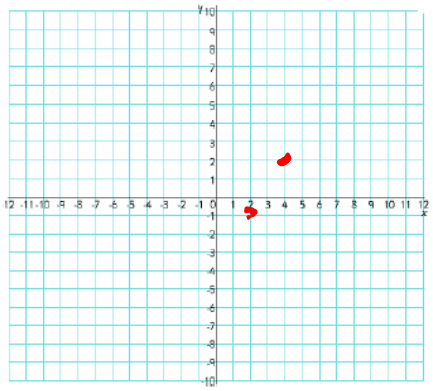
☐ **Objective A: I can find the slope of a line**

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

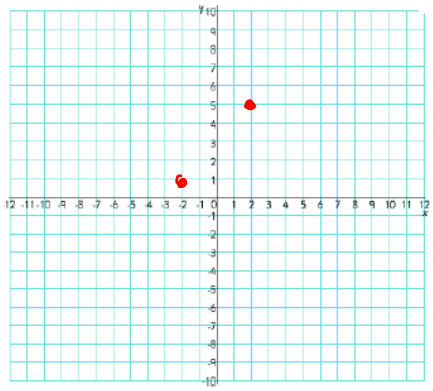
https://www.khanacademy.org/math/algebra/two-var-linear-equations/slope

1. $(2,-1)$ and $(4,2)$; m= $\frac{3}{2}$



↑3
→2

2. $(-2,1)$ and $(2,5)$; $m =$ $\frac{4}{4} = 1$



↑4
→4

A3. Through (5, 1) and (2, 7)

$\frac{7-1}{2-5}$

$\frac{6}{-3} = -2$

A4. Through (5, 2) and (2, -3)

$\frac{-3-2}{2-5}$

$\frac{-5}{-3} = \frac{5}{3}$

A5. Through (-3, 1) and (7, 1)

$\frac{1-1}{7-(-3)} = \frac{0}{10} = 0$

A6. Parallel to a line with slope 4

4

Same slope

A7. Parallel to a line with slope -4

-4

A8. Parallel to a line with slope ½

$\frac{1}{2}$

A9. Perpendicular to a horizontal line

m=0

I m = undefined

A10. Perpendicular to a line with slope 3/2

opposite reciprocal

$-\frac{2}{3}$

A11. Perpendicular to a line with a slope -1

1

A12. Perpendicular to a line with slope -5/3

$\frac{3}{5}$

☐ **Objective B: I can write equations of lines**

http://www.virtualnerd.com/algebra-2/linear-equations-functions/writing/

https://www.khanacademy.org/math/algebra/two-var-linear-equations/writing-slope-intercept-equations/a/writing-slope-intercept-equations

https://www.khanacademy.org/math/algebra/two-var-linear-equations/point-slope/v/idea-behind-point-slope-form

https://www.khanacademy.org/math/algebra/two-var-linear-equations/forms-of-two-var-linear-equations/v/point-slope-and-standard-form

B1. Write the equation of the line through (0, -3) and (6, 7)

y-int

$y = \frac{5}{3}x - 3$

$m = \frac{7-(-3)}{6-0}$

$= \frac{10}{6}$

$= \frac{5}{3}$

B2. Write the equation of the line with slope -3 through (5, -1)

$y - y_1 = m(x - x_1)$

$y - (-1) = -3(x - 5)$

$y + 1 = -3(x - 5)$ $x = 3$ $y = -3x + 15 - 1$

$y = -3x + 14$

B3. Write the equation of the vertical line through (3, 7)

B4. Write the equation of the line that passes through (6, -2) and the y-intercept of y = 3x – 6

(0, -6)

$m = \frac{-6-(-2)}{0-6}$

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

$m = \frac{-6+2}{-6}$

$m = \frac{-4}{-6}$

B5. Write the equation of the line with slope 2/3 through (0, -9)

"b"

$y = \frac{2}{3}x - 9$

B6. Write the equation of a horizontal line through (-3, -10)

