Algebra 1 – Chapter 1

Lesson 1

Name: Answer Key

Solve the equation. Check your solution.

1. $P + 7 = -9$
   $-7 \quad -7$
   $\boxed{P = -16}$

2. $0 = k - 2$
   $+2 \quad +2$
   $\boxed{2 = k}$

3. $-10 = w + 1$
   $-1 \quad -1$
   $\boxed{-11 = w}$

4. $G + (-3) = 4$
   $G - 3 = 4$
   $+3 \quad +3$
   $\boxed{g = 7}$

5. $-14 = -9 + q$
   $+9 \quad +9$
   $\boxed{-5 = q}$

6. $S - (-12) = 15$
   $S + 12 = 15$
   $-12 \quad -12$
   $\boxed{S = 3}$

Solve the equation. Check your solution.

7. $\frac{-32}{4} = \frac{4y}{4}$
   $\boxed{-8 = y}$

8. $\frac{r}{-8} = 5$ $\cdot -8$ $\cdot -8$
   $\boxed{r = -40}$

9. $\frac{k}{3} = 4$ $\cdot 3$ $\cdot 3$
   $\boxed{k = 12}$

10. $\frac{5t}{5} = \frac{-7.5}{5}$
    $t = -1.5$

11. $\frac{9}{-1} = \frac{-b}{-1}$
    $\boxed{-9 = b}$

12. $-100 = \frac{p}{10}$ $\cdot 10$ $\cdot 10$
    $\boxed{-1000 = p}$

Algebra 1 – Chapter 1

Lesson 1

Solve the equation. Check your solution.

13. $\left(k - \frac{4}{7} = \frac{2}{7}\right)7$

$7k - 4 = 2$

$+4 \quad +4$

$\frac{7k}{7} = \frac{6}{7}$ $\boxed{k = \frac{6}{7}}$

14. $-\frac{2}{9}d = 18 \cdot \frac{-9}{2}$

$-9/2$

$\boxed{d = -81}$

15. $2\left(h + \frac{\pi}{2} = \frac{\pi}{2}\right)$

$2h + \pi = \pi$

$-\pi \quad -\pi$

$\frac{2h}{2} = \frac{0}{2}$ $\boxed{h = 0}$

16. 4 + 12 ÷ 2 = -5v

$4 + 6 = -5v$

$\frac{10}{-5} = \frac{-5v}{-5}$

$\boxed{-2 = v}$

17. a + 8 = 9 · 3 - 10

$a + 8 = 27 - 10$

$a + 8 = 17$

$-8 \quad -8$

$\boxed{a = 9}$

Algebra 1 – Chapter 1

Lesson 2

Name: Answer key

Solve the equation. Check your solution.

1. $8 = \frac{t}{-3} + 4$

$-4 \quad -4$

$\cdot -3 \quad 4 = \frac{t}{-3} \cdot -3$

$\boxed{-12 = t}$

2. $\frac{p+5}{-2} = 9$ $\cdot -2$ $\cdot -2$

$p + 5 = -18$

$-5 \quad -5$

$\boxed{p = -23}$

3. 3k + 2k = 60

$\frac{5k}{5} = \frac{60}{5}$

$\boxed{k = 12}$

4. -43 = 12 - 6p + p

$-43 = 12 - 5p$

$-12 \quad -12$

$\frac{-55}{-5} = \frac{-5p}{-5}$

$\boxed{11 = p}$

5. 28 = 8b + 13b - 35

$28 = 21b - 35$

$+35 \quad +35$

$\frac{63}{21} = \frac{21b}{21}$ $\boxed{b = 3}$

6. -11j - 6 + 3j = -30

$-8j - 6 = -30$

$+6 \quad +6$

$\frac{-8j}{-8} = \frac{-24}{-8}$

$\boxed{j = 3}$

Solve the equation. Check your solution.

7. 12 - 5(3r + 2) = 17

$12 - 15r - 10 = 17$

$2 - 15r = 17$

$-2 \quad -2$

$\frac{-15r}{-15} = \frac{15}{-15}$ $\boxed{r = -1}$

8. 3(x - 2) + 5(2 - x) = 16

$3x - 6 + 10 - 5x = 16$

$-2x + 4 = 16$

$-4 \quad -4$

$\frac{-2x}{-2} = \frac{12}{-2}$ $\boxed{x = -6}$

9 3 = -1(v - 4) + 4(2v - 9)

$3 = -v + 4 + 8v - 36$

$3 = 7v - 32$

$+32 \quad +32$

$\frac{35}{7} = \frac{7v}{7}$

$\boxed{5 = v}$

10. 6(q - 7) - 3(4 - q) = 0

$6q - 42 - 12 + 3q = 0$

$9q - 54 = 0$

$+54 \quad +54$

$\frac{9q}{9} = \frac{54}{9}$

$\boxed{q = 6}$

Algebra 1 – Chapter 1

Lesson 2

Write and solve an equation to find the number.

11. Seven plus the quotient of a number and 5 is -12.

$7 + \frac{x}{5} = -12$

$-7 \qquad -7$

$5 \cdot \frac{x}{5} = -19 \cdot 5$

$\boxed{x = -95}$

12. The difference of three times a number and half the number is 60.

$2(3x - \frac{1}{2}x = 60)$

$6x - x = 120$

$\frac{5x}{5} = \frac{120}{5}$

$\boxed{x = 24}$

13. Eight times the difference of a number and 3 is 40.

$\frac{8(x-3)}{8} = \frac{40}{8}$

$x - 3 = 5$

$+3 \quad +3$

$\boxed{x = 8}$

Algebra 1 – Chapter 1
Lesson 3
Name: Answer Key

Solve the equation. Check your solution.

1. $5t + 7 = 3t - 9$

$-3t \quad -3t$

$2t + 7 = -9$

$-7 \quad -7$

$\frac{2t}{2} = \frac{-16}{2}$

$\boxed{t = -8}$

2. $-8u + 3 = 2u - 17$

$-2u \quad -2u$

$-10u + 3 = -17$

$-3 \quad -3$

$\frac{-10u}{-10} = \frac{-20}{-10}$

$\boxed{u = 2}$

3. $6w + 3 - 10w = 7w - 8$

$-4w + 3 = 7w - 8$

$-7w \quad -7w$

$-11w + 3 = -8$

$-3 \quad -3$

$\frac{-11w}{-11} = \frac{-11}{-11}$

$\boxed{w = 1}$

4. $-a + 4a - 9 = 8a + 6$

$3a - 9 = 8a + 6$

$-8a \quad -8a$

$-5a - 9 = 6$

$+9 \quad +9$

$\frac{-5a}{-5} = \frac{15}{-5}$

$\boxed{a = -3}$

5. $9(k - 2) = 3(k + 4)$

$9k - 18 = 3k + 12$

$-3k \quad -3k$

$6k - 18 = 12$

$+18 \quad +18$

$\frac{6k}{6} = \frac{30}{6}$

$\boxed{k = 5}$

6. $-2(x - 4) = 7(x - 4)$

$-2x + 8 = 7x - 28$

$-7x \quad -7x$

$-9x + 8 = -28$

$-8 \quad -8$

$\frac{-9x}{-9} = \frac{-36}{-9}$

$\boxed{x = 4}$

7. $\frac{2}{3}(3 - 6x) = -3(8x - 4)$

$2 - 4x = -24x + 12$

$+24x \quad +24x$

$2 + 20x = 12$

$-2 \quad -2$

$\frac{20x}{20} = \frac{10}{20}$

$\boxed{x = \frac{1}{2}}$

8. $8(3g + 2) - 3g = 3(5g - 4) - 2$

$24g + 16 - 3g = 15g - 12 - 2$

$21g + 16 = 15g - 14$

$-15g \quad -15g$

$6g + 16 = -14$

$-16 \quad -16$

$\frac{6g}{6} = \frac{-30}{6}$

$\boxed{g = -5}$

Algebra 1 – Chapter 1

Lesson 3

Solve the equation, if possible. Determine whether the equation has *one solution, no solution, or infinitely many solutions.*

