

Name: \_\_\_\_\_

## Unit 5 – Review

### Equation of a line:

Slope intercept form:  $y = mx + b$

Slope-point form:  $y - y_1 = m(x - x_2)$

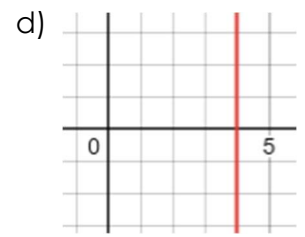
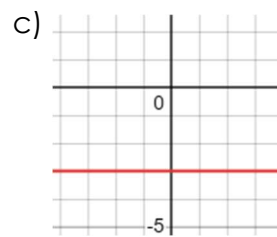
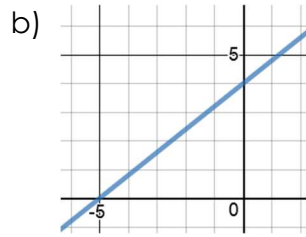
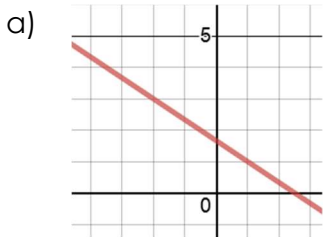
General Form:  $Ax + By + C = 0$

### Slope of a line:

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

Show your work and simplify answers where necessary.

1. Find the slope of each line.



2. Using the formula, determine the slope of the line that passes through:

a)  $A(-6, -8)$  and  $B(-1, 2)$

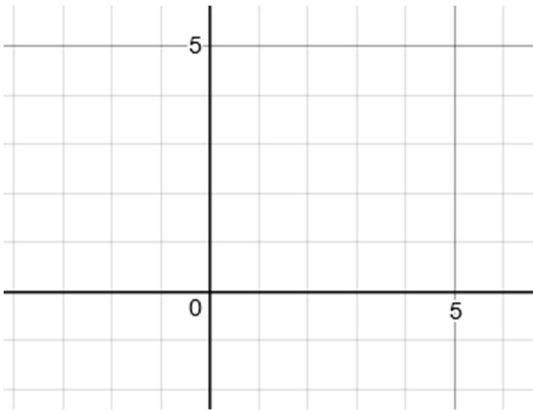
b)  $C(-3, 7)$  and  $D(5, -5)$

3. Determine if the following lines are parallel, perpendicular, or neither. Justify your answer.

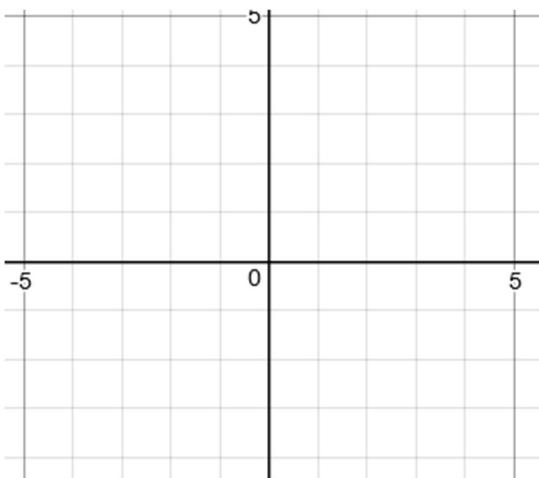
a)  $J(-3, 3)$  &  $K(-1, 7)$  and  $L(-1, 2)$  &  $M(5, -1)$

b)  $P(-4, -2)$  &  $Q(-1, 7)$  and  $R(2, 5)$  &  $S(4, -1)$

4. The vertices of triangle  $ABC$  are  $A(-1, 1)$ ,  $B(2, 5)$ , and  $C(6, 3)$ . Is triangle  $ABC$  a right triangle? Justify your answer using the slopes of the sides.



5. The vertices of quadrilateral  $ABCD$  are  $A(-4, 1)$ ,  $B(-1, 4)$ ,  $C(1, 0)$ , and  $D(-3, -4)$ . Is quadrilateral  $ABCD$  a parallelogram? Justify your answer using the slopes of the sides.



