

Algebra Test 1 Solutions Spring 2020

1. a) True

b) False, counter-example $x=5$.

2. $(4+7)-7 = 11-7 = 4$ ✓

$(\sqrt{49})^2 = (7)^2 = 49$ ✓

3. $-8x = 16$

$x = -2$

4. $3 \cdot \frac{1}{3}x = 5 \cdot 3$

$x = 15$

5. $6x + 4 = 16$

$\begin{array}{r} -4 \quad -4 \\ \hline \end{array}$

$6x = 12$

$x = 2$

6. $-2x - 3 = 4x - 5$

$\begin{array}{r} -4x + 3 \quad -4x + 3 \\ \hline \end{array}$

$-6x = -2$

$x = \frac{2}{6}$

$x = \frac{1}{3}$

$$7. \quad 3(2x+4) = -6 + 12x$$

$$\begin{array}{r} 6x + 12 = -6 + 12x \\ -12x - 12 \quad -12 - 12x \end{array}$$

$$\begin{array}{r} -6x = -18 \\ \underline{-6} \quad \underline{-1} \\ \boxed{x=3} \end{array}$$

$$8. \quad \begin{array}{|c|} \hline 40\% \\ \hline 20L \\ \hline \end{array} + \begin{array}{|c|} \hline 0\% \\ \hline x \\ \hline \end{array} = \begin{array}{|c|} \hline 10\% \\ \hline 20+x \\ \hline \end{array}$$

$$(0.4)(20) + (0)(x) = 0.1(20+x)$$

$$\begin{array}{r} 8 = 2 + 0.1x \\ -2 \quad -2 \end{array}$$

$$\begin{array}{r} 6 = 0.1x \\ 0.1 \quad 0.1 \end{array}$$

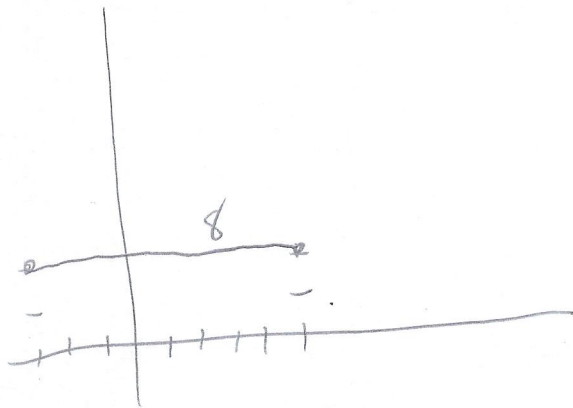
$$\boxed{60 = x}$$

$$9. \quad \begin{array}{r} 4x + 2y = 8 \\ -4x \quad -4x \end{array}$$

$$\boxed{\frac{2y}{2} = \frac{8-4x}{2}} \rightarrow y = 4 - 2x$$

10. IV

11.



$$12. \quad 2 \cdot 2 + 8 \stackrel{?}{=} 16$$

$$4 + 8 \stackrel{?}{=} 16 \times \boxed{No}$$

$$13. \quad -3x = 2y + 8 \quad x = -2$$

$$(-3)(-2) = 2y + 8$$

$$6 = 2y + 8$$

$$\begin{array}{r} 6 \\ -8 \\ \hline -2 \end{array} = \begin{array}{r} 2y \\ -8 \\ \hline \end{array}$$

$$\boxed{-2 = 2y}$$

$$\boxed{-1 = y}$$

$$14. \quad f(5) = 3 \cdot 5 - 4 = \boxed{11}$$

$$15. \quad f(2) = 2^2 - 2 + 1 = 4 - 2 + 1 = \boxed{3}$$

16.

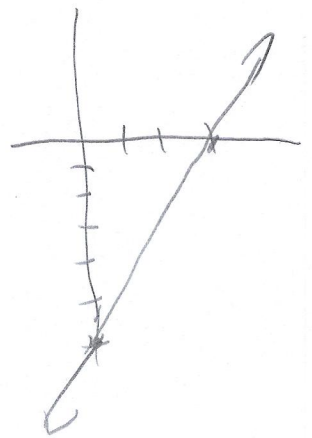
16. $y = 2x - 6$

a) x-int $y = 0$

$$\begin{array}{r} 0 = 2x - 6 \\ +6 \quad +6 \\ \hline 6 = 2x \\ \boxed{3 = x} \end{array}$$

b) y-int $x = 0$ c)

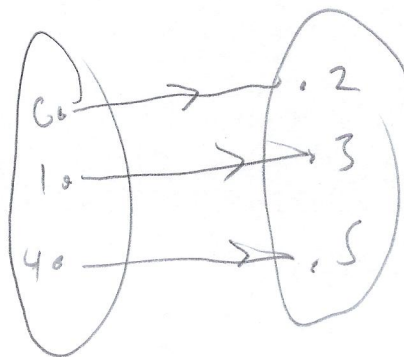
$$\begin{array}{l} y = 2 \cdot 0 - 6 \\ y = -6 \end{array}$$



17. a) $D = \{0, 1, 4\}$

b) $R = \{2, 3, 5\}$

c) Yes



18 a) $D = \{1, 3, 4\}$

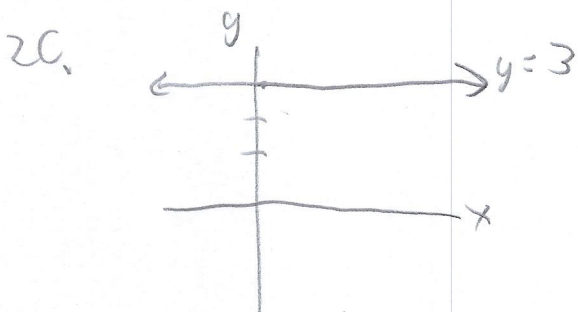
$R = \{1, 4\}$ Yes

b) $D = \{1, 3, 4\}$

$R = \{5, 10, 4\}$ Yes

c) $D = \{1, 2\}$

$R = \{3, 4, 6\}$ No



21. The square root.