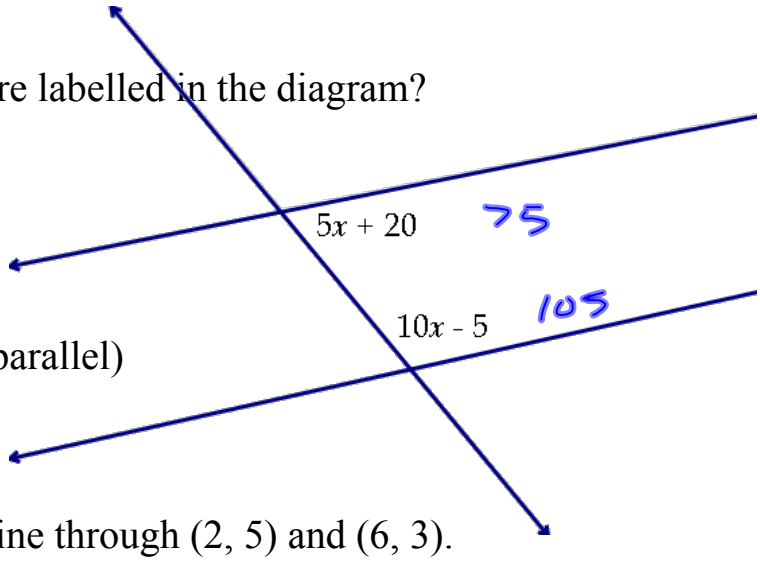
Warm Up

1. What kind of angles are labelled in the diagram?



2. Solve for x.
(assume the lines are parallel)

3. Find the slope of the line through (2, 5) and (6, 3).

3-4 Slopes of Lines

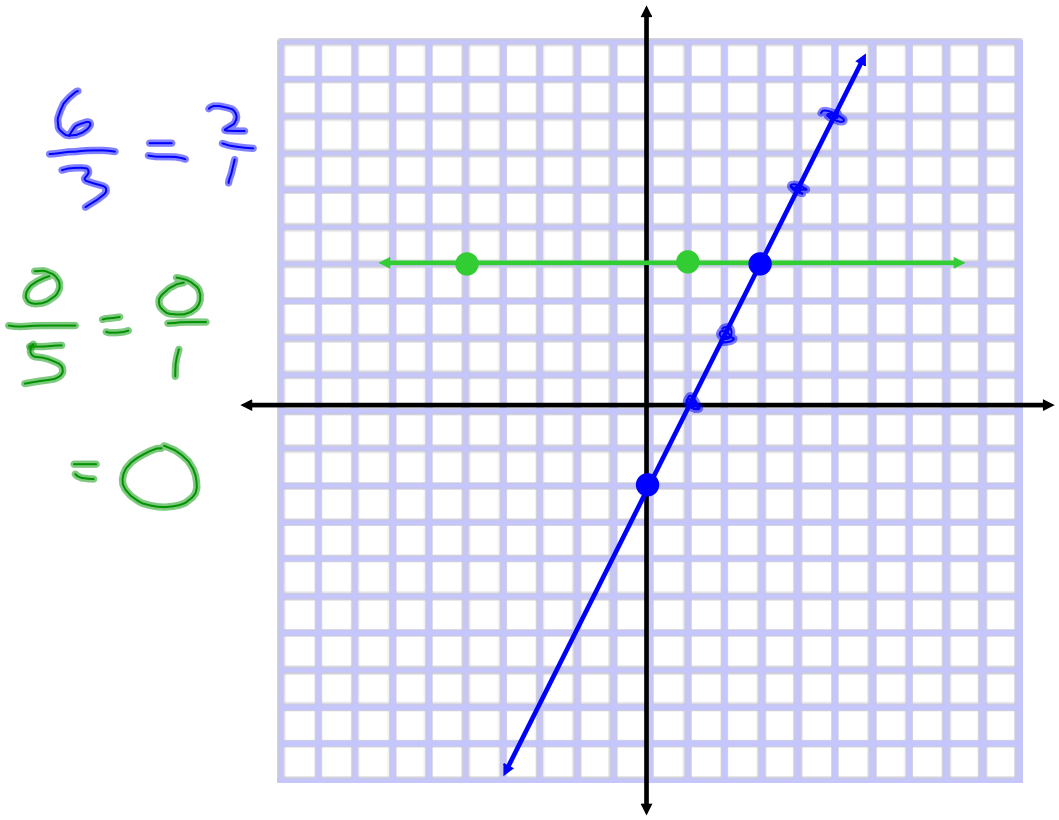
Slope – rate of change

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

Slope of parallel lines are equal

Slope of perpendicular lines are opposite reciprocals

Ex 1 Find the slope of the two lines.