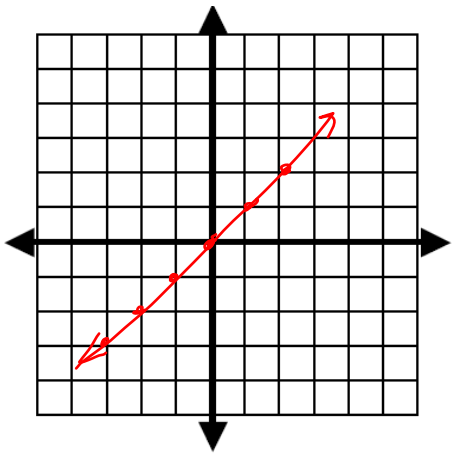
$m = 0$

$y = -10$

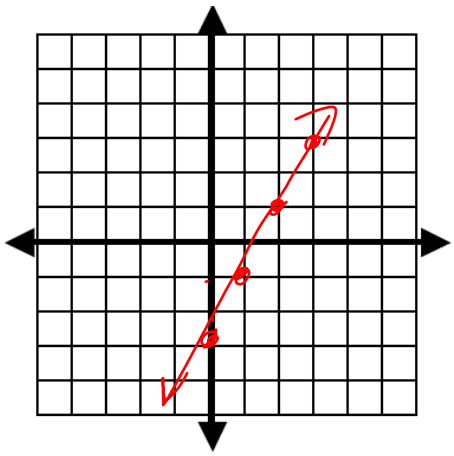
☐ **Objective C: I can graph a line**

https://www.khanacademy.org/math/algebra/two-var-linear-equations/graphing-slope-intercept-equations/a/graphing-slope-intercept-form

