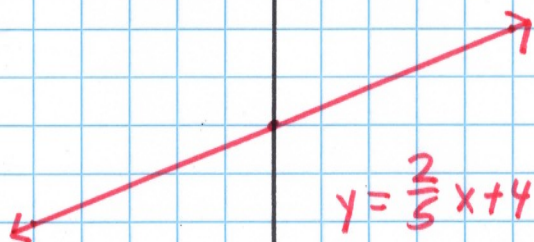
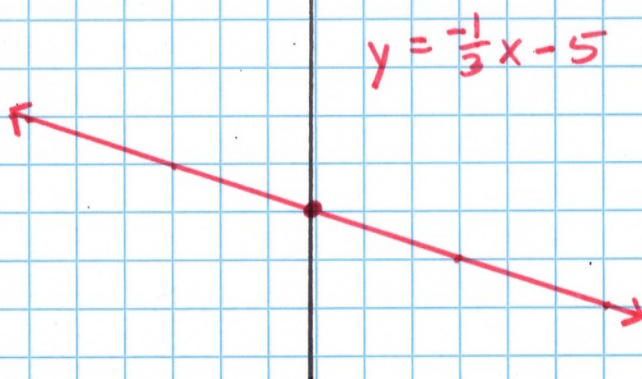


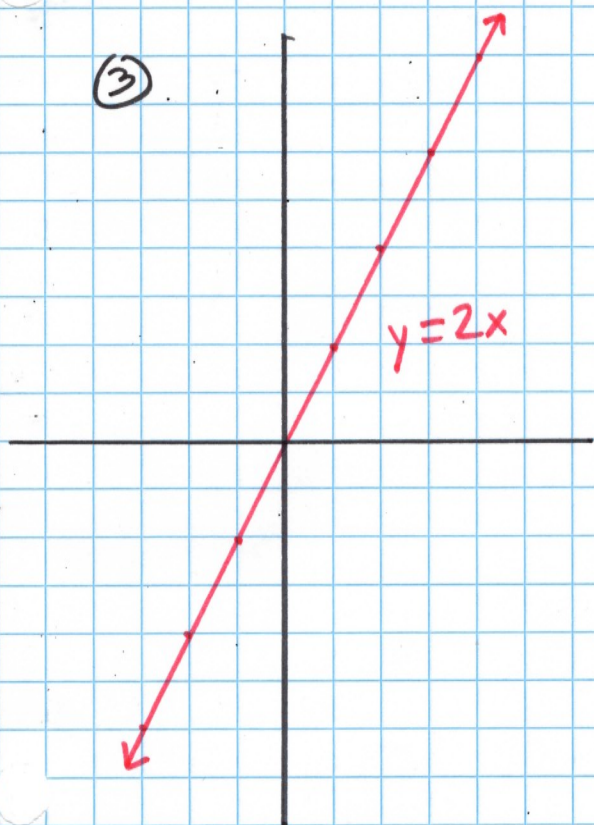
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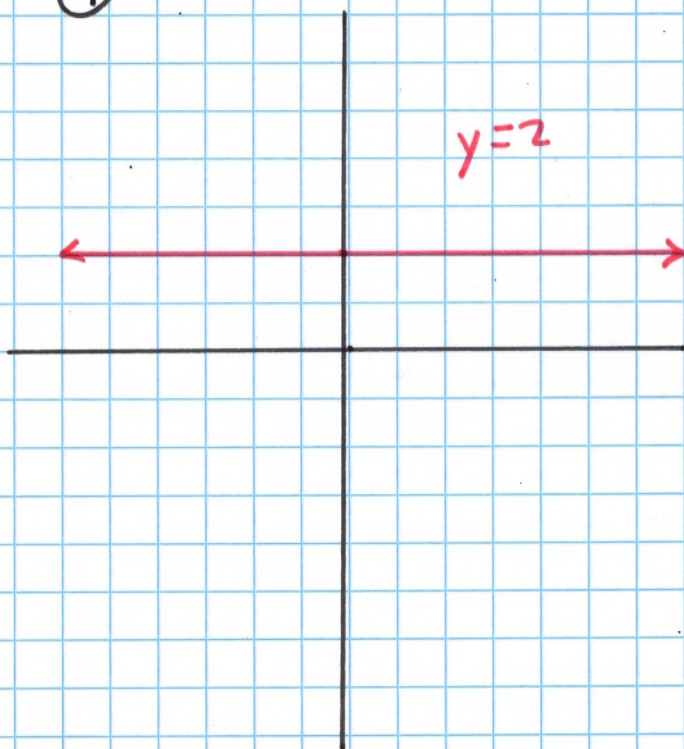
②



③



④



Slope - Intercept Form

$$y = mx + b$$

m stands for the slope

b stands for the point where the line crosses the y-axis (the y-intercept).