9. $5(2f + 3) = 2(5f - 1)$

$10f + 15 = 10f - 2$

$-10f \quad -10f$

$\boxed{15 \neq -2 \quad \text{No Sol}}$

10. $\frac{1}{3}(12 - 24v) = -2(v - 2)$

$4 - 8v = -2v + 4$

$+2v \quad +2v$

$4 - 6v = 4$

$-4 \quad -4$

$\frac{-6v}{-6} = \frac{0}{-6}$

$\boxed{v = 0 \quad \text{one Sol}}$

11. $3(k + 1) + 11k = 2(4 + 5k) + 3$

$3k + 3 + 11k = 8 + 10k + 3$

$14k + 3 = 14 + 10k$

$-10k \quad -10k$

$4k + 3 = 14$

$-3 \quad -3$

$\frac{4k}{4} = \frac{11}{4}$

$\boxed{k = \frac{11}{4} \quad \text{one Sol}}$

$14k + 3 = 11 + 10k$

$-10k \quad -10k$

$4k + 3 = 11$

$-3 \quad -3$

$\frac{4k}{4} = \frac{8}{4}$

$k = 2$

12. $-4(-m + 2) + 2m = -\frac{1}{2}(10 - 12m) - 3$

$4m - 8 + 2m = -5 + 6m - 3$

$6m - 8 = -8 + 6m$

$-6m \quad -6m$

$\boxed{-8 = -8 \quad \text{Infinitely Many}}$

Algebra 1 – Chapter 1

Lesson 4 – Day 1

Name: Answer Key

Solve the equation.

1. $|p - 3| = 10$

$p-3=10$, $+3 \quad +3$, $\boxed{p=13}$

$p-3=-10$, $+3 \quad +3$, $\boxed{p=-7}$

2. $|-2k| = 6$

$\frac{-2k}{-2}=\frac{6}{-2}$, $\boxed{k=-3}$

$\frac{-2k}{-2}=\frac{-6}{-2}$, $\boxed{k=3}$

3. $|6f| = -2$

No Sol

4. $\left|\frac{g}{5}\right| = 3$

$5 \cdot \frac{g}{5} = 3 \cdot 5$, $\boxed{g=15}$

$5 \cdot \frac{g}{5} = -3 \cdot 5$, $\boxed{g=-15}$

5. $|-a + 2| + 9 = 6$

$-9 \quad -9$

$\boxed{|-a+2| = -3}$

No Sol

6. $\frac{3|4 - 3m|}{3} = \frac{30}{3}$

$|4-3m| = 10$

$4-3m=10$, $-4 \quad -4$, $\frac{-3m}{-3}=\frac{6}{-3}$, $\boxed{m=-2}$

$4-3m=-10$, $-4 \quad -4$, $\frac{-3m}{-3}=\frac{-14}{-3}$, $\boxed{m=\frac{14}{3}}$

7. $-4|5g - 12| = -12$

$+4 \quad +4$

$|5g-12| = 3$

$5g-12=3$, $+12 \quad +12$, $\frac{5g}{5}=\frac{15}{5}$, $\boxed{g=3}$

$5g-12=-3$, $+12 \quad +12$, $\frac{5g}{5}=\frac{9}{5}$, $\boxed{g=9/5}$

8. $|x - 3| + 9 = 30$

$-9 \quad -9$

$|x-3| = 21$

$x-3=21$, $+3 \quad +3$, $\boxed{x=24}$

$x-3=-21$, $+3 \quad +3$, $\boxed{x=-18}$

9. $3|2d - 6| + 2 = 2$

$-2 \quad -2$

$\frac{3|2d-6|}{3}=\frac{0}{3}$

$|2d-6|=0$

$2d-6=0$, $+6 \quad +6$, $\frac{2d}{2}=\frac{6}{2}$, $\boxed{d=3}$

10. $7|2c - 6| + 4 = 32$

$-4 \quad -4$

$\frac{7|2c-6|}{7}=\frac{28}{7}$

$|2c-6|=4$

$2c-6=4$, $+6 \quad +6$, $\frac{2c}{2}=\frac{10}{2}$, $\boxed{c=5}$

$2c-6=-4$, $+6 \quad +6$, $\frac{2c}{2}=\frac{2}{2}$, $\boxed{c=1}$

Algebra 1 – Chapter 1
Lesson 4, Day 2 Answer Key

11. A company manufactures penny number 2 nails that are 1 inch in length. The actual length is allowed to vary by up to 1/32 inch.

a. Write and solve an absolute value equation to find the minimum and maximum acceptable nail length.

$\left|x+\frac{1}{32}\right| = 1$

$x+\frac{1}{32} = 1$, $-\frac{1}{32}$ $-\frac{1}{32}$

$x = \frac{32}{32} - \frac{1}{32}$

$x = \frac{31}{32}$

$x+\frac{1}{32} = -1 - \frac{1}{32}$

$-\frac{1}{32}$

$x = -\frac{32}{32} - \frac{1}{32}$

$x = -\frac{33}{32}$

b. A penny number 2 nail is 1.05 inches long. Is the nail acceptable? Explain.

No, cannot be more than 1.03

Solve the equation. Check your solutions.

12. $|9w - 4| = |2w + 10|$

$9w-4 = 2w+10$
$-2w \quad -2w$
$7w-4 = 10$
$+4 \quad +4$
$\frac{7w}{7} = \frac{14}{7}$
$\boxed{w=2}$

$9w-4 = -(2w+10)$
$9w-4 = -2w-10$
$+2w \quad +2w$
$11w-4 = -10$
$+4 \quad +4$
$11w = -6$
$\boxed{w = \frac{-6}{11}}$

13. $2|n + 7| = |4n + 8|$

$2(n+7) = 4n+8$
$2n+14 = 4n+8$
$-4n \quad -4n$
$-2n+14 = 8$
$-14 \quad -14$
$\frac{-2n}{-2} = \frac{-6}{-2}$
$\boxed{n=3}$

$2(n+7) = -(4n+8)$
$2n+14 = -4n-8$
$+4n \quad +4n$
$6n+14 = -8$
$-14 \quad -14$
$\frac{6n}{6} = \frac{-22}{6}$
$\boxed{n = \frac{22}{6} \Rightarrow \frac{11}{3}}$

14. $3|3t + 1| = 2|6t + 3|$

$3(3t+1) = 2(6t+3)$
$9t+3 = 12t+6$
$-12t \quad -12t$
$-3t+3 = 6$
$-3 \quad -3$
$\frac{-3t}{-3} = \frac{3}{-3}$
$\boxed{t=-1}$

$3(3t+1) = -2(6t+3)$
$9t+3 = -12t-6$
$+12t \quad +12t$
$21t+3 = -6$
$-3 \quad -3$
$\frac{21t}{21} = \frac{-9}{21}$
$\boxed{t = \frac{-9}{21} \Rightarrow \frac{-3}{7}}$