6. Sketch the graph of each linear function. Determine the slope and y-intercept of each function.

a)  $y = -3x + 4$

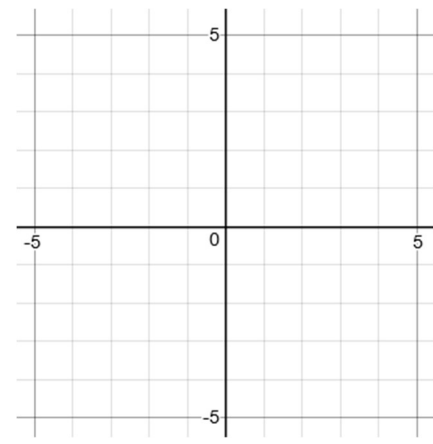
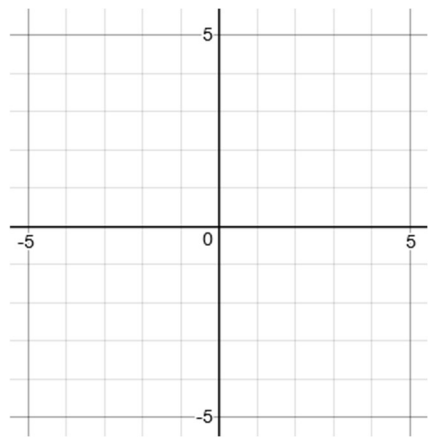
b)  $y = \frac{3}{4}x - 5$

Slope : \_\_\_\_\_

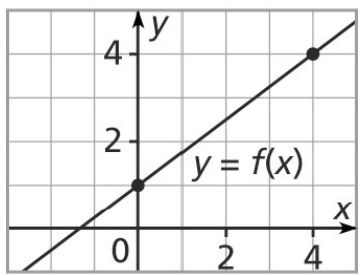
Slope: \_\_\_\_\_

Y-intercept : \_\_\_\_\_

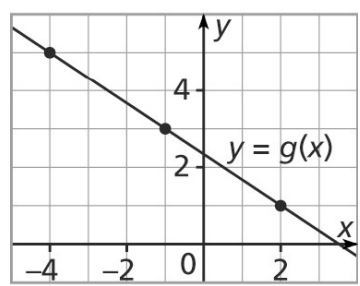
Y-intercept: \_\_\_\_\_



7. a) Write an equation in slope-intercept form for the graph below.



b) Write an equation in slope-point form and in slope-intercept form for the graph below.



8. Write each equation in #7 in general form.

9. Write an equation for the line that passes through point  $A (-2, 3)$  and is perpendicular to  $y = 2x + 1$ .

a) Slope-point form

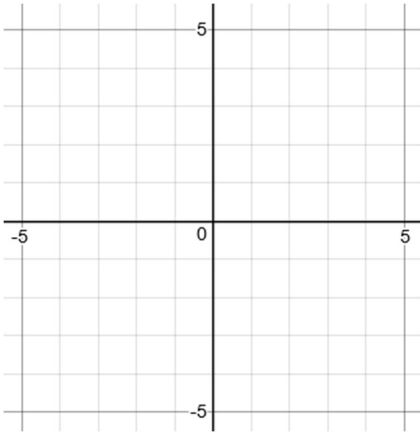
b) Slope-intercept form

10. Write an equation for the line that passes through point  $E (-4, -3)$  and is parallel to  $y + 1 = \frac{5}{7}(x - 4)$ .

a) Slope-point form

b) Slope-intercept form

11. Write an equation in slope-point form for a line whose x-intercept is  $-3$  and the y-intercept is  $5$ .  
Sketch the line.



