

General review

Mention 3 elements of a cartesian plane

Axes X Y

Coordinates X Y

Quadrantes

True or False

Things you can do in coordinate geometry

If you know the coordinates of a group of points you can:

T Determine the distance between points.

T Find the midpoint, slope and equation of a line segment

F Calculate the color of two points

F Slope, intercept are elements of the equation of the triangle

1) Calculate the distance between the two point

A (15, 20) B (30, 10)

X_1 Y_1

X_2 Y_2

$$D_{AB} = \sqrt{(10-20)^2 + (30-15)^2}$$

$$D_{AB} = \sqrt{100 + 225}$$

$$D_{AB} = 18.02$$

2) C (30, 25) D (30, 10)

X_1 Y_1

X_2 Y_2

$$D_{CD} = \sqrt{(10-30)^2 + (30-25)^2}$$

$$D_{CD} = \sqrt{400 + 3025}$$

$$D_{CD} = 58.52$$

3) E (-10, 10) F (0, 0)

X_1, Y_1 X_2, Y_2

$$DEF = \sqrt{(0 - (-10))^2 + (0 - (10))^2}$$

$$DEF = \sqrt{100 + 100}$$

$$DEF = 14.14$$

1) Calculate the midpoint C of line segments

1) A (3, 6) to B (5, 10) C (4, 8)

X_1, Y_1 X_2, Y_2 X_3, Y_3

$$C_{x3} = \frac{5+3}{2} = \frac{8}{2} = 4$$

$$C_{y3} = \frac{10+6}{2} = \frac{16}{2} = 8$$

2) A (-3, 2) to B (3, 2) C (0, 2)

X_1, Y_1 X_2, Y_2 X_3, Y_3

$$C_{x3} = \frac{3+(-3)}{2} = \frac{0}{2} = 0$$

$$C_{y3} = \frac{2+2}{2} = \frac{4}{2} = 2$$

What are the coordinates of the point C that divides the direct line segments:

Segment AB in the ratio 2:3, if A (-4, 4) and B (6, -5)

a b X_1, Y_1 X_2, Y_2

C (0, 0.4)

X_3, Y_3

$$C_{x3} = \frac{2(6) + 3(-4)}{2+3} = 0$$

$$C_{y3} = \frac{2(-5) + 3(4)}{2+3} = 0.4$$

Segment AB in the ratio 3:1, if $A(-4, 0)$ and $B(0, 4)$
 $a \quad b \quad X_1 \quad Y_1 \quad X_2 \quad Y_2$

$$x_3 = \frac{3(0) + 1(-4)}{3+1} = \frac{-4}{4} = -1$$

$$C(\underline{-1}, \underline{3})$$

$$X_3 \quad Y_3$$

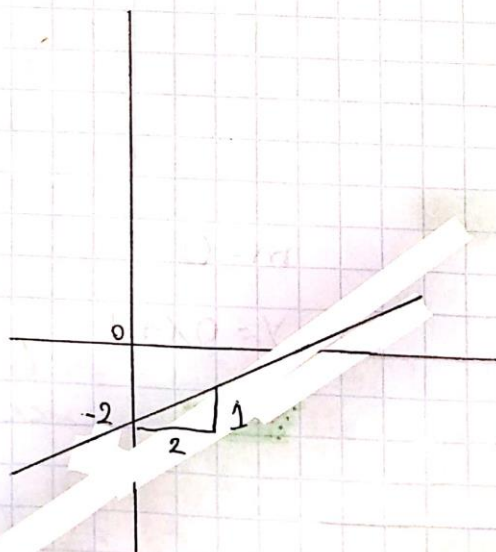
$$y_3 = \frac{3(4) + 1(0)}{3+1} = \frac{12}{4} = 3$$