15. $|5r + 3| = 2r$

$5r+3 = 2r$
$-5r \quad -5r$
$\frac{3}{-3} = \frac{-3r}{-3}$
$\boxed{\cancel{-1=r}}$

$5r+3 = -2r$
$-5r \quad -5r$
$\frac{3}{-7} = \frac{-7r}{-7}$
$\boxed{\cancel{-\frac{3}{7}=r}}$

No Sol

16. $|j - 5| = |j + 9|$

$j-5 = j+9$
$-j \quad -j$
$\boxed{\cancel{-5=9}}$

$j-5 = -(j+9)$
$j-5 = -j-9$
$+j \quad +j$
$2j-5 = -9$
$+5 \quad +5$
$\frac{2j}{2} = \frac{-4}{2}$
$\boxed{j=-2}$

17. $|2k + 4| = |2k + 3|$

$2k+4 = 2k+3$
$-2k \quad -2k$
$\boxed{\cancel{4=3}}$

$2k+4 = -(2k+3)$
$2k+4 = -2k-3$
$+2k \quad +2k$
$4k+4 = -3$
$-4 \quad -4$
$\frac{4k}{4} = \frac{-7}{4}$
$\boxed{k = \frac{-7}{4}}$

Algebra 1 – Chapter 1
Lesson 5
Name: Answer Key

Solve the literal equation for y.

1. $3y - 9x = 24$

$+9x = +9x$

$\frac{3y}{3} = \frac{9x}{3} + \frac{24}{3}$

$\boxed{y = 3x + 8}$

2. $10 - 2y = 46$

$-10 \quad -10$

$\frac{-2y}{-2} = \frac{36}{-2}$

$\boxed{y = -18}$

3. $3x + 5 = 9 - 4y$

$-9 \quad -9$

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

$\boxed{-\frac{3}{4}x + 1 = y}$

4. $-5x + 7y = 8x + 7$

$+5x \quad +5x$

$\frac{7y}{7} = \frac{13x}{7} + \frac{7}{7}$

$\boxed{y = \frac{13}{7}x + 1}$

5. $3 + \frac{1}{5}y = 2x + 4$

$-3 \quad -3$

$5\left(\frac{1}{5}y\right) = (2x + 1)5$

$\boxed{y = 10x + 5}$

6. $10 - \frac{1}{3}y = 4 + 6x$

$-10 \quad -10$

$-3\left(-\frac{1}{3}y\right) = (-6 + 6x)-3$

$\boxed{y = 18 - 18x}$

Solve the literal equation for x.

7. $G = 4x + 5xy$

$\frac{G}{4+5y} = \frac{x(4+5y)}{4+5y}$

$\boxed{\frac{G}{4+5y} = x}$

8. $W = 4ax - 9x$

$\frac{W}{4a-9} = \frac{x(4a-9)}{4a-9}$

$\boxed{\frac{W}{4a-9} = x}$

9. $z = 6x + px + 2$

$-2 \quad -2$

$z - 2 = 6x + px$

$\frac{z-2}{6+p} = \frac{x(6+p)}{6+p}$

$\boxed{\frac{z-2}{6+p} = x}$

10. $t = 10 + 7x - qx$

$-10 \quad -10$

$t - 10 = 7x - qx$

$\frac{t-10}{7-q} = \frac{x(7-q)}{7-q}$

$\boxed{\frac{t-10}{7-q} = x}$

Algebra 1 – Chapter 1

Lesson 5

11. $ax - bx = k$

$\frac{x(a-b)}{a-b} = \frac{k}{a-b}$

$\boxed{x = \frac{k}{a-b}}$

12. $p = qx + rx + s$

$-s \qquad -s$

$p - s = qx + rx$

$\frac{p-s}{q+r} = \frac{x(q+r)}{q+r}$

$\boxed{\frac{p-s}{q+r} = x}$

13. $11 - 4x - 3jx = w$

$-11 \qquad -11$

$-4x - 3jx = w - 11$

$\frac{x(-4-3j)}{-4-3j} = \frac{w-11}{-4-3j}$

$\boxed{x = \frac{w-11}{-4-3j}}$

14. $x - 8 + 3wx = y$

$+8 \qquad +8$

$x + 3wx = y + 8$

$\frac{x(1+3w)}{1+3w} = \frac{y+8}{1+3w}$

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

15. Describe and correct the error in solving the equation for x.

X

$k = ax + bx + d$

$k = x(a + b + d)$

$x = \frac{k}{a + b + d}$

Need to subtract d first

$k - d = ax + bx$

$\frac{k-d}{a+b} = \frac{x(a+b)}{a+b}$

$\boxed{\frac{k-d}{a+b} = x}$

Solve the equation for the indicated variable.

16. Simple interest: $I = prt$; Solve for r.

$\frac{I}{pt} = \frac{prt}{pt}$

$\boxed{\frac{I}{pt} = r}$

17. Volume of a box: $V = lwh$; Solve for w.

$\frac{V}{lh} = \frac{lwh}{lh}$

$\boxed{\frac{V}{lh} = w}$

18. Heron's formula: $2S = a + b + c$; Solve for b.

$-a \qquad -c$

$\boxed{2S - a - c = b}$

19. Coulomb's Law: $F = k\frac{q_1 q_2}{d^2}$; Solve for k

$F = k\left(\frac{q_1 q_2}{d^2}\right) \cdot \frac{d^2}{q_1 q_2}$

$F\left(\frac{d^2}{q_1 q_2}\right) = k$

$\boxed{\frac{Fd^2}{q_1 q_2} = k}$

Algebra 1 – Chapter 2
Lesson 1
Name: Answer Key

Write the sentence as an inequality.

1. A number x plus 10 is more than 2.

$x+10>2$

2. Twelve is no less than the sum of a number n and 3.

$12 \geq n+3$

3. One-half of a number p is at least 100.

$\frac{1}{2}p \geq 100$

4. Six is greater than or equal to the quotient of a number y and 2.5.

$6 \geq \frac{y}{2.5}$

Tell whether the value is a solution of the inequality.

5. $-5 \leq -\frac{z}{3}$; $z = 2$

$-5 \leq -\frac{2}{3}$

Yes

6. $\frac{10}{r} \geq 1$; $r = 5$

$\frac{10}{5} \geq 1$

$2 \geq 1$

Yes

7. $21 \geq -4t + 3$; $t = -6$

$21 \geq -4(-6)+3$

$21 \geq 24+3$

$21 \geq 27$

No

8. $-9 \div (3a) > -2$; $a = 3$

$-9 \div 3(-3) > -2$

$-9 \div -9 > -2$

$1 > -2$

Yes

9. $12 < \frac{18}{3g} + 12$; $g = -2$

$12 < \frac{18}{3(-2)}$

$12 < \frac{18}{-6}$

$12 < -3$

No

10. $\frac{4n}{8} + 3 \leq 2$; $n = 4$

$\frac{4(4)}{8} + 3 \leq 2$

$\frac{16}{8} + 3 \leq 2$

$3+3 \leq 2$

$6 \leq 2$

No

Algebra 1 – Chapter 2

Lesson 1

Graph the inequality.