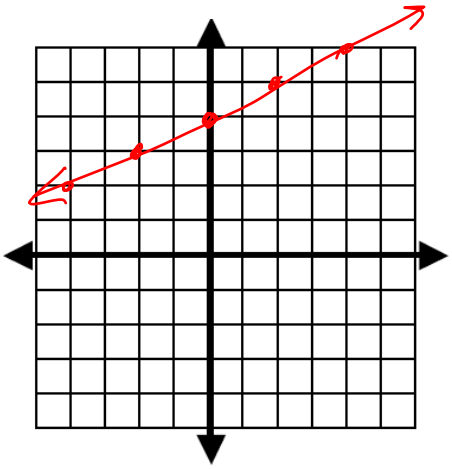
C1. y = x



C2. y = 2x – 3



C3. y =1/2 x + 4



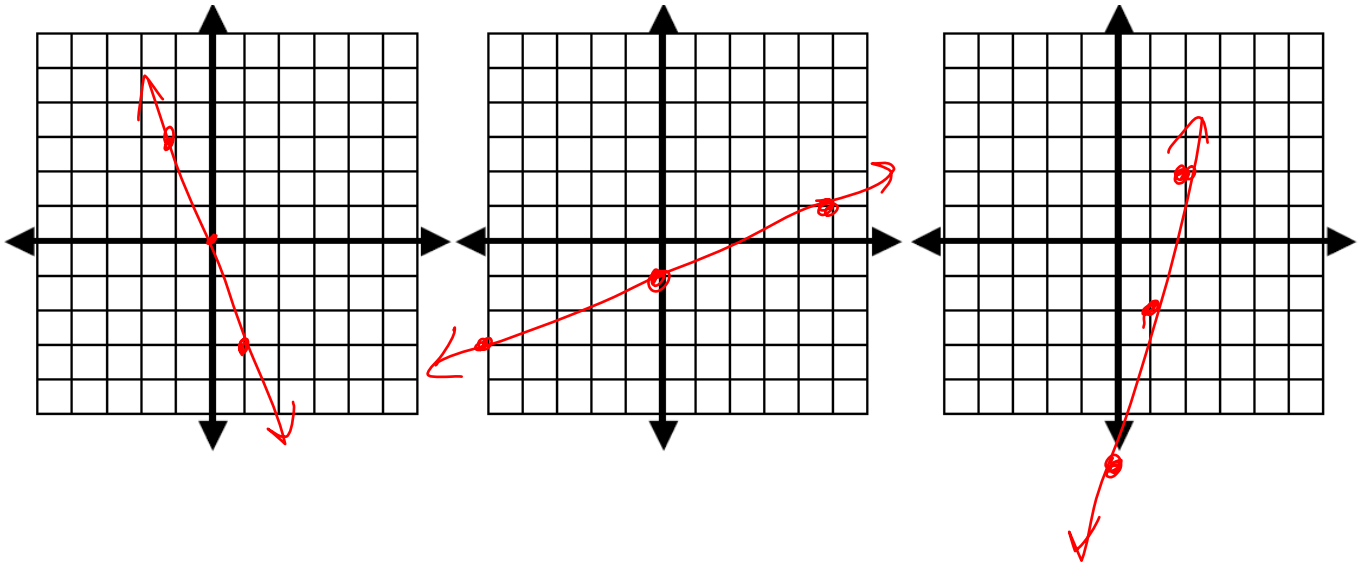
C4. y = -3x

C5. $y = \frac{2}{5}x - 1$

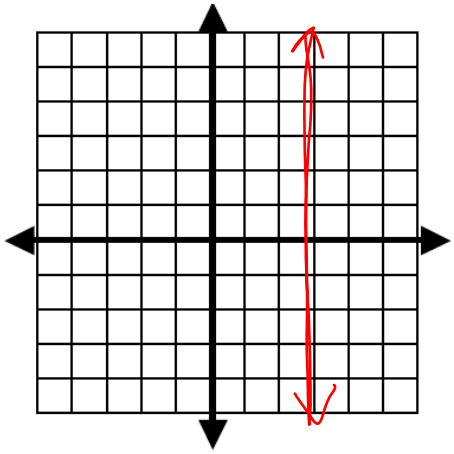
C6. y – 2 = 4(x – 2)

$y - 2 = 4x - 8$

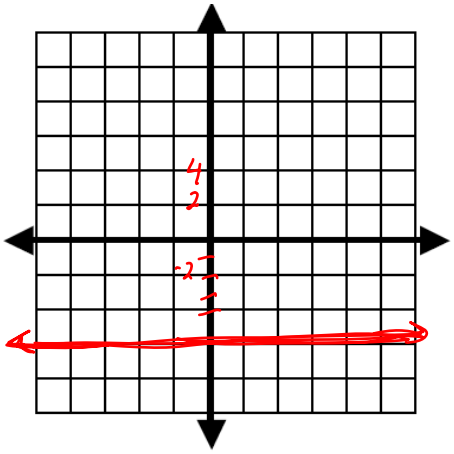
$y = 4x - 6$



C7. x = 3

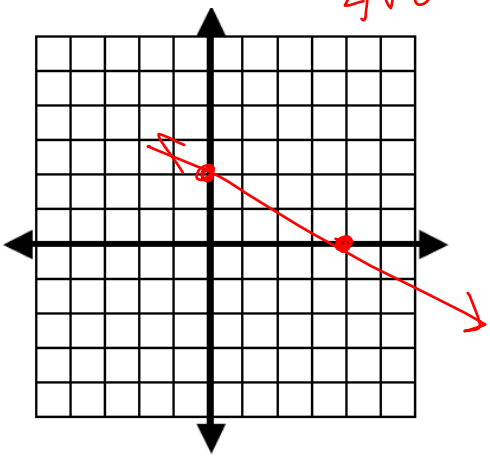


C8. y = -6



C9. 2x + 4y = 8

x	y
0	2
4	0



☐ **Objective D: I can solve linear equations**

https://www.khanacademy.org/math/algebra/one-variable-linear-equations/alg1-variables-on-both-sides/v/why-we-do-the-same-thing-to-both-sides-multi-step-equations

https://www.khanacademy.org/math/algebra/one-variable-linear-equations/alg1-variables-on-both-sides/v/solving-equations-2