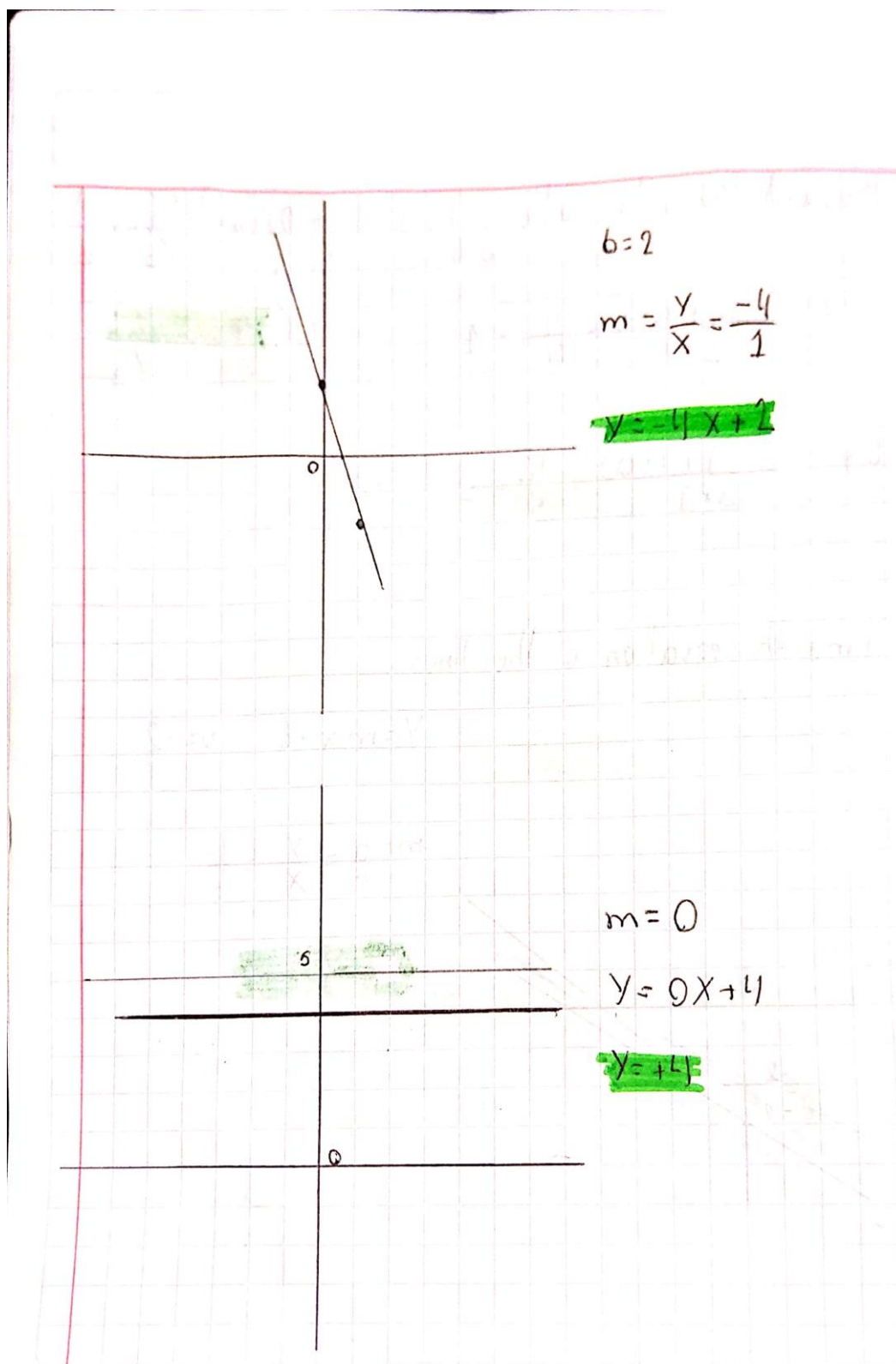
Find the equation of the lines

$$Y = mx + b \quad b = -2$$

$$m = \frac{a}{b} = \frac{y}{x} = \frac{1}{2}$$

$$Y = \frac{1}{2}X - 2$$





- 1 find the equation of the line that has a slope of 13 and passes through the point $(-3, 2)$

$$2 = 13(-3) + b$$

$$2 = -39 + b$$

$$\begin{array}{r} +39 \\ -39 \\ \hline 41 = 0 \end{array}$$

$$y = 13x + 41$$

- 2 find the equation of the line that has a slope of 16 and a y-intercept of 20.

$$y = 16x - 20$$

- 3 find the equation of the line that passes through the points $(4, 13)$ and $(-15, 6)$

x_1, y_1

x_2, y_2

$$m = \frac{y}{x} = \frac{6-13}{-15-4} = \frac{-7}{-19} = \frac{7}{19}$$

$$13 = \frac{7}{19}(4) + b$$

$$\frac{13}{1} - \frac{28}{19} = b$$

$$13 = \frac{28}{19} + b$$

$$\frac{+28}{19} = \frac{-28}{19}$$

$$\frac{247-28}{19} =$$

$$\frac{219}{19} = b$$

$$y = \frac{7}{19}x + \frac{219}{19}$$

4 find the slope of the line whose equation is $17y - 9x = 10$.

$$y = mx + c$$

$$y = 9x + 27$$

Slope of 9

5 find the equation of the line that has a slope of 16 and passes through the point $(-5, 9)$

$$9 = 16(-5) + b$$

$$9 = -80 + b$$

$$+80 = +80$$

$$89 = b$$

$$y = 16x + 89$$

Extra:

find the equation of the line - slope is 7, x intercept is -2 $a = -2$ $(2, 0)$

$$0 = 7(-2) + b$$

$$0 = 14$$

$$14 + 14$$

$$14 = b$$

$$y = 7x + 14$$