11. $-2 \geq k$

-2

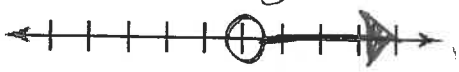
12. $-4 < f$

-4

13. $m \leq -3$

-3

14. $-y < 3$ $\quad y > -3$



-3

15. $\frac{1}{3} \geq j$

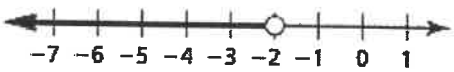
$\frac{1}{3}$

16. $n < -|-4|$ $\quad n < -4$

-4

Write an inequality that represents the graph.

17.



$x < -2$

18.

$x \geq 1$

– Chapter 2

2

me: Answer Key

olve the inequality. Graph the solution.

1. $W + 6 \le 2$

$w + 6 \le 2$
$-6 \quad -6$
$w \le -4$

2. $M - 3 > 6$

$m - 3 > 6$
$+3 \quad +3$
$m > 9$

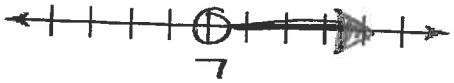
3. $4 < 4 + s$

$4 < 4 + s$
$-4 \quad -4$
$0 < s \rightarrow s > 0$

4. $7 \le x + 15$

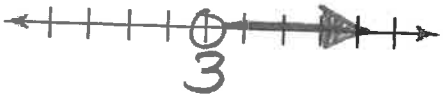
$7 \le x + 15$
$-15 \quad -15$
$-8 \le x \rightarrow x \ge -8$

5. $p - (-3) > 10$



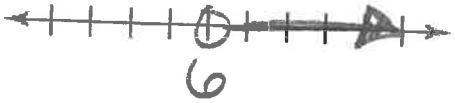
$p + 3 > 10$
$-3 \quad -3$
$p > 7$

6. $Q + 6 - 5 > 4$



$Q + 6 - 5 > 4$
$Q + 1 > 4$
$-1 \quad -1$
$Q > 3$

7. $3 - 11 + t > -2$



$3 - 11 + t > -2$
$-8 + t > -2$
$+8 \quad +8$
$t > 6$

8. $4 \le 6a - 4a - 2$

$4 \le 6a - 4a - 2$
$4 \le 2a - 2$
$+2 \quad +2$
$\frac{6}{2} \le \frac{2a}{2}$
$3 \le a \rightarrow a \ge 3$

Algebra 1 – Chapter 2

Lesson 2

Write the sentence as an inequality. Then solve the inequality.

9. A number plus 10 is less than 34.

$x+10<34$

10. A number minus 8 is at least 14.

$x-8\geq 14$

11. The sum of a number and 7 is less than 15.

$x+7<15$

12. Nine is less than or equal to the difference of a number and 1.

$9\leq x-1$

13. You order a new pair of running shoes from a website that offers free shipping on order of $75 or more. Your shoes cost $69.95.

a. Write and solve an inequality that represents how much more you must spend to get free shipping.

$69.95+x\geq 75$

b. The cost of shipping your shoes is $7.79. Would you purchase another item in order to get free shipping? Explain.

$69.95+7.79$

77.74

$75-69.95=5.05$

Yes if I can find something less than 7.79, otherwise no.

Algebra 1 – Chapter 2

Lesson 3

Name: Answer Key

Solve the inequality. Graph the solution.

1. $56 \le 8b$

7

$\frac{56}{8} \le \frac{8b}{8}$

$7 \le b \rightarrow b \ge 7$

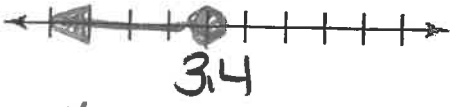
2. $-14 < 7t$

-2

$\frac{-14}{7} < \frac{7t}{7}$

$-2 < t \rightarrow t > -2$

3. $\frac{x}{2} \le 1.7$



3.4

$2 \cdot \frac{x}{2} \le 1.7 \cdot 2$

$x \le 3.4$

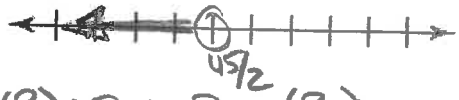
4. $\frac{p}{2} \ge -3$

-6

$2 \cdot \frac{p}{2} \ge -3 \cdot 2$

$p \ge -6$

5. $15 > \frac{2}{3}w$



45/2

$\left(\frac{3}{2}\right)15 > \frac{2}{3}w\left(\frac{3}{2}\right)$

$\frac{45}{2} > w \rightarrow w < \frac{45}{2}$

6. $-22 \le \frac{11}{2}h$ $-\frac{44}{2}$

$\left(\frac{2}{11}\right) -22 \le \frac{11}{2}h\left(\frac{2}{11}\right)$

$-\frac{44}{11} \le h \rightarrow h \ge -\frac{44}{11}$

7. $-21 < -7a$

3

$\frac{-21}{-7} < \frac{-7a}{-7}$

$3 > a \rightarrow a < 3$

8. $-18 > -6u$

3

$\frac{-18}{-6} > \frac{-6u}{-6}$

$3 < u \rightarrow u > 3$

9. $\frac{n}{-2} < 3$

$-2 \cdot \frac{n}{-2} < 3 \cdot -2$

$n > -6$

-6

10. $\frac{w}{-3} > 3$ -3

$\frac{w}{-3} > 3 \cdot -3$

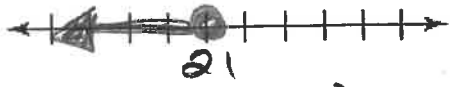
$w < -9$

-9

Algebra 1 – Chapter 2

Lesson 3

11. $-7 \le -\frac{1}{3}c$



$(3)-7 \le -\frac{1}{3}c(-3)$

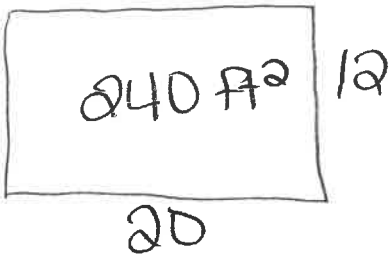
$21 \ge c \rightarrow c \le 21$

12. $-15 > -\frac{3}{5}a$

$(-\frac{5}{3})-15 > -\frac{3}{5}a(-\frac{5}{3})$

$25 < a \rightarrow a > 25$

13. You have $850 to buy new carpet for the game room. The dimensions of the game room are 20 feet by 12 feet. Write and solve an inequality that represents the costs per square foot that you can pay for the new carpet. Specify the units of measure.



$\frac{240a}{240} \le \frac{850}{240}$

$a \le \$3.54$ per sq foot

Algebra 1 – Chapter 2
Lesson 4
Name: Answer key

Match the inequality with its graph.

1. $5(4 - y) < 25$

$20 - 5y < 25$
$-20 \quad -20$
$\frac{-5y}{-5} < \frac{5}{-5}$

$\boxed{y > -1}$ B

2. $-9k + 5 > 14$

$-9k + 5 > 14$
$-5 \quad -5$
$\frac{-9k}{-9} > \frac{9}{-9}$

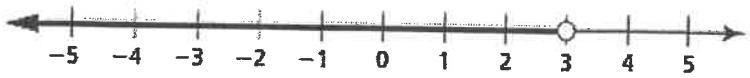
$\boxed{k < -1}$ C

3. $2(x - 7) < -8$

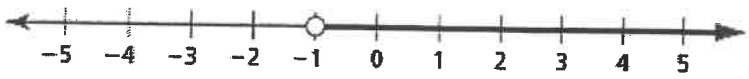
$2x - 14 < -8$
$+14 \quad +14$
$\frac{2x}{2} < \frac{6}{2}$

$\boxed{x < 3}$ A

A.



