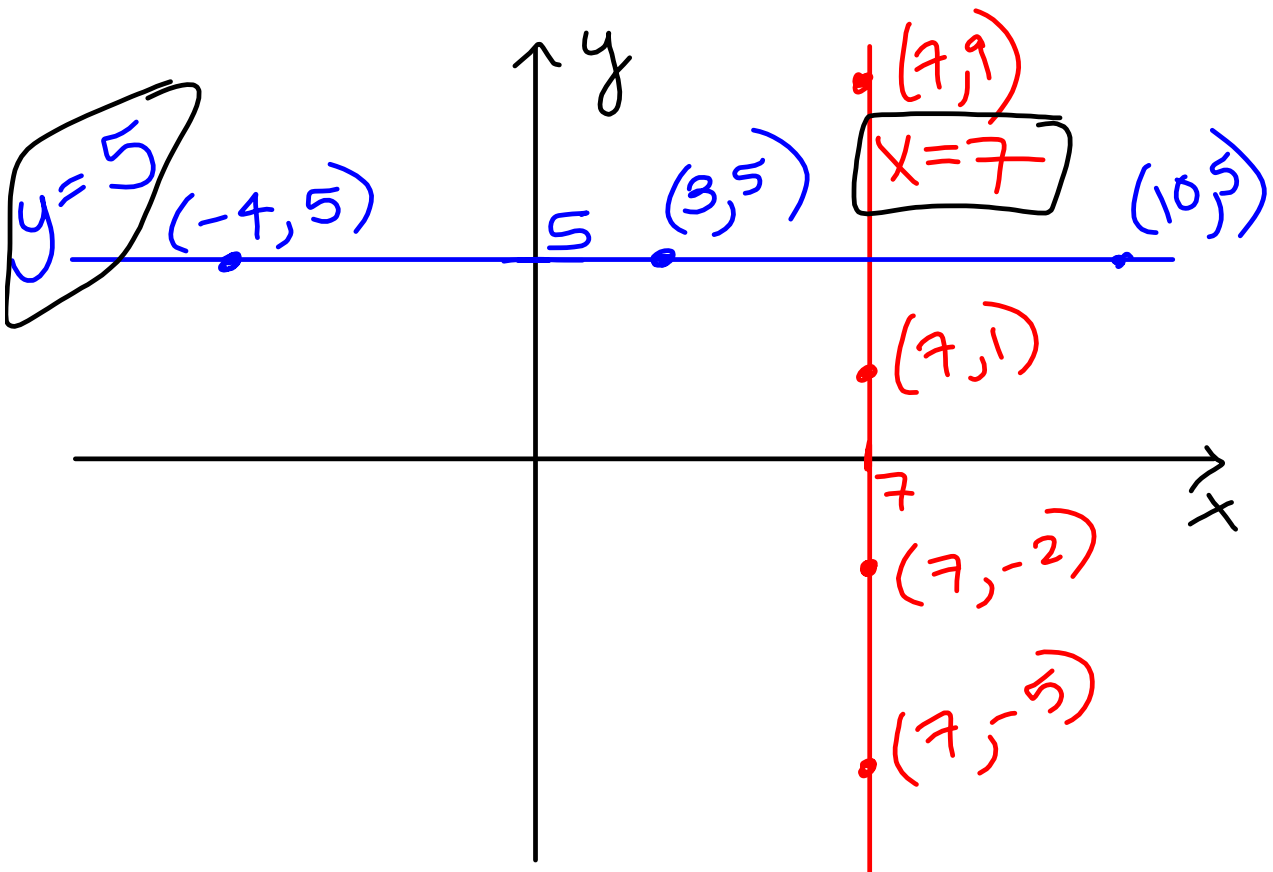


- H 1. slope-intercept formula
- N 2. slope
- R 3. point-slope formula
- O 4. additive inverse
- H 5. multiplicative inverse
- H 6. distributive property
- T 7. associativity
- X 8. dependent
- L 9. distance formula
- Q 10. horizontal line
- P 11. inconsistent
- K 12. midpoint formula
- H 13. conditional
- S 14. contradiction
- S 15. vertical line
- S 16. multiplicative identity

