1.1 Linear

$y = 3x + 4$

$y = \frac{1}{2}x - 5$

x in numerator raised to first power

$y = x^2$ Parabola

$y = x^3$

$y = \frac{4}{x}$

Divisibility Rules

by 2 Even

5 Ends in 5 or 0

10 Ends in 0

3 Sum of digits divisible by 3

127 1+2+7 = 10

2,415 2+4+1+5 = (12)

33

9 Sum of digits divisible by 9

214,317 2+1+4+3+1+7 = (18)

4 Number formed by last two digits is divisible by 4

4,928 (28)

93,416 (16)

6 Even and divisible by 3

416 No

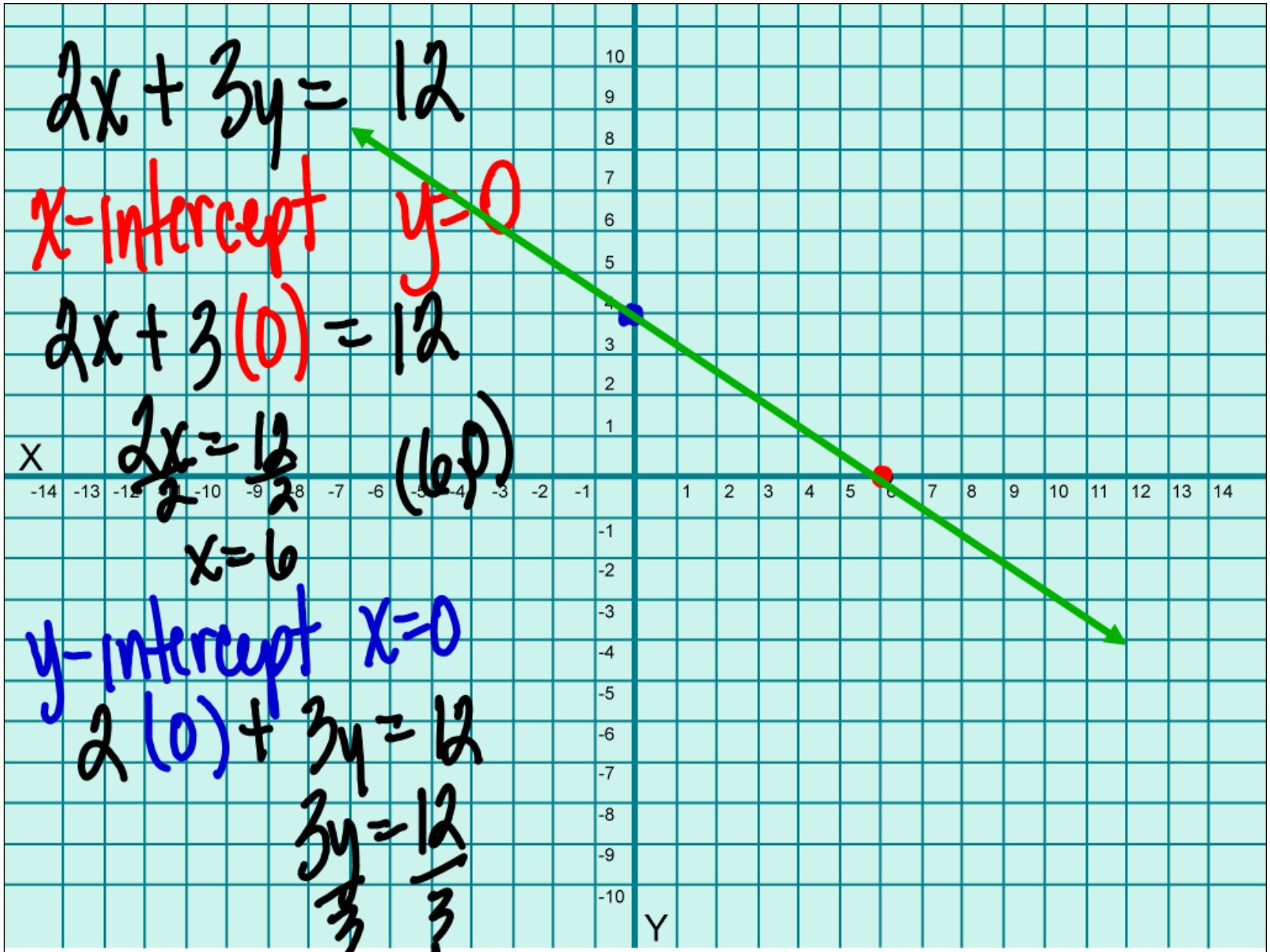
914 No

1.2

Slope $\frac{\text{rise}}{\text{run}}$ $m = \frac{y_2 - y_1}{x_2 - x_1}$

Slope Intercept $y = mx + b$

Standard Form $Ax + By = C$


2x + 3y = 12
x-intercept y=0
2x + 3(0) = 12
2x = 12
2 2
x = 6
(6,0)
y-intercept x=0
2(0) + 3y = 12
3y = 12
3 3
y = 4
(0,4)
X
Y