B.



C.

Solve the inequality.

4. $6 < -5t - 4$

$+4 \quad +4$
$\frac{10}{-5} < \frac{-5t}{-5}$

$\boxed{-2 > t}$

5. $\frac{m}{4} + 2 < 3$

$-2 \quad -2$
$4 \cdot \frac{m}{4} < 1 \cdot 4$

$\boxed{m < 4}$

6. $5 + \frac{k}{-2} \geq 2$

$-5 \quad -5$
$\frac{k}{-2} \geq -3 \cdot -2$

$\boxed{k \leq 6}$

7. $\frac{d}{-6} + 7 < 11$

$-7 \quad -7$
$\cdot -6 \; \frac{d}{-6} < 4 \cdot -6$

$\boxed{d > -24}$

8. $4 < -2(y + 3)$

$4 < -2y - 6$
$+6 \quad +6$
$\frac{10}{-2} < \frac{-2y}{-2}$

$\boxed{-5 > y}$

9. $24 \geq 6(w - 2)$

$24 \geq 6w - 12$
$+12 \quad +12$
$\frac{36}{6} \geq \frac{6w}{6}$

$\boxed{6 \geq w}$

Algebra 1 – Chapter 2
Lesson 4

Solve the inequality.

10. $-5n - 4 > 7n + 20$

$+4 \quad +4$

$-5n > 7n + 24$

$-7n \quad -7n$

$\frac{-12n}{-12} > \frac{24}{-12}$

$\boxed{n < -2}$

11. $4k - 6 < 3k + k - 1$

$4k - 6 < 4k - 1$

$-4k \quad -4k$

$\boxed{\begin{array}{c} -6 < -4 \\ \text{ARN} \end{array}}$

12. $10h - 3h + 6 \geq 11 + 7h$

$7h + 6 \geq 11 + 7h$

$-7h \quad -7h$

$\boxed{\begin{array}{c} 6 \geq 10 \\ \text{No Sol} \end{array}}$

13. $6(t - 1) \leq 2(d + 12)$

$6d - 6 \leq 2d + 24$

$-2d \quad -2d$

$4d - 6 \leq 24$

$+6 \quad +6$

$\frac{4d}{4} \leq \frac{30}{4}$

$d \leq \frac{30}{4} \rightarrow \boxed{d \leq \frac{15}{2}}$

14. $12(x - 2) > 3(4x - 8)$

$12x - 24 > 12x - 24$

$-12x \quad -12x$

$\boxed{\begin{array}{c} -24 > -24 \\ \text{No Sol} \end{array}}$

15. $6\left(\frac{1}{3}d + 4\right) > 2(d + 12)$

$2d + 24 > 2d + 24$

$-2d \quad -2d$

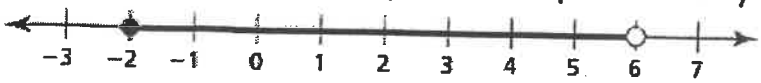
$\boxed{\begin{array}{c} 24 > 24 \\ \text{No Sol} \end{array}}$

Algebra 1 – Chapter 2

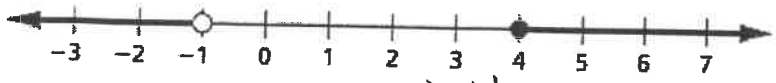
Lesson 5

Name: Answer Key

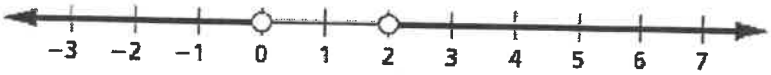
Write a compound inequality that is represented by the graph.

1. 

$-2 \le x < 6$

2. 

$x < -1$ or $x \ge 4$

3. 

$x < 0$ or $x > 2$

Write the sentence as an inequality. Graph the inequality.

4. A number d is less than or equal to 2 and greater than or equal to -2.

$-2 \le d \le 2$

5. A number m is no less than -1 or less than or equal to -16/3.

$m \ge -1$ or $m \le -\frac{16}{3}$

Algebra 1 – Chapter 2

Lesson 5

Solve the inequality. Graph the inequality.

6. $-2 \geq 10 - 3g \geq -8$

$-2 \geq 10 - 3g \geq -8$

$-10 \quad -10 \qquad -18$

$\frac{-12}{-3} \geq \frac{-3g}{-3} \geq \frac{-18}{-3}$

$4 \leq g \leq 6$

7. $-4 < 2p + 8 < 18$

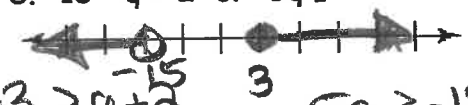
$-4 < 2p + 8 < 18$

$-8 \qquad -8 \quad -8$

$\frac{-12}{2} < \frac{2p}{2} < \frac{10}{2}$

$-6 < p < 5$

8. $-13 > q + 2$ or $5q \geq -15$



$-13 > q + 2$

$-2 \quad -2$

$-15 > q$

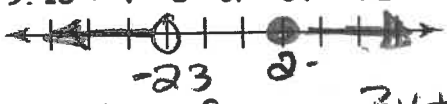
or

$q < -15$

$\frac{5q}{5} \geq \frac{-15}{5}$

$q \geq 3$

9. $15 < -v - 8$ or $3v + 4 \geq 10$



$15 < -v - 8$

$+8 \qquad +8$

$\frac{23}{-1} < \frac{-v}{-1}$

$-23 > v$

$v < -23$

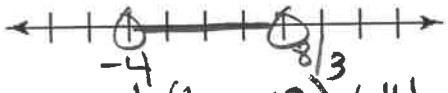
$3v + 4 \geq 10$

$-4 \quad -4$

$\frac{3v}{3} \geq \frac{6}{3}$

$v \geq 2$

10. $-6 < \frac{1}{2}(6y + 12) < 14$



$-6 < \frac{1}{2}(6y + 12) < 14$

$-6 < 3y + 6 < 14$

$-6 \quad -6 \qquad -6$

$\frac{-12}{3} < \frac{3y}{3} < \frac{8}{3}$

$-4 < y < 8/3$

11. $42 < 6(3 - k)$ or $\frac{1}{2}(14k - 8) \geq 10$

$42 < 6(3 - k)$

$42 < 18 - 6k$

$-18 \quad -18$

$\frac{24}{-6} < \frac{-6k}{-6}$

$-4 > k$

$k < -4$

$\frac{1}{2}(14k - 8) \geq 10$

$7k - 4 \geq 10$

$+4 \quad +4$

$\frac{7k}{7} \geq \frac{14}{7}$

$k \geq 2$

Algebra 1 – Chapter 2
Lesson 6
Name: Answer Key

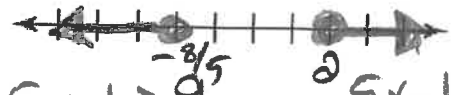
Solve the inequality. Graph the solution, if possible.

