Math-2A
Lesson 4-7
Parallel Lines

What is the name of this form of equation? $y = 2x + 2$

Slope intercept form

y = mx + b

How can you recognize this form? (4 things)

Y is a function of x (y is all by itself)

There are no parentheses

There are two variables

The exponents of the variables are one.

What is the name of this form of equation? $2x+3y=6$

Standard form

ax + by = c

How can you recognize this form? (4 things)

Constant value is all by itself

There are no parentheses

There are two variables

The exponents of the variables are one.

Re-write slope intercept form as standard form

$$y = 2x + 2$$

-2x -2x

$$-2x + y = 2$$

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

Slope-intercept → standard form

$$y - 4 = 2(x - 1)$$

$$y - 4 = 2x - 2$$

-2x -2x

$$-2x + y - 4 = -2$$

+4 +4

$$-2x + y = 2$$

Convert to standard form

$$y+2=\frac{2}{3}(x+3)$$

Convert to slope intercept form.

$$y+2=3(x+1)$$

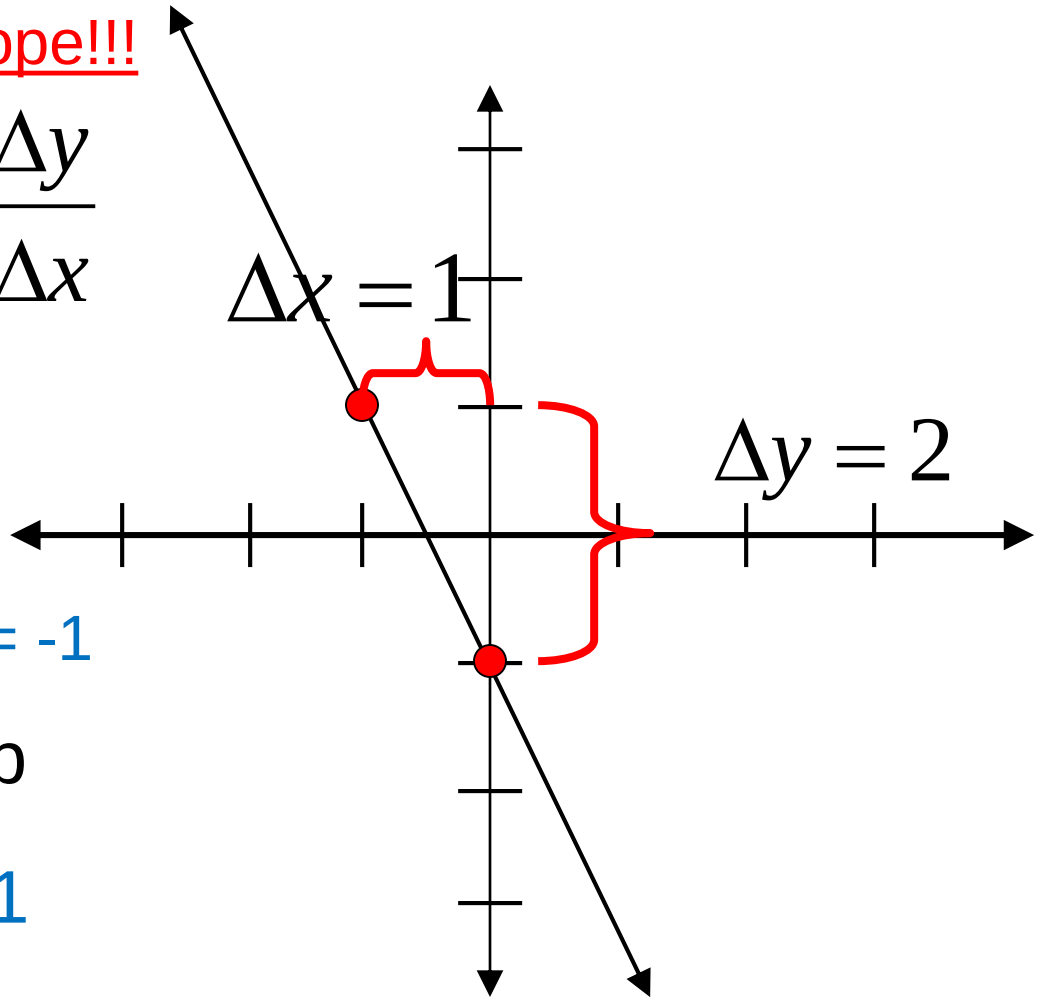
Find the equation of the line.

1. Find the slope: pick ANY 2 points.

Negative slope!!!

$$m = (-1)\frac{\Delta y}{\Delta x}$$

$$m = -2$$



Y-intercept = -1

y = mx + b

y = -2x – 1

Slope-Intercept Form (given a point and the slope).

What is the equation of a line that passes through the point (3, 4) and has a slope of -2 ?