$24x + 72y = 1440$

x-int. $y = 0$

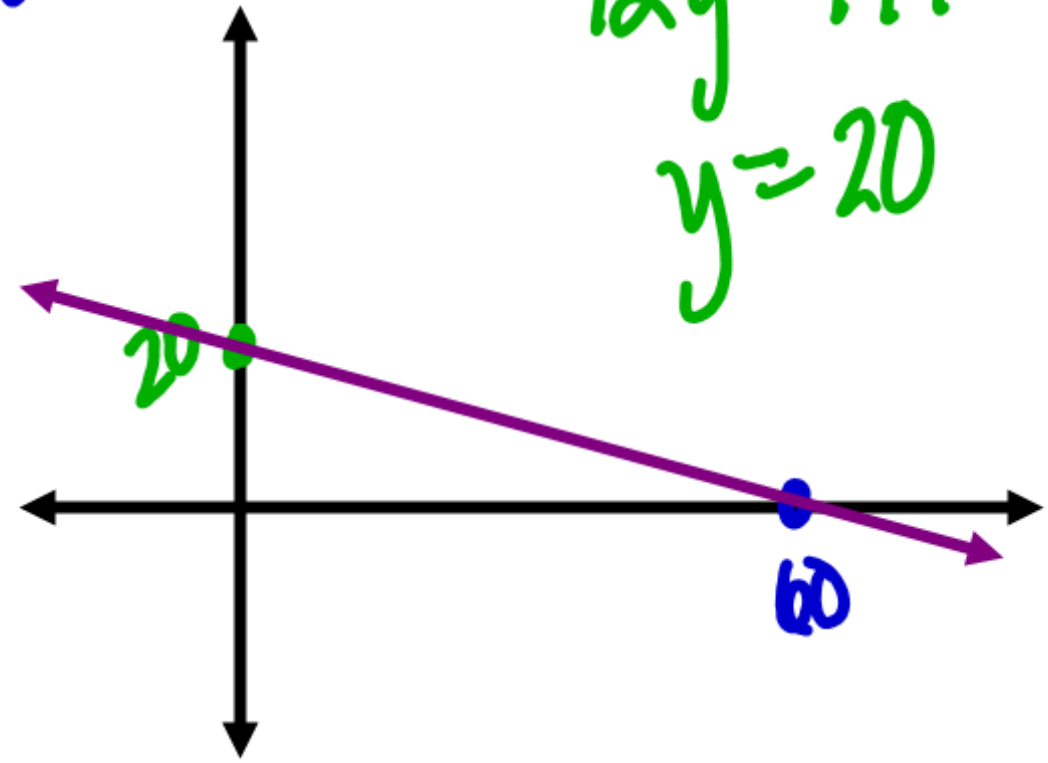
$24x = 1440$

