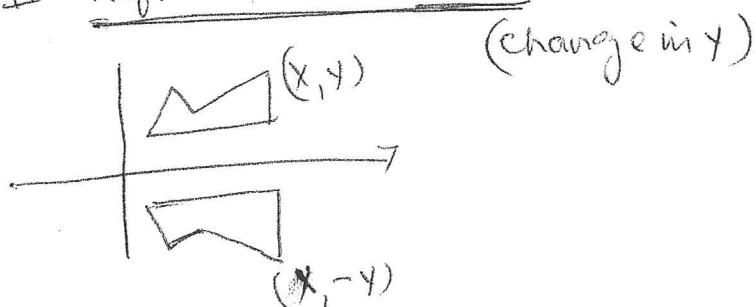
A (-4,3) B (-2,4) C (-1,1) D (-3,1) By using

$$(x, y) \rightarrow (x+5, y-2)$$

old(x,y)	x+5	y-2	NEW COORDINATES
A (-4,3)	-4+5=1	3-2=1	(1,1)
B (-2,4)	-2+5=3	4-2=2	(3,2)
C (-1,1)	-1+5=4	1-2=-1	(4,-1)
D (-3,1)	-3+5=2	1-2=-1	(2,-1)

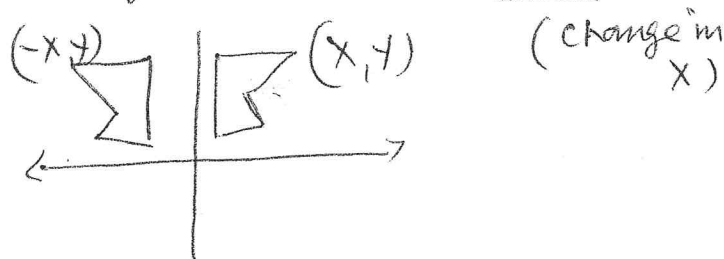


## II Reflection in the X-axis:



$$(x, y) \rightarrow (x, -y)$$

## III Reflection in the Y-axis:



$$(x, y) \rightarrow (-x, y)$$

EX

old (-1,0)	→	(-1,0)	<u>New</u>
(1,2)	→	(1,-2)	<u>New</u>
(5,0)	→	(5,0)	<u>New</u>

EX

old (-3,1)	→	(3,1)	<u>New</u>
(2,3)	→	(-2,3)	
(-1,2)	→	(1,2)	