D1. $2p + 5 = 13$

$-5 \quad -5$

$2p = 8$

$p = 4$

D2. $12 + 2b = 2 + 5b$

$-2b \quad -2b$

$12 = 2 + 3b$

$-2 \quad -2$

$\frac{10}{3} = \frac{3b}{3}$

$b = \frac{10}{3}$

D3. $4x + 5 + 5x = 140$

$9x + 5 = 140$

$-5 \quad -5$

$\frac{9x}{9} = \frac{135}{9}$

$x = 15$

D4. $2(4x + 4) = x + 1$

$8x + 8 = x + 1$

$-x \quad -x$

$7x + 8 = 1$

$-8 \quad -8$

$7x = -7$

$x = -1$

D5. $4 - 3(2 - x) = -14$

$4 - 6 + 3x = -14$

$-2 + 3x = -14$

$+2 \quad +2$

$3x = -12$

$x = -4$

D6. $7x - 8x + 4 = 5x - 2$

$-x + 4 = 5x - 2$

$+x \quad +x$

$4 = 6x - 2$

$+2 \quad +2$

$6 = 6x$

$x = 1$

☐ **Objective E: I can solve a proportion**

https://www.khanacademy.org/math/algebra-basics/core-algebra-linear-equations-inequalities/ratios-core-algebra/v/find-an-unknown-in-a-proportion

https://www.khanacademy.org/math/algebra-basics/core-algebra-linear-equations-inequalities/ratios-core-algebra/v/proportions-2-exercise-examples

E1. $\frac{7}{2} = \frac{n}{3}$

$\frac{21}{2} = \frac{2n}{2}$

$n = \frac{21}{2}$

E2. $\frac{25}{15} = \frac{10}{x}$

$\frac{25x}{25} = \frac{150}{25}$

$x = 6$

E3. $\frac{3x}{7} = \frac{9}{2}$

$6x = 63$

$x = \frac{63}{6} = \frac{21}{2}$

E4. $\frac{x+4}{5} = \frac{x-2}{3}$

$3(x+4) = 5(x-2)$

$3x + 12 = 5x - 10$

$22 = 2x$

$x = 11$

E5. $\frac{4}{x-3} = \frac{6}{x+3}$

$4(x+3) = 6(x-3)$

$4x + 12 = 6x - 18$

$-2x = -30$

$x = 15$

E6. $\frac{10}{6x+7} = \frac{6}{2x+9}$

$10(2x+9) = 6(6x+7)$

$20x + 90 = 36x + 42$

$\frac{48}{16} = \frac{16x}{16}$

$x = 3$

☐ **Objective F: I can solve a quadratic equation**

https://www.khanacademy.org/math/algebra/quadratics

Solve.

E1. $4x^2 - 9 = 0$

$4x^2 = 9$

$x^2 = \frac{9}{4}$

$2x - 1 = 0 \quad x + 4 = 0$

$2x = 1 \quad -$ $+ \frac{3}{2}$

E2. $x^2 - 4x - 32 = 0$

$(x-8)(x+4) = 0$

$x = 8$

$x = -4$

E3. $x^2 - 3x = 0$

$x(x-3) = 0$

$x = 0$

$x = 3$

E4. $2x^2 + 13x - 7 = 0$

$(2x-1)(x+7)$

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

$x = -7$

E5. $3x^2 = -x + 4$

$3x^2 + x - 4 = 0$

$(3x+4)(x-1)$

$x = -\frac{4}{3}$

$x = 1$

E6. $x^2 + 12x + 10 = 5x$

$-5x \quad -5x$

$x^2 + 7x + 10 = 0$

$(x+2)(x+5) = 0$

$x = -2$

$x = -5$

☐ **Objective G: I can simplify radicals**

https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations#square-roots-for-college

Simplify:

G1. $\sqrt{49}$

7

G2. $\sqrt{\frac{1}{4}}$

$\frac{1}{2}$

G3. $\sqrt{\frac{36}{49}}$

$\frac{6}{7}$

G4. $2\sqrt{144}$

2 · 12

24

G5. $\sqrt{196}$

14

G6. $\sqrt{289}$

17