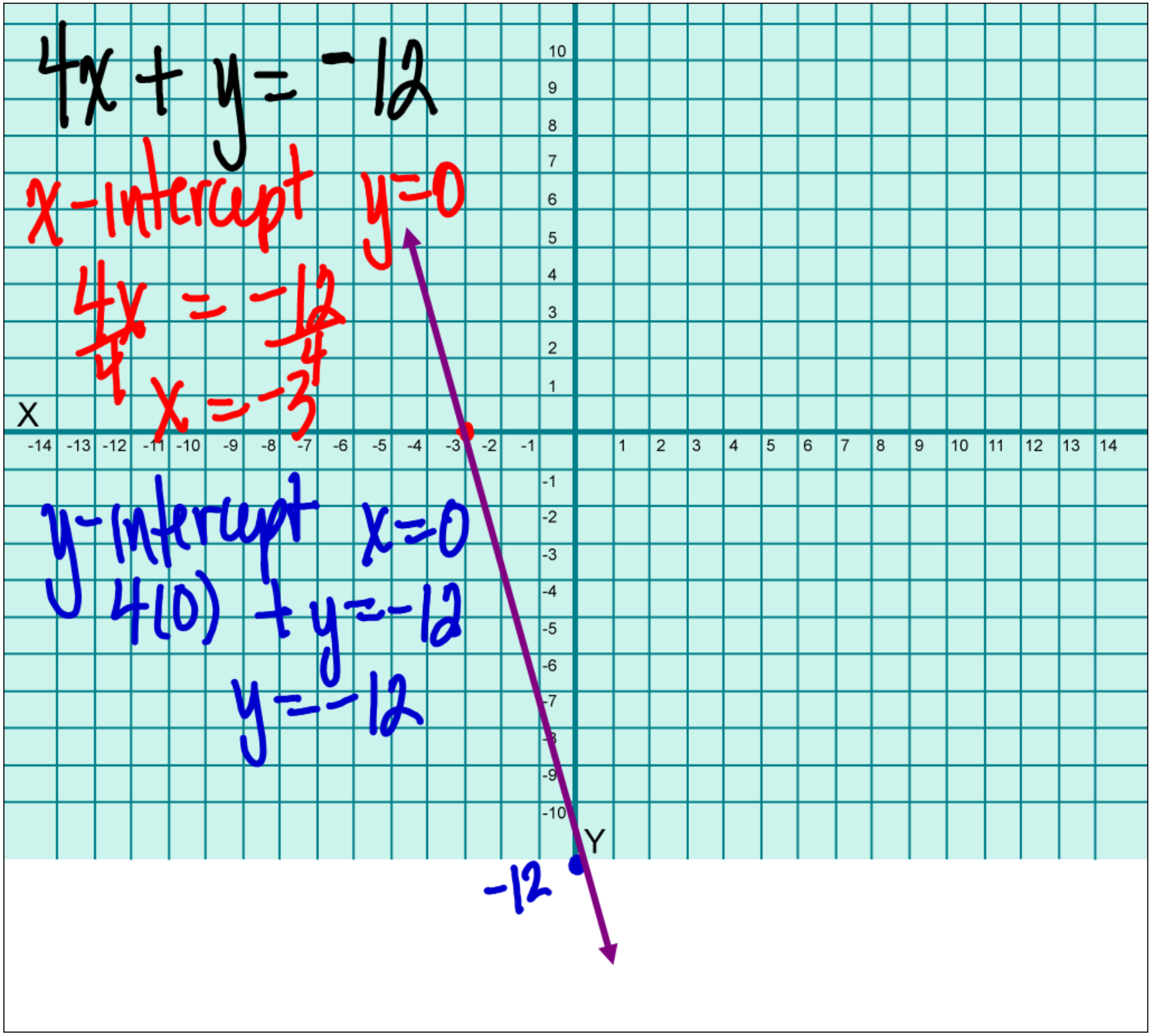
$x = 60$

y-int $x = 0$

$72y = 1440$

$y = 20$

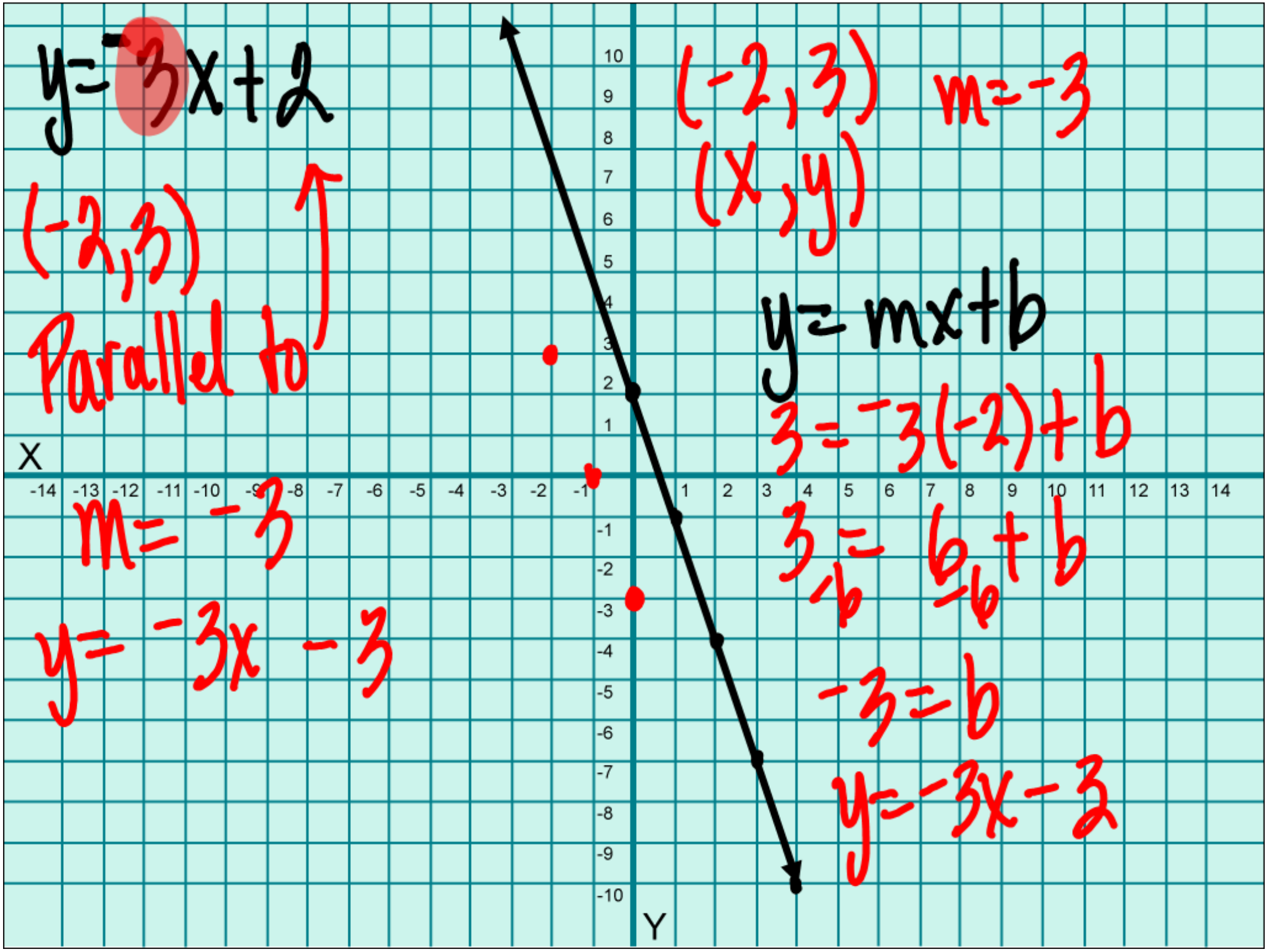



4x + y = -12
x-intercept
y=0
4x = -12
4 4
x = -3
y-intercept
x=0
4(0) + y = -12
y = -12
X
Y
-12