- ~~A.  $\frac{y_2 - y_1}{x_2 - x_1}$~~  **nothing!**
- ~~B.  $x = c$~~
- C. **independent** system of equations with only one solution
- D.  $a + b = b + a$  **commutativity**
- ~~E. equation that is true for only some values of x~~
- ~~F.  $a(b + c) = ab + ac$~~
- G. 0 **additive identity**
- ~~H.  $y = mx + b$~~
- ~~I.  $1/a$~~
- ~~J. equation that is never true~~
- ~~K. system of equations with infinitely many solutions~~ **(x, mx+b)**
- ~~L.  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$~~
- M. **identity** equation that is always true
- ~~N.  $\frac{y_2 - y_1}{x_2 - x_1}$~~
- ~~O. a~~
- ~~P. system of equations with no solution~~
- ~~Q.  $y = c$~~
- ~~R.  $y = y_1 + m(x - x_1)$~~
- ~~S. 1~~
- ~~T.  $a + (b + c) = (a + b) + c$~~
- ~~U.  $(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$~~



17. Solve for  $x$ .  $4[3 + 5(3 - x) + 2x] = 2 - 2x$

$$4[3 + 15 - 5x + 2x] = 2 - 2x$$

$$4[18 - 3x] = 2 - 2x$$

$$72 - 12x = 2 - 2x$$

$$70 = 10x$$

$$x = 7$$

18. State whether each of the following relations is a function (yes or no).

a.  $\{(1,2), (2,3), (3,4), (4,2)\}$

yes

b.  $\{(7,5), (7,4), (7,3), (7,2)\}$

no

c.  $\{(2,1), (3,1), (4,1), (5,1)\}$

yes

19. Evaluate  $F(-3)$ , given that  $F(x) = x^2 + 4x - 5$ .

$$F(-3) = (-3)^2 + 4(-3) - 5 \Rightarrow (-3, -8)$$

$$= 9 - 12 - 5 = -8$$

is a point on the graph of  $f$ .20. Find the distance between the points  $P_1(-4,4)$  and  $P_2(1,2)$ .

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$= \sqrt{(1 - (-4))^2 + (2 - 4)^2} = \sqrt{5^2 + (-2)^2} = \sqrt{25 + 4} = \sqrt{29}$$

$$\sqrt{24} = \sqrt{4 \cdot 6} = \sqrt{4} \cdot \sqrt{6} = 2\sqrt{6}$$

21. Find the midpoint of the line segment between the points  $P_1(3, -7)$  and  $P_2(-1, 5)$ .

$$\left( \frac{3 + (-1)}{2}, \frac{-7 + 5}{2} \right) = \left( \frac{2}{2}, \frac{-2}{2} \right) = (1, -1)$$

22. What values are excluded from the domain of the function? List your answer(s) using the roster method.

a.  $g(x) = \frac{2x+6}{3}$   $\emptyset$

b.  $G(x) = \frac{1}{4-x}$   $\{4\}$

c.  $f(x) = \frac{x-5}{x+9}$   $\{-9\}$

domain:  $\mathbb{R}$

domain:  $\{x | x \neq 4\} = (-\infty, 4) \cup (4, \infty)$

domain:  $\{x | x \neq -9\} = (-\infty, -9) \cup (-9, \infty)$

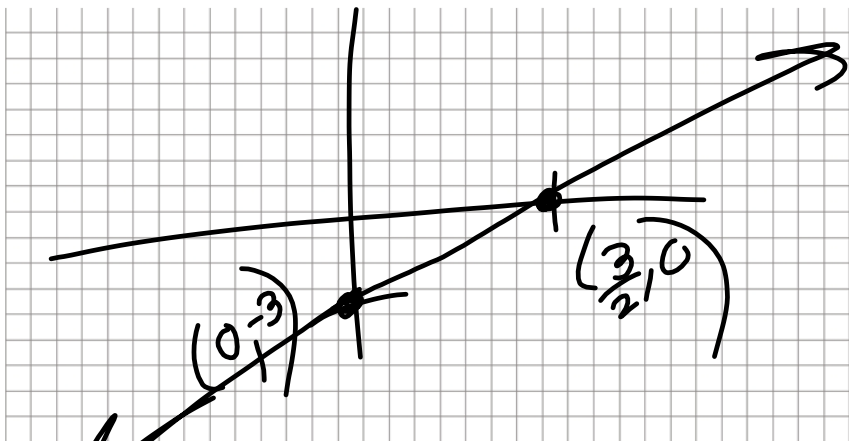
23. State the domain of the function  $f(x) = \frac{x-1}{x+2}$  in interval notation.