Step 1: write the general form of the equation.

$$y = mx + b$$

Step 2: Plug slope into the equation. $m = -2$

$$y = -2x + b$$

Step 3: The x-y pair will "make the equation true"
→ Plug the x-y pair into the equation.

$$4 = -2(3) + b$$

Step 4: Solve for 'b'. $b = 10$

Step 5: Write the equation. $y = -2x + 10$

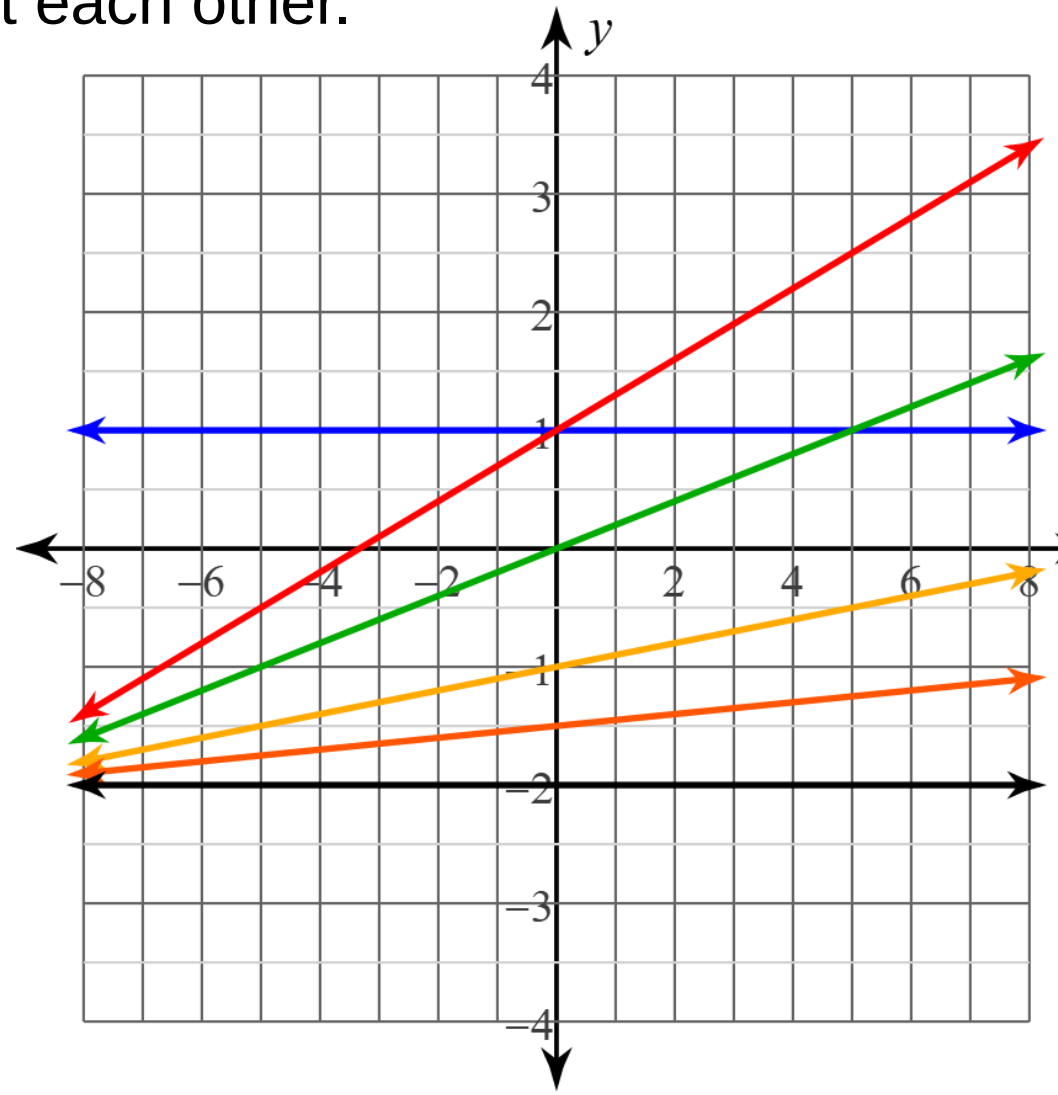
Find the x and y intercepts for the equation:
$3x - 2y = -6$

Find the slope of a line that passes thru

(3, 4) and (7, 0):

(-2, 3) and (4, -9)

Parallel lines do not intersect each other.



Which line is parallel to the line: y = 1 ?

Is the red line parallel?

Is the green line parallel?

Is the yellow line parallel?

Is the orange line parallel?

Is the black line parallel?

yes

How can you tell if the graphed lines are parallel?

Does the y-intercept help to make lines parallel? no

Parallel → same slope $y = mx + b$

Write the equation of a line that is parallel to the line $y = 2x + 1$ and passes through the point (0, 4)

Slope = 2 y-intercept = 4 $y = 2x + 4$

Write the equation of a line that is parallel to the line $y = 3x – 4$ and passes through the point (3, 8)

Slope = 3 y-intercept = ?? $y = 3x + b$

$(8) = 3(3) + b$ $8 = 9 + b$ $b = -1$ $y = 3x – 1$