Parallel

Same Slope

Different y-intercept

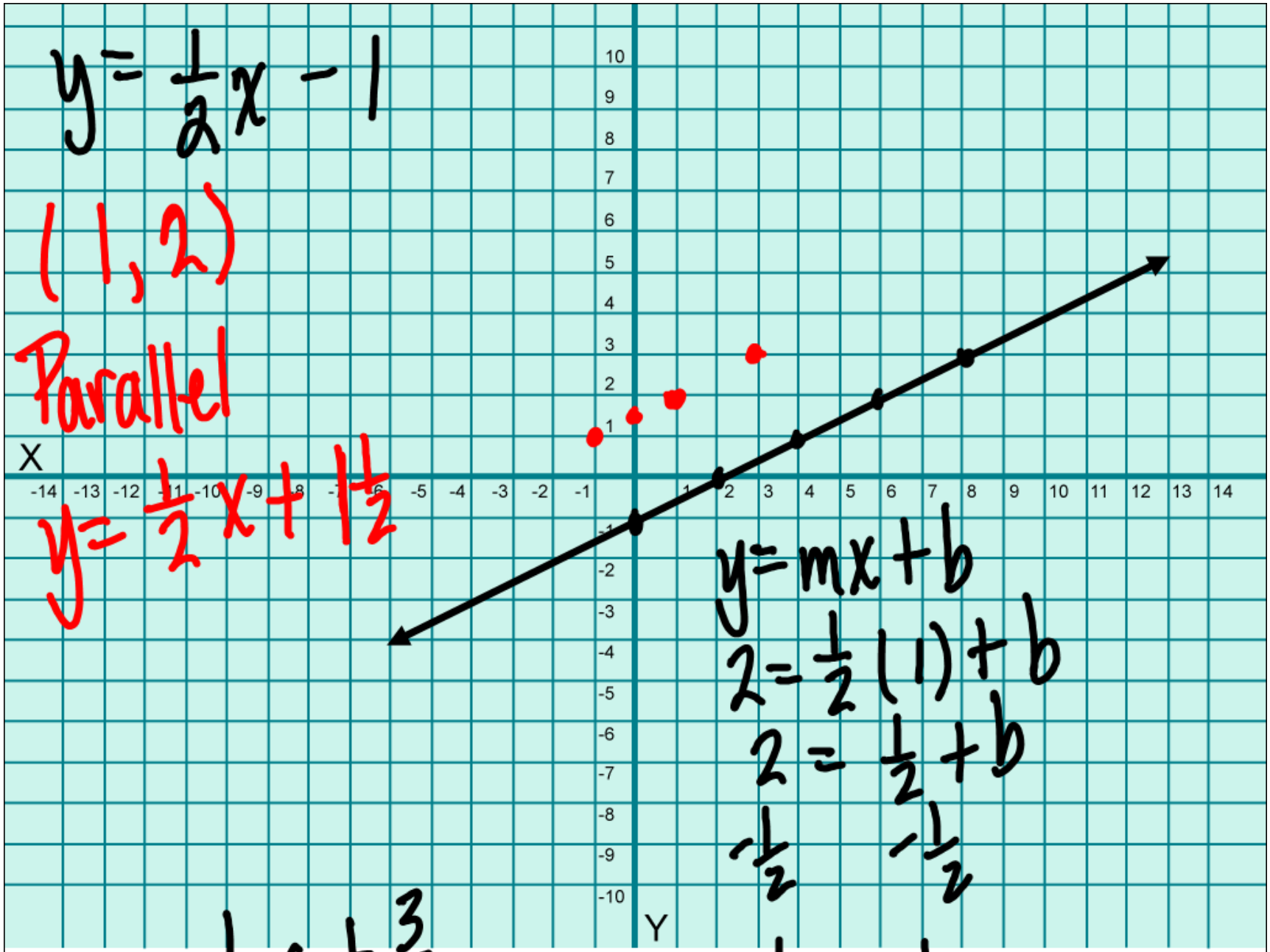

y=-3x+2
(-2,3)
Parallel to
m=-3
y=-3x-3
(-2,3)
(x,y)
m=-3
y=mx+b
3=-3(-2)+b
3=6+b
-6 -6
-3=b
y=-3x-3
X
Y

$y = \frac{1}{2}x - 1$

(1, 2)