$\frac{6}{3} = \frac{2}{1}$

$\frac{0}{5} = \frac{0}{1}$

$= 0$

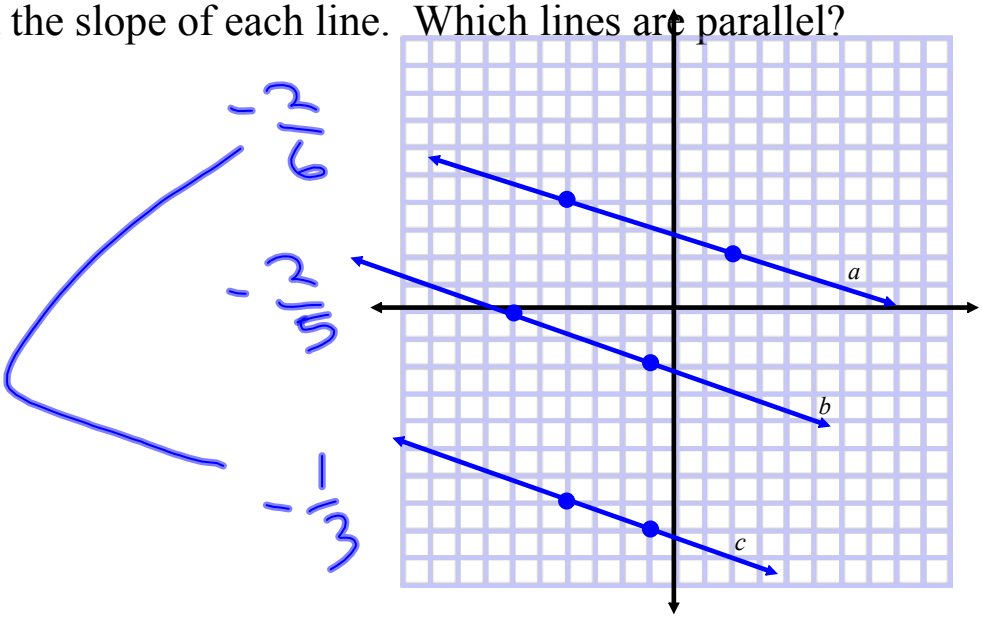
Ex. 2 Find the slope of the line through the following points.

a. (2, 7) (5, 1) $-\frac{6}{3} = -2$

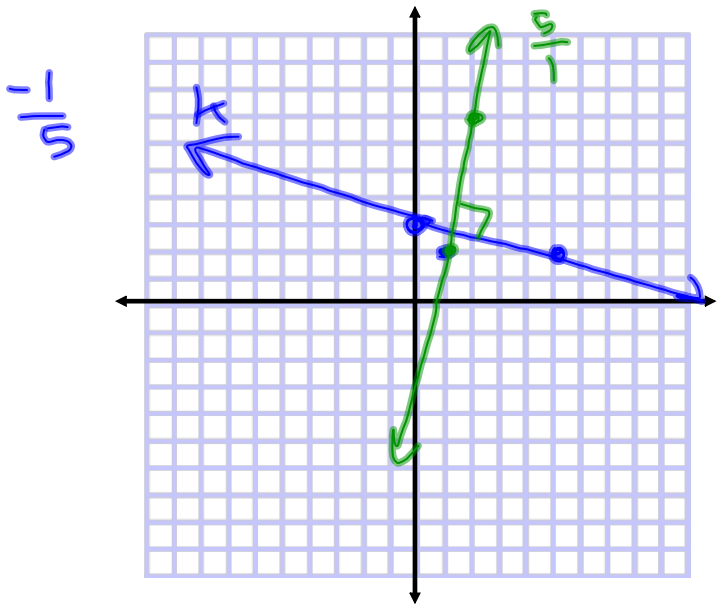
b. (1, -5) (4, 8) $\frac{13}{3}$

c. (4, 9) (4, -1) $\frac{10}{0}$ no slope

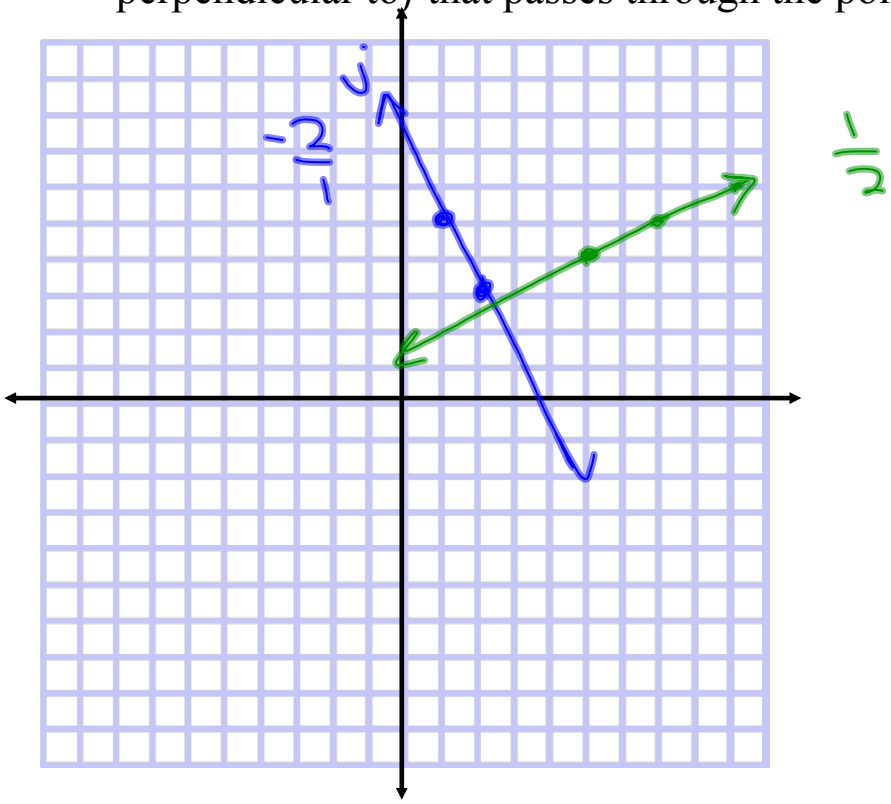
Ex 3 Find the slope of each line. Which lines are parallel?



Ex 4 Line k passes through (0, 3) and (5, 2). Graph the line perpendicular to k that passes through the point (1, 2).



Ex 5 Line *j* passes through (1, 5) and (2, 3). Graph the line perpendicular to *j* that passes through the point (5, 4).



Ex 6 Line *m* passes through (-3, 1) and (2, 5). Graph the line parallel to *m* that passes through the point (0, -4).

same slope

$y = mx + b$

$y = \frac{4}{5}x - 4$