$(-\infty, -2) \cup (-2, \infty)$

24. Find the range of the function  $f(x) = \frac{5}{1-x}$ , where the domain is restricted to the set  $\{-2, 0, 2\}$ . List your answers using the roster method.

range = output of domain  
range:  $\{5/3, 5, -5\}$

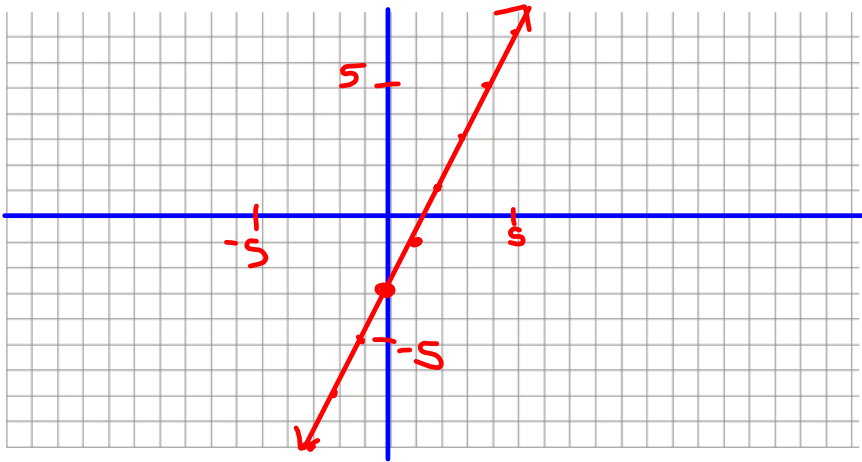
25. Graph the linear function  $2x - y = 3$ . Include labels on axes to indicate your scale, and label with an ordered pair  $(x, y)$  the coordinates of each of the points you used to draw your line.



x-int:  $2x - 0 = 3$   
 $x = 3/2$

y-int:  $2(0) - y = 3$   
 $y = -3$

25. Graph the linear function  $2x - y = 3$ . Include labels on axes to indicate your scale, and label with an ordered pair  $(x, y)$  the coordinates of each of the points you used to draw your line.



$$2x - y = 3$$

$$-y = -2x + 3$$

$$y = 2x - 3$$

y-int:  
 $(0, -3)$

slope:  $\frac{2}{1}$

26. Find the x- and y-intercepts of the function  $3x + 4y = -8$ .

x-intercept:

$$(x, 0) \quad \left(-\frac{8}{3}, 0\right)$$

y-intercept:

$$(0, y) \quad (0, -2)$$

27. Find the slope of the line containing the points  $(-2, 5)$  and  $(3, -1)$ .

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

28. Find the equation of the line that has slope 0 and passes through the point  $(-4, 7)$ .

$$y = 7$$

29. Find the equation of the line that is parallel to the line  $2x - 3y = 2$  and passes through the point  $(6, -4)$ .

$$m = \frac{2}{3} \quad y - y_1 = m(x - x_1) \quad -3y = -2x + 2$$

$$y - (-4) = \frac{2}{3}(x - 6)$$

$$y + 4 = \frac{2}{3}x - 4$$

$$y = \frac{2}{3}x - 8$$

30. Solve the system of equations. If it exists, give your solution as an ordered pair  $(x, y)$ .

$$\begin{cases} 3x + 2y = 5 \\ 2x - 3y = -14 \end{cases} \begin{matrix} (2) \\ (-3) \end{matrix} \Rightarrow$$

$$\begin{array}{r} 6x + 4y = 10 \\ -6x + 9y = 42 \\ \hline 13y = 52 \\ y = 4 \end{array}$$

$$3x + 2(4) = 5$$

$$3x = 5 - 8$$

$$3x = -3$$

$$x = -1$$

$$(-1, 4)$$

$$2x + y = 3$$

$$4x + 2y = 6$$

$$0 = 0$$

$$(x, -2x + 3)$$