DO NOW
Find the slope of the line graphed below

$$\frac{rise}{run} \qquad \frac{\Delta y}{\Delta x}$$

$$\boxed{\frac{-4}{3}} \quad or \quad \boxed{-\frac{4}{3}}$$

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

-4

3

-3

4
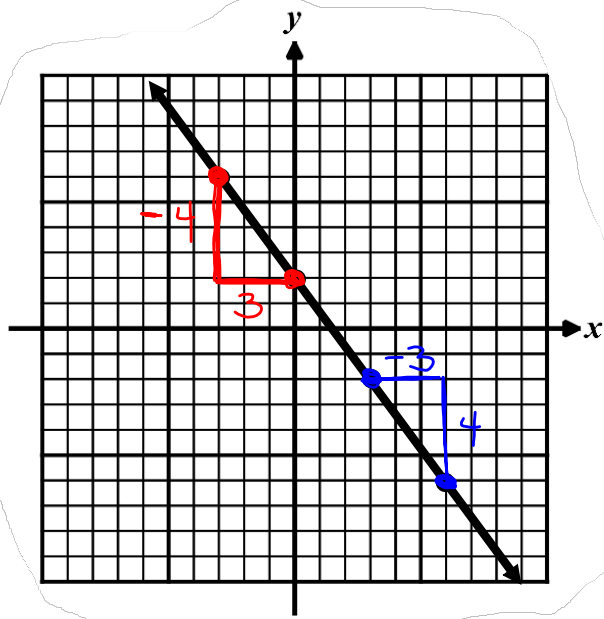
Calculating the Slope of a Line

$$Slope\ (m) = \frac{\Delta y}{\Delta x} = \frac{change\ in\ y}{change\ in\ x} = \frac{(y_2 - y_1)}{(x_2 - x_1)}$$

1) $(4, 2)$ $(1, -1)$ -3

$$\frac{3}{3} = \frac{-3}{-3} = \boxed{1}$$

2) $(-1, 2)$ $(3, -1)$ -4 3
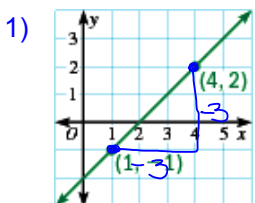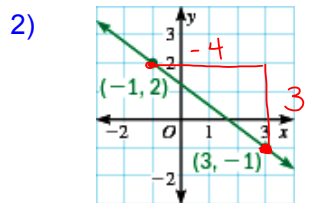
$$\frac{-3}{4} = \frac{3}{-4}\ or\ \boxed{-\frac{3}{4}}$$

Find the slope of the line that passes through the points:

3) $(\overset{x_1\ y_1}{3, 5})$ and $(\overset{x_2\ y_2}{1, 8})$ 4) $(-2,1)$ and $(-5, 7)$

$$\frac{8-5}{1-3} = \frac{3}{-2} \qquad \frac{7-1}{-5-(-2)} = \frac{6}{-3} = \boxed{-2}$$
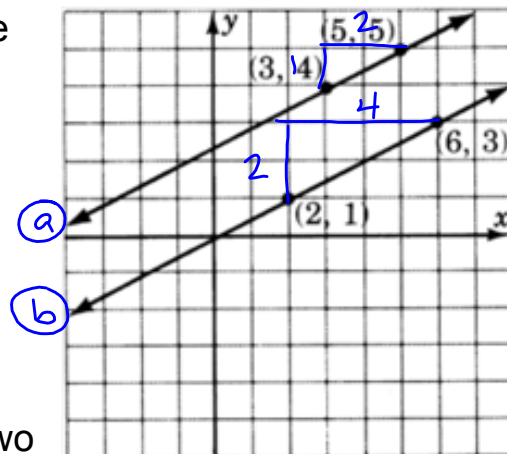
$$\boxed{-\frac{3}{2}}$$

Given a pair of parallel lines graphed below:

(a) Determine the slope of each line
   (graphically or algebraically)

Line a: $\frac{1}{2}$

Line b: $\frac{1}{2}$

(5, 5)
(3, 4)
4
(6, 3)
2
(2, 1)
ⓐ
ⓑ

(b) What can you conclude about two
   lines that are parallel?

Parallel lines have the same slope

Parallel Lines have the SAME slope

Given the points $A(-5,-4)$, $B(5,-2)$, $C(7,6)$ and $D(-3,4)$.

1) Is $\overline{AB} \parallel \overline{CD}$?   2) Is $\overline{AC} \parallel \overline{BD}$?

Give evidence to support your answers

AB: $\frac{-2-(-4)}{5-(-5)} = \frac{2}{10} = \frac{1}{5}$ AC: $\frac{6-(-4)}{7-(-5)} = \frac{10}{12} = \frac{5}{6}$

CD: $\frac{4-6}{-3-7} = \frac{-2}{-10} = \frac{1}{5}$ BD: $\frac{4-(-2)}{-3-5} = \frac{6}{-8} = -\frac{3}{4}$

Yes   No

The slope of the line $\overline{EF}$ is -2. Find the value of k so that the the line through the points (4,k) and (-2,-1) is parallel to $\overline{EF}$.

$$x_1 \, y_1 \qquad x_2 \, y_2$$

$$\frac{-1-k}{-2-4} = -2$$

$$\frac{-1-k}{-6} = -2 \cdot -6$$

$$-1-k = 12$$

$$+1 \qquad +1$$

$$\frac{-k}{-1} = \frac{13}{-1}$$

$$\boxed{k = -13}$$