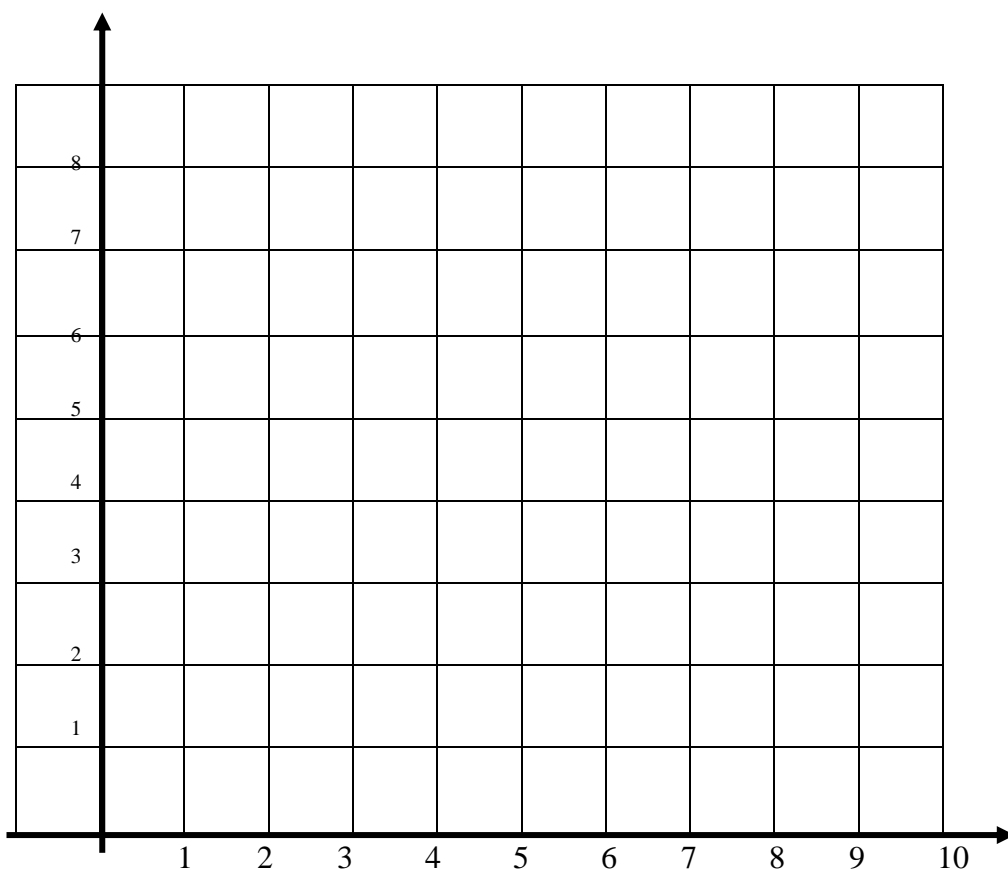


**CO-ORDINATE GEOMETRY PRACTICE:                      ALTITUDES**

---

1. Draw the triangle ABC where A is (3, 1) B is (10, 0) and C is (8, 6)
2. Find the gradients of : BC =                      AC =
3. Find the gradient of the perpendicular line from B to AC      GRAD =
4. Find the gradient of the perpendicular line from A to BC      GRAD =
5. Find the equation of the ALTITUDE from B to AC in the form:  $y = mx + c$
  
6. Find the equation of the ALTITUDE from A to BC in the form:  $y = mx + c$
  
7. Find the co-ordinates of the intersection of these ALTITUDES. Label it R.  
( Note: R is the ORTHOCENTRE of the triangle but there is no circle associated with it.)



**CO-ORDINATE GEOMETRY PRACTICE:                      ALTITUDES    ANSWERS**

1. Draw the triangle ABC where A is (3, 1) B is (10, 0) and C is (8, 6)

2. Find the gradients of :  $BC = -3$                        $AC = 1$

3. Find the gradient of the perpendicular line from B to AC       $GRAD = -1$

4. Find the gradient of the perpendicular line from A to BC       $GRAD = \frac{1}{3}$

5. Find the equation of the ALTITUDE from B to AC in the form:  $y = mx + c$

$$m = -1 \text{ thru } B(10, 0) \text{ so } 0 = -1 \times 10 + c$$

$$10 = c$$

$$\text{equ is } y = -x + 10$$

6. Find the equation of the ALTITUDE from A to BC in the form:  $y = mx + c$

$$m = \frac{1}{3} \text{ thru } (3, 1) \text{ so } 1 = \frac{1}{3} \times 3 + c$$

$$0 = c$$

$$\text{equ is } y = \frac{1}{3}x$$

7. Find the co-ordinates of the intersection of these ALTITUDES. Label it R.

(Note: R is the ORTHOCENTRE of the triangle but there is no circle associated with it.)

$$\frac{1}{3}x = -x + 10$$

$$\text{so } x = -3x + 30$$

$$4x = 30$$

$$x = 7.5 \quad y = 2.5 \quad \text{ie } R = (7.5, 2.5)$$