1. $|2x - 9| < -8$

No Sol

2. $|5x - 1| - 7 \geq 2$

$+7 \quad +7$



$5x - 1 \geq 9$ $\quad$ $5x - 1 \leq -9$

$+1 \quad +1$ $\quad$ $+1 \quad +1$

$\frac{5x}{5} \geq \frac{10}{5}$ $\quad$ $\frac{5x}{5} \leq \frac{-8}{-5}$

$x \geq 2$ $\quad$ $x \leq -8/5$

3. $|y - 2| + 11 > 0$

$y - 2 > -11$ $\quad$ $y - 2 < 11$

$+2 \quad +2$ $\quad$ $+2 \quad +2$

$y > -9$ $\quad$ $y < 13$

$-9 < y < 13$

4. $\frac{5|12 - r|}{5} > \frac{15}{5}$

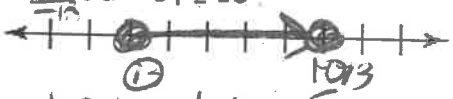
$12 - r > 3$ $\quad$ $12 - r < -3$

$-12 \quad -12$ $\quad$ $-12 \quad -12$

$\frac{-r}{-1} > \frac{-9}{-1}$ $\quad$ $\frac{-r}{-1} < \frac{-15}{-1}$

$r < 9$ $\quad$ $r > 15$

5. $\frac{-2|3d - 5|}{-2} \leq \frac{10}{-2}$



$|3d - 5| \geq -5$

$3d - 5 \geq -5$ $\quad$ $3d - 5 \leq 5$

$+5 \quad +5$ $\quad$ $+5 \quad +5$

$3d \geq 0$ $\quad$ $\frac{3d}{3} \leq \frac{10}{3}$

$d \geq 0$ $\quad$ $d \leq 10$

6. $3|2a + 8| - 11 \leq -5$

$+11 \quad +11$

$\frac{3|2a + 8|}{3} \leq \frac{6}{3}$

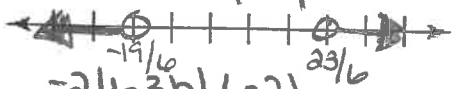
$-2 \leq 2a + 8 \leq 2$

$-8 \quad -8 \quad -8$

$\frac{-10}{2} \leq \frac{2a}{2} \leq \frac{-6}{2}$

$-5 \leq a \leq -3$

7. $\frac{-2|1 - 3h|}{-2} + \frac{9}{-2} < \frac{-12}{-2}$



$\frac{-2|1 - 3h|}{-2} < \frac{-21}{-2}$

$|1 - 3h| > \frac{21}{2}$

$1 - 3h > \frac{21}{2} - \frac{2}{2}$ $\quad$ $1 - 3h < -\frac{21}{2} - \frac{2}{2}$

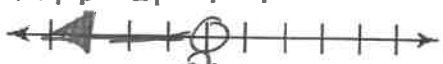
$-1 \quad -1$

$\frac{-3h}{-3} > \frac{19}{2} \cdot -\frac{1}{3}$ $\quad$ $\frac{-3h}{-3} < -\frac{23}{2} \cdot -\frac{1}{3}$

$h < -\frac{19}{6}$ $\quad$ $h > \frac{23}{6}$

8. $5|-p + 2| + 4 > 4$

$-4 \quad -4$



$\frac{5|-p + 2|}{5} > \frac{0}{5}$

$-p + 2 > 0$

$-2 \quad -2$

$\frac{-p}{-1} > \frac{-2}{-1}$

$p < 2$

Algebra 1 – Chapter 2

Lesson 6

Write the sentence as an absolute value inequality. Then solve the inequality.

9. A number is more than 12 units from 0.

$|x-0| > 12$

$x > 12 \qquad x < -12$

10. One-third of a number is at least 5 units from 31.

$\left|\frac{1}{3}x - 31\right| \geq 5$

$\frac{1}{3}x - 31 \geq 5$
$+31 \quad +31$

$3 \cdot \frac{1}{3}x \geq 36 \cdot 3$

$x \geq 108$

$\frac{1}{3}x - 31 \leq -5$
$+31 \quad +31$

$3 \cdot \frac{1}{3}x \leq 26 \cdot 3$

$x \leq 78$

11. Twice a number is no more than 7 units from 13.

$|2x - 13| \leq 7$

$-7 \leq 2x - 13 \leq 7$
$+13 \quad +13 \quad +13$

$\frac{6}{2} \leq \frac{2x}{2} \leq \frac{20}{2}$

$3 \leq x \leq 10$

Algebra 1 – Chapter 3A

Lesson 1, Day 1

Name: Answer Key

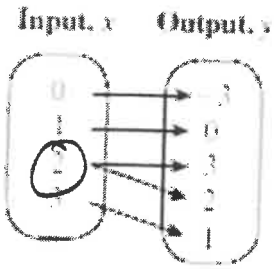
Date _____

Determine whether the relation is a function. Explain.

1. (1, -2), (2, 1), (3, 6), (4, 13), (5, 22)

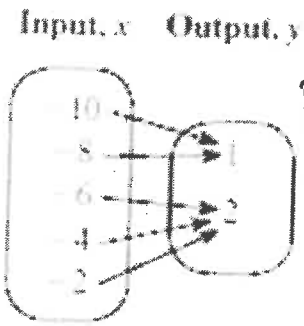
Function.
No repeating x

2.



Not a function
2 repeats

3.



Function
No repeating
x

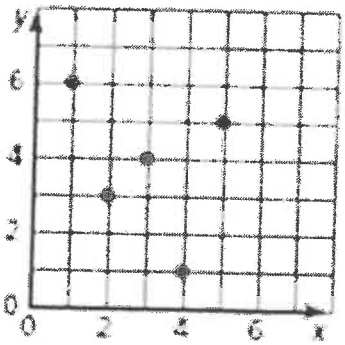
4.

Input, x	16	1	0	1	16
Output, y	-2	-1	0	1	2

Not a function
16 + 1 repeat

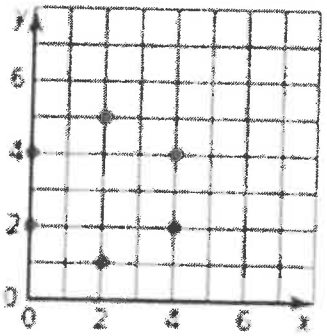
Determine whether the graph represents a function. Explain.

5.



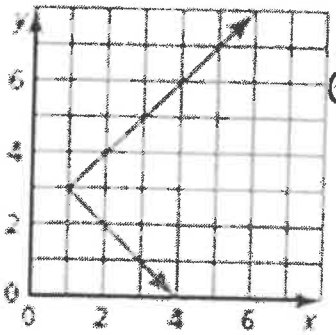
Function
vertical line
test

6.

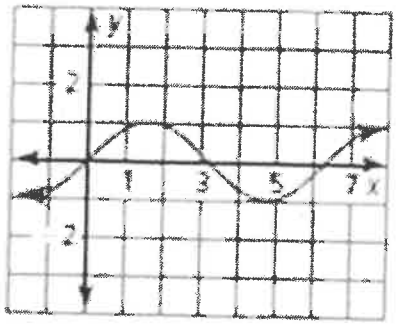


Not a function
does not pass
vert. Line
test

7.



Not a function.
does not pass
VLT

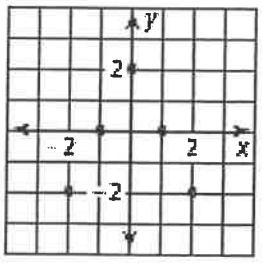


Function
passes
VLT

Algebra 1 – Chapter 3A
Lesson 1, Day 2

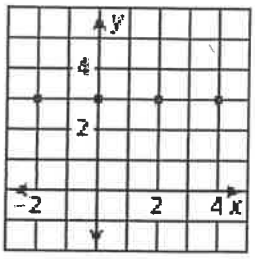
Find the domain and range of the function represented by the graph.

