

## Co-ordinate Geometry : Achieved Practice #6

1. Find the equation of the line that passes through both  $G = (-3, 4)$  and  $H = (-6, 6)$ .
2. Find a line parallel to  $y = 0.2x + 4$ , which passes through point  $K = (6, -2)$ .
3. Find the distance from point  $A = (2, -5)$  to point  $B = (7, 7)$ .
4. Find the point mid way between  $X = (-10, 2)$  and  $Y = (-23, 2)$ .
5. Find the line perpendicular to  $y = \frac{1}{3}x + 3$  which passes through  $(2, 4)$ .
6. Where does  $3x + 2y = 32$  cross the line  $y = 10$ ?

## Answers – Co-ordinate Geometry : Achieved Practice #6

1. Find the equation of the line that passes through both G = (-3, 4) and H = (-6, 6).

$$m = \frac{4 - 6}{-3 - (-6)} = \frac{-2}{3} = (-0.6667)$$

$$\text{gradient, } m = \frac{\Delta y}{\Delta x}$$

$$y - 6 = \frac{-2}{3}(x - (-6))$$

$$\text{equations found using } y - y_1 = m(x - x_1)$$

$$y = -\frac{2}{3}x + 2$$

check with "Table" in calculator

2. Find a line parallel to  $y = 0.2x + 4$ , which passes through point K = (6, -2).

$$y - (-2) = 0.2(x - 6)$$

parallel lines have the same slope

$$y + 2 = 0.2x - 1.2$$

care with double negatives

$$y = 0.2x - 3.2$$

check with "Table" in calculator

3. Find the distance from point A = (2, -5) to point B = (7, 7).

$$\Delta x = (2 - 7) = -5, \Delta y = (-5 - 7) = -12$$

distance apart in x and y directions

$$\text{Length} = \sqrt{5^2 + (-12)^2}$$

need to bracket negatives

$$= 13$$

check with sketch

4. Find the point mid way between X = (-10, 2) and Y = (-23, 2).

$$\left(\frac{-10 + (-23)}{2}, \frac{2 + 2}{2}\right)$$

mid point = (average x, average y)

$$= (-16.5, 2)$$

check with sketch

5. Find the line perpendicular to  $y = \frac{1}{3}x + 3$  which passes through (2, 4).

$$m = \frac{1}{3} \text{ so } m^\perp = \frac{-1}{\frac{1}{3}} = -3$$

perpendicular lines have  $m^\perp = \frac{-1}{m}$

$$y - 4 = -3(x - 2)$$

equations found using  $y - y_1 = m(x - x_1)$

$$y = -3x + 10$$

check with sketch and "Table"

6. Where does  $3x + 2y = 32$  cross the line  $y = 10$ ?

$$3x + 2y = 32, \text{ which since } y = 10 \text{ we can write as } 3x + 2 \times 10 = 32$$

$$\text{Solving gives } x = 4$$

$$\text{Cross at } (4, 10)$$

answer is a point, not just an x value