Graphing Lines

On graph paper, make ^{four} axes (like we do in class, so you can draw 4 separate graphs on one sheet).

Graph these lines.

1. $y = \frac{2}{5}x + 4$

2. $y = -\frac{1}{3}x - 5$

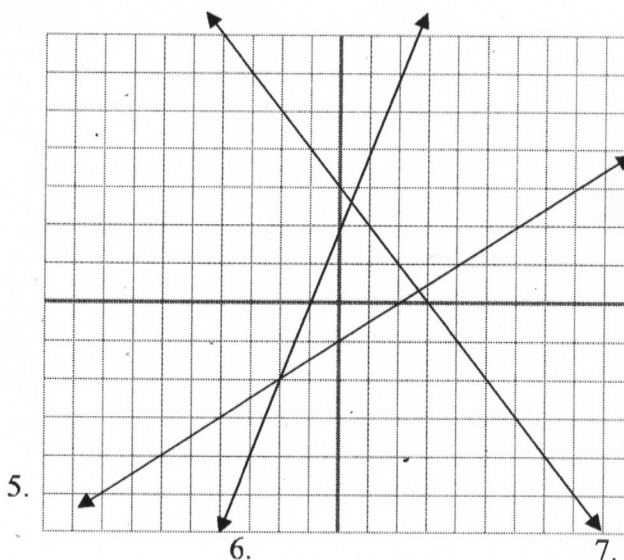
3. $y = 2x$

4. $y = 2$

Use the graph to find the slope and y-intercept of each line.

Then write the equation for the line.

Line	Equation $y = mx + b$
5.	$y = \frac{1}{2}x - 1$
6.	$y = 2x + 2$
7.	$y = -1x + 3$



Point-Slope Equation of a Line

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

m stands for the slope

(x_1, y_1) is a point on the line

Write the equation of each line in point-slope form.

8. The line passes through $(5, 11)$ and has a slope of $\frac{1}{2}$.

$$y - 11 = \frac{1}{2}(x + 5)$$

9. The line passes through $(-8, -7)$ and has a slope of -4 .

$$y + 7 = -4(x + 8)$$

10. The line passes through $(54, -18)$ and has a slope of $\frac{9}{4}$.

$$y + 18 = \frac{9}{4}(x - 54)$$

Changing Forms

Change from Point-Slope form to Slope-Intercept form.

(Just two steps: distribute to get rid of the parentheses, then add or subtract to get the y by itself.)

Show your work.

Change each line to slope-intercept form.

11. $y + 4 = 5(x - 6)$

Distribute
 $y + 4 = 5x - 30$

12. $y + 8 = \frac{1}{3}(x - 9)$

$$y + 8 = \frac{1}{3}x - 3$$

13. $y - 5 = -\frac{1}{2}(x + 4)$

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

solve for y .

$y = 5x - 34$
$y = \frac{1}{3}x - 5$
$y = -\frac{1}{2}x + 3$

Line through Two Points

To write the equation of a line through two points, calculate the slope between the two points, then use the slope and one of the points in the Point-Slope equation.

Write the equation of the line that passes through the given points.

14. $(2, 1)$ and $(9, 10)$

$$y - 1 = \frac{9}{7}(x - 2)$$

OR $y - 10 = \frac{9}{7}(x - 9)$

15. $(-6, 8)$ and $(2, -2)$

$$y - 8 = -\frac{5}{4}(x + 6)$$

OR $y + 2 = -\frac{5}{4}(x - 2)$

16. $(-10, 4)$ and $(4, 10)$

$$y - 4 = \frac{3}{7}(x + 10)$$

OR $y - 10 = \frac{3}{7}(x - 4)$