1.



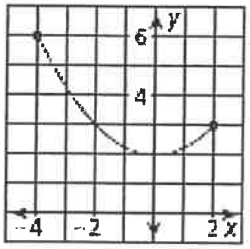
D: -2, 0, 2
R: -2, 0, 2

2.



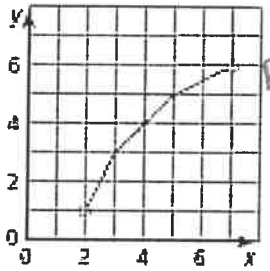
D: -2, 0, 2, 4
R: 3

3.



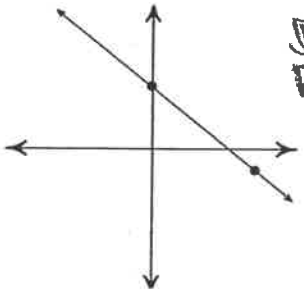
D: $-4 \le x \le 2$
R: $2 \le y \le 6$

4.



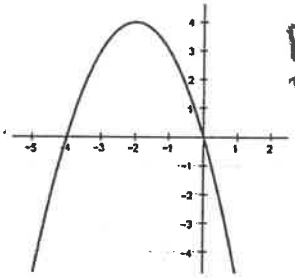
D: $2 < x < 7$
R: $1 < y < 6$

5.



D: ARN
R: ARN

6.



D: ARN
R: $y \le 4$

7. The function y = 25x + 500 represents your monthly rent y (in dollars) when you pay x days late.

a. Identify the independent and dependent variables.

y → dependant x → Independant

b. The domain is 0, 1, 2, 3, 4, and 5. What is the range?

R: 500, 525, 550, 575, 600, 625

Algebra 1 – Chapter 3A

Lesson 1, Day 2

8. The function 1.5x + 0.5y = 12 represents the number of hardcover books x and softcover books y you can buy at a used book sale.

a. Solve the equation for y.

$1.5x + 0.5y = 12$
$-1.5x \qquad -1.5x$

$\frac{0.5y}{0.5} = \frac{-1.5x}{0.5} + \frac{12}{0.5}$

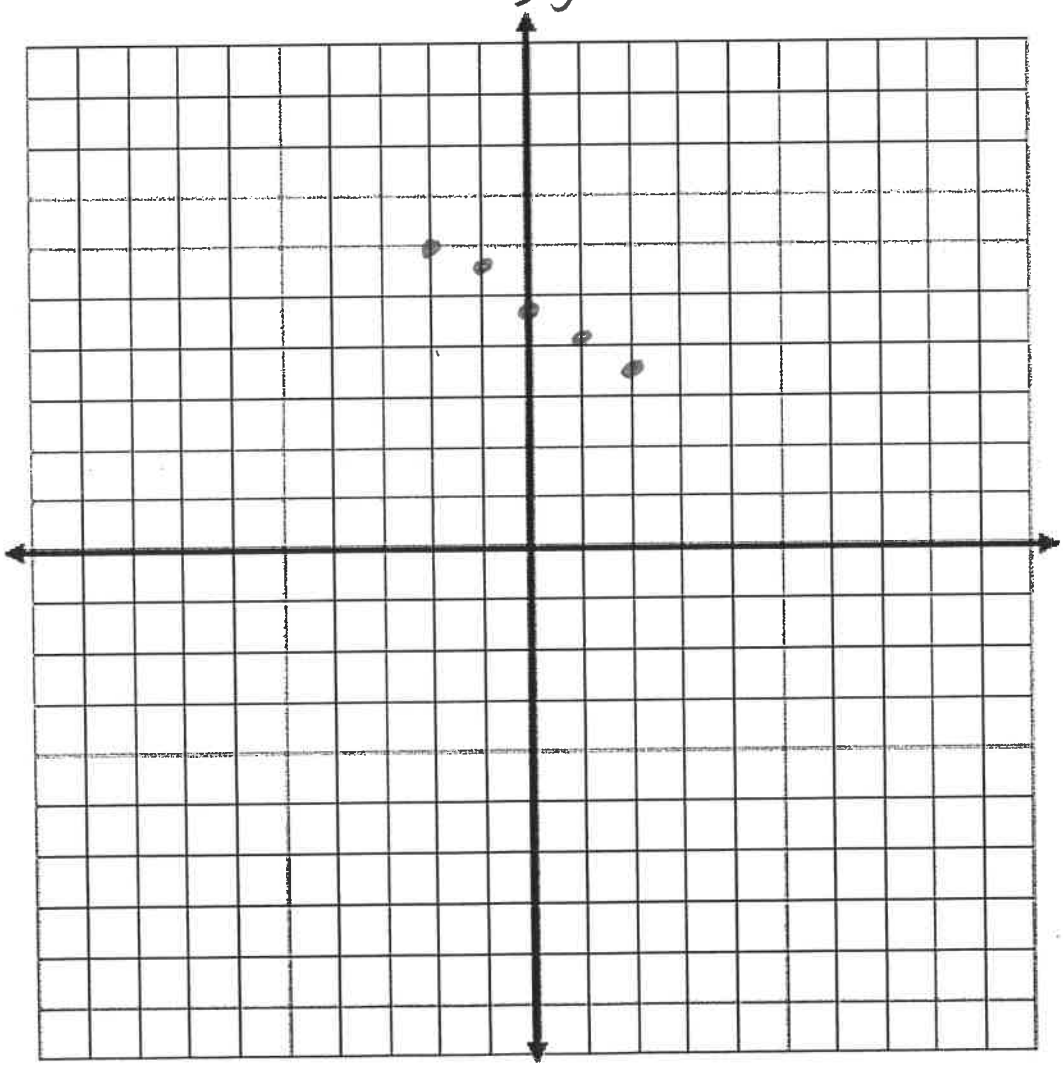
$\boxed{y = -3x + 24}$

b. Make an input-output table to find the ordered pairs for the function

x	-2	-1	0	1	2
y	30	27	24	21	18

c. Plot the ordered pairs in a coordinate plane

-scale by 5

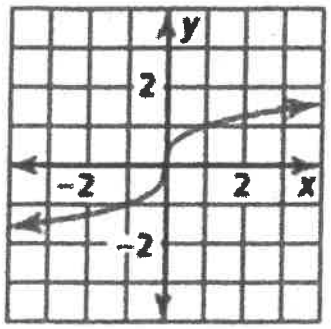


Algebra 1 – Chapter 3A
Lesson 2, Day 1

Name: _____ **Date** _____

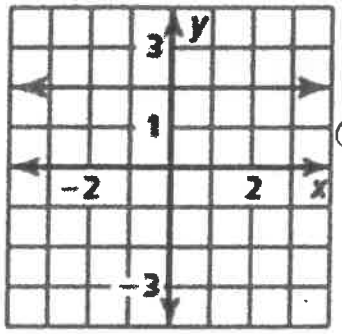
Determine whether the graph represents a *linear* or *nonlinear* function. Explain.

1.



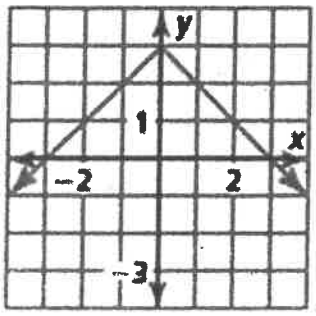
nonlinear

2.