Parallel

$y = \frac{1}{2}x + 1\frac{1}{2}$



$y = mx + b$

$2 = \frac{1}{2}(1) + b$

$2 = \frac{1}{2} + b$

$-\frac{1}{2} \quad -\frac{1}{2}$

$1\frac{1}{2} = b$

$y = \frac{1}{2}x + \frac{3}{2}$

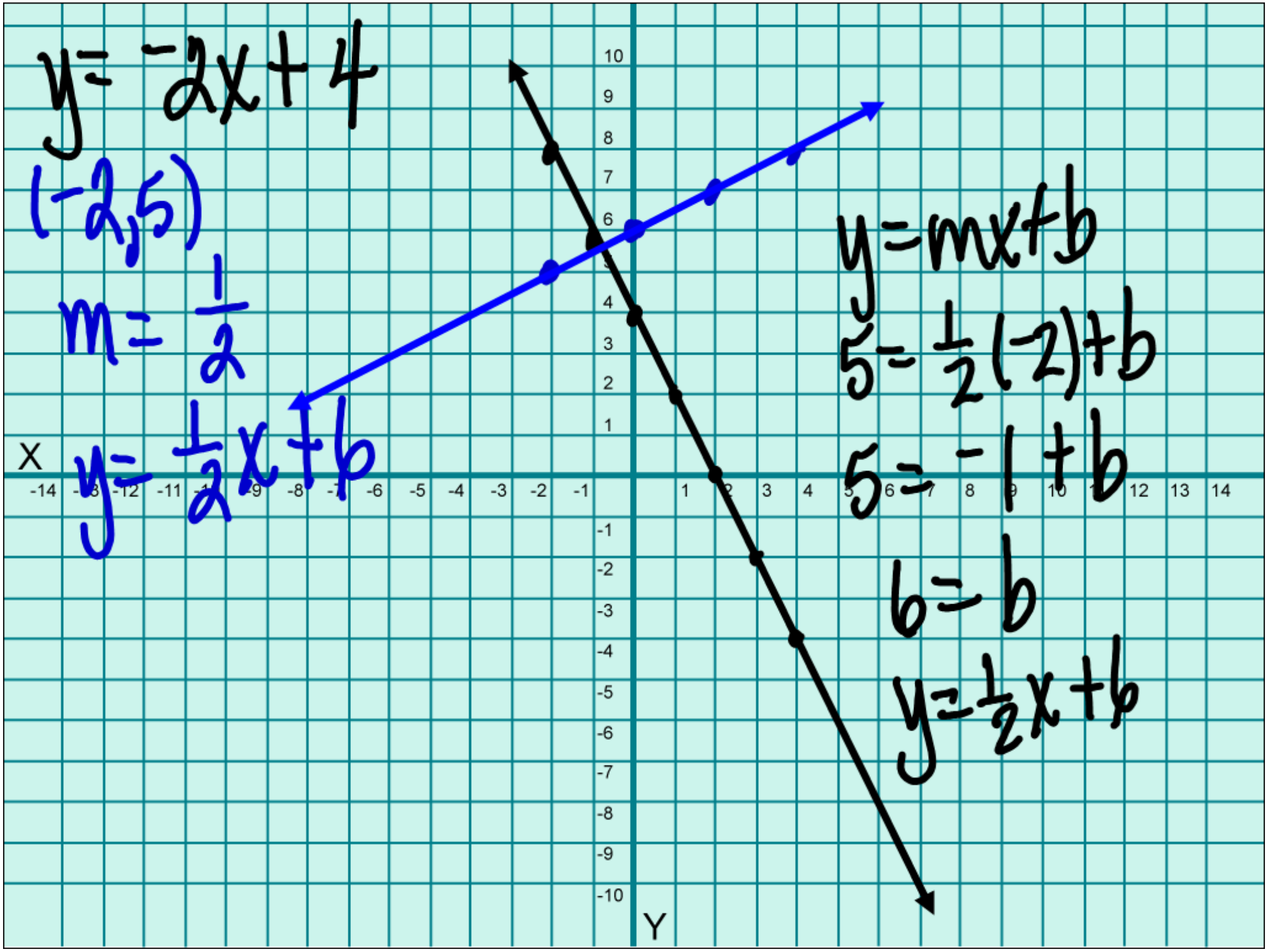
Perpendicular

Opposite sign

Reciprocal

$y = 2x + 5$

$y = -\frac{1}{2}x + 2$


y = -2x + 4
(-2,5)
m = 1/2
y = 1/2x + b
y = mx + b
5 = 1/2(-2) + b
5 = -1 + b
6 = b
y = 1/2x + b
X
Y

p 18 40 - 50E

p 26 36 - 50E