12. Given each of the following linear functions:

i)  $y - 4 = 2(x + 3)$

ii)  $y + 1 = -\frac{1}{3}(x - 4)$

- a) Identify the slope and a point that the line passes through

slope: \_\_\_\_\_

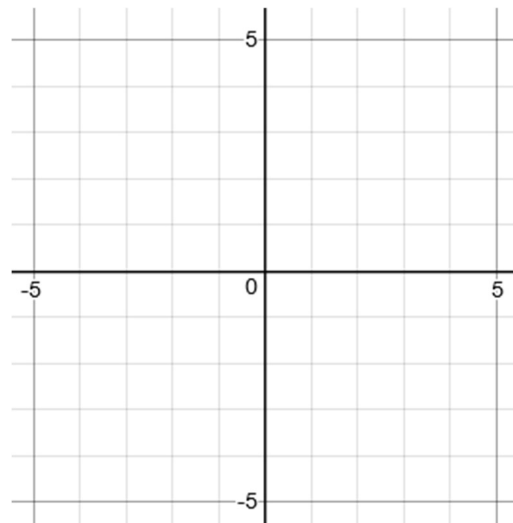
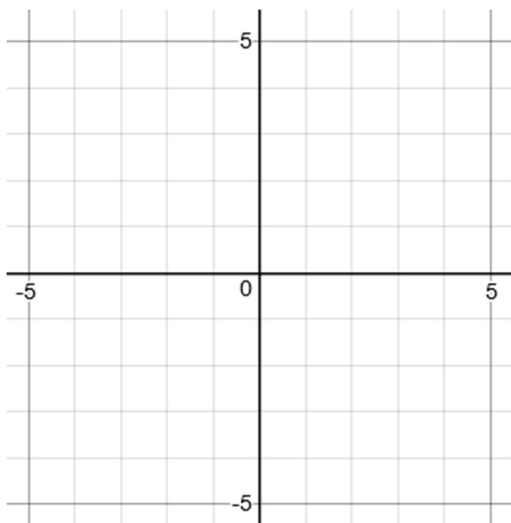
slope: \_\_\_\_\_

a point: \_\_\_\_\_

a point: \_\_\_\_\_

- b) Write each equation in slope-intercept form.

- c) Sketch each line.



13. Write each equation in general form.

a)  $y = \frac{1}{5}x + 3$

b)  $\frac{1}{4}x + y = 2$

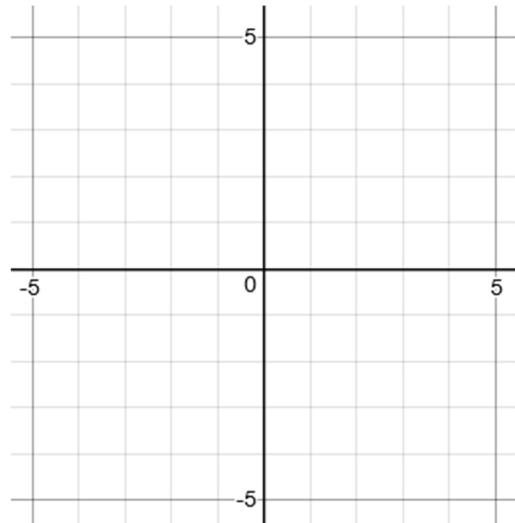
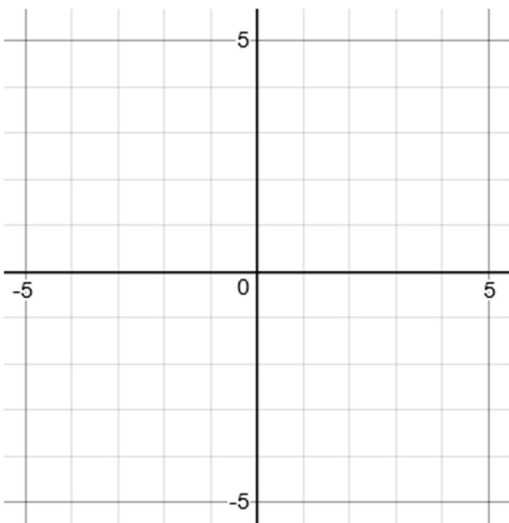
c)  $y - 2 = \frac{1}{3}(x + 4)$

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

14. Determine the coordinates of the intercepts (y-intercept and x-intercept) of each line. Sketch the graph of each linear function.

a)  $2x - 4y - 8 = 0$

b)  $x - 3y + 12 = 0$



15. Billy had 40\$ in his bank account and then he started to save 15\$ per week.

a) Write an equation (slope-intercept form) to represent the total amount,  $m$  dollars, in his bank account after  $w$  weeks.

b) Using the equation you made in (a), how much will Billy have saved in 2 years?

c) Using the equation you made in (a), after how many weeks will he have 355\$ in his account?

16. For a home visit, a plumber will charge 75\$ plus \$40 per hour of work.

a) Write an equation in slope-intercept form that represents total cost,  $C$  dollars, as a function of hours worked,  $h$ .

b) Using the equation you made in (a), how many hours does the plumber have to work to earn 335\$ ?