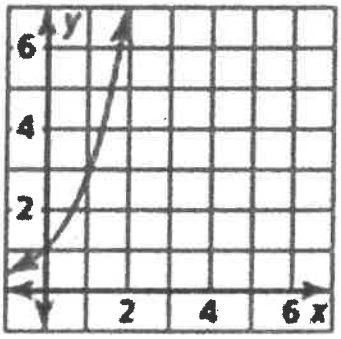
Linear

3.



nonlinear

4.



nonlinear

Determine whether the table represents a *linear* or *nonlinear* function. Explain.

5.

+1 +1 +1

x	1	2	3	4
y	5	10	15	20

+5 +5 +5

linear

6.

+2 +2 +2

x	5	7	9	11
y	−9	−3	−1	3

nonlinear

Describe and correct the error in determining whether the table or graph represents a linear function.

7.

+2 +2 +2

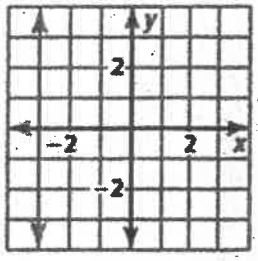
x	2	4	6	8
y	4	16	64	256

×4 ×4 ×4

nonlinear

As x increases by 2, y increases by a constant factor of 4. So, the function is linear.

8.



nonlinear because vertical line

The graph is a line. So, the graph represents a linear function.

Algebra 1 – Chapter 3A
Lesson 2, Day 1

Determine whether the equation represents a *linear* or *nonlinear* function. Explain.

9. $Y = x^2 + 13$

nonlinear
cannot have
x^2

10. $Y = 7 - 3x$

Linear
$y = mx + b$ form

11. $y = \sqrt[3]{8} - x$

Linear
$y = mx + b$

12. $Y = 4x(8 - x)$

$y = 32x - 4x^2$
nonlinear

13. $2 + \frac{1}{2}y = 3x + 4$
$-2 \qquad -2$
$(2)\frac{1}{2}y = (3x + 2)2$
$y = 6x + 4$
Linear

14. $Y - x = 2x - \frac{2}{3}y$
$+\frac{2}{3}y \quad +x \quad +x \quad +\frac{2}{3}y$
$(3/5)\frac{5}{3}y = 3x(3/5)$
$y = \frac{9}{5}x$
Linear

15. $18x - 2y = 26$
$-18x \qquad -18y$
$\frac{-2y}{-2} = \frac{-18x}{-2} + \frac{26}{-2}$
$y = 9x - 13$
Linear

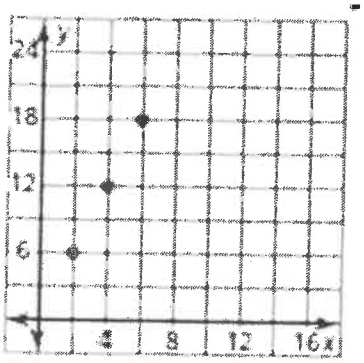
16. $\frac{2x}{9x} + \frac{3y}{9x} = \frac{9xy}{9x}$

nonlinear.

Algebra 1 – Chapter 3A
Lesson 2, Day 2
Name: Answer Key **Date** _____

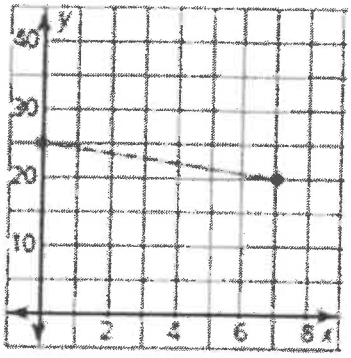
Find the domain of the function represented by the graph. Determine whether the domain is *discrete* or *continuous*.

1.



D: 2, 4, 6
Discrete

2.



D: $0 \le x \le 7$
Continuous

Determine whether the domain is discrete or *continuous*..

3.

Input Bags, *x*	2	4	6
Output Marbles, *y*	20	40	60

Dicrete

4.

Input Years, *x*	1	2	3
Output Height of tree (feet), *y*	6	9	12

Continuous

5.

Input Time (hours), *x*	3	6	9
Output Distance (miles), *y*	150	300	450

Continuous

6.

Input Relay teams, *x*	0	1	2
Output Athletes, *y*	0	4	8

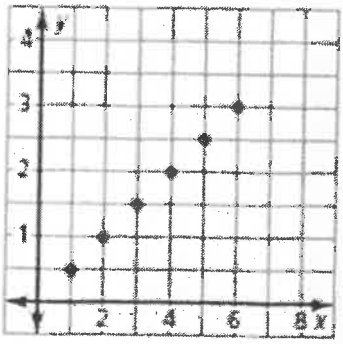
Discrete

Describe and correct the error in the statement about the domain.

7.

X

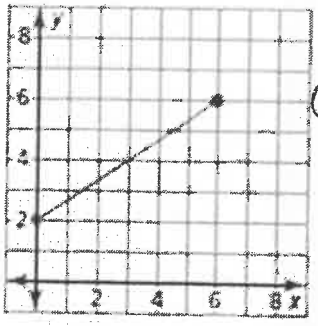
D: 1, 2, 3, 4, 5, 6



2.5 is in the domain.

8.

X



D: $0 \le x \le 6$
Continuous

The graph ends at $x = 6$; so the domain is discrete.

Name Answer key

Find the value of x so that the function has the given value.

9. h(x) = -7x; h(x) = 63

$\frac{63}{-7} = \frac{-7x}{-7}$

$-9 = x$

10. t(x) = 3x; t(x) = 24

$\frac{24}{3} = \frac{3x}{3}$

$8 = x$

11. k(x) = 6x - 12; k(x) = 18

$18 = 6x - 12$
$+12 \quad +12$

$\frac{30}{6} = \frac{6x}{6}$

$5 = x$

12. $j(x) = -\frac{4}{5}x + 7; j(x) = -5$

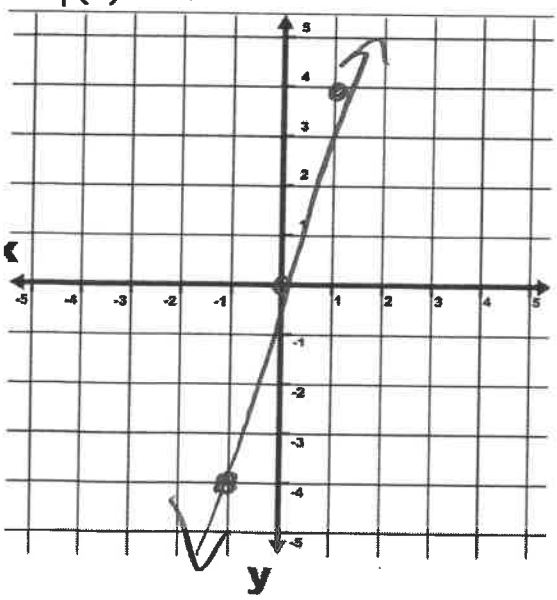
$5\left(-5 = -\frac{4}{5}x + 7\right) \Rightarrow -25 = -4x + 35$
$-35 \quad -35$

$\frac{-60}{-4} = \frac{-4x}{-4}$

$15 = x$

Graph the linear function.

13. p(x) = 4x



14. f(x) = -4 + 7x