Pg. 298-299 #1, 6-13, 15, 17, 25, 27

1. An equation has an equal sign and an expression does not.

6. $x + 4 = 12$

7. $y - 9 = 8$

8. $9b = 36$

9. $w \div 5 = 6$

10. $54 = t + 9$

11. $5 = \frac{1}{4}c$

12. $11 = y \div 6$

13. $n - 9 = 27$

15. $6042 = 1780 + a$

17. $16 = 3x$

25. 28

27. B

Pg. 305-306 #1, 2, 3-11 odd, 17-23 odd, 29, 31, 32, 36-39

1. Substitute your solution back into the original equation and see if you obtain a true statement.

2. addition

3. subtraction

5. so that x is by itself; so that the two sides remain equal

7. yes

9. no

11. yes

17. 20 is what number minus 6?; $d = 26$

19. $z = 16$

21. $p = 3$

23. $h = 34$

29. $a = 11.8$

31. They must apply the same operation to both sides.

$$\begin{array}{rr} 34 = y - 12 & \\ \underline{+\ 12} & \underline{+\ 12} \\ 46 = y & \end{array}$$

32. $45 = h + 24$; 21 in.; The answer is reasonable because the rockhopper penguin looks like it is about half the height of the emperor penguin in the picture.

36. $w - 13 = 15$; $w = 28$

37. $k + 7 = 34; k = 27$

38. $9 = n - 7; n = 16$

39. $93 = g + 58; g = 35$

Pg. 312-313 #7-21 odd, 26, 27, 29, 35

7. $s = 70$

9. $x = 24$

11. $a = 4$

13. $y = 10$

15. $x = 15$

17. $d = 78$

19. $c = 66$

21. $n = 2.56$

26. $20x = 1200$; 60 rows

27. 9 units

29. 8 units

35. length: 20 in.; width: 5 in.

Pg. 319-320 #1-17 all

1. *Sample answer:* An independent variable can change freely. A dependent variable depends on the independent variable.
2. Create a table. Plot the ordered pairs from the table. Draw a line through the points.
3. $n = 4n - 6$; This one is not an equation in two variables.
4. $P = 2w + 10$ where P is the perimeter in inches and w is the width in inches; P depends on w.
5. $A = 9h$ where A is the area in square feet and h is the height in feet; A depends on h.
6. no
7. yes
8. yes
9. no
10. no
11. yes
12. The values for x and y were substituted in reverse order.

    $y = 3x + 2$; (5, 1)

    $1 \stackrel{?}{=} 3(5) + 2$

    $1 \neq 17$

    So, (5, 1) is not a solution.

13. w is independent and A is dependent.

14. s is independent and c is dependent.

15. p is independent and t is dependent.

16. m is independent and h is dependent.

17. $270

Pg. 319-320 #18-23, 30-32, 35

18–21. Sample answers are given.

	Independent Variable	Dependent Variable
18.	The number of hours you study for a test	Your test score
19.	The speed you are pedaling a bike	Time it takes to stop your bike
20.	The number of minutes you use each month	Your monthly cell phone bill
21.	The number of years of education	The amount of money you earn

18–21. Sample answers are given.

	Independent Variable	Dependent Variable
18.	The number of hours you study for a test	Your test score
19.	The speed you are pedaling a bike	Time it takes to stop your bike
20.	The number of minutes you use each month	Your monthly cell phone bill
21.	The number of years of education	The amount of money you earn

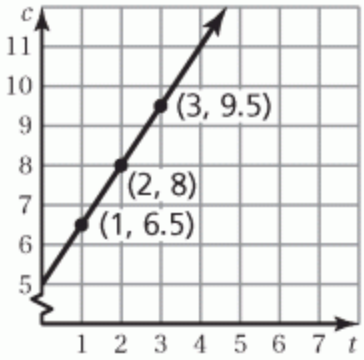
18–21. Sample answers are given.

	Independent Variable	Dependent Variable
18.	The number of hours you study for a test	Your test score
19.	The speed you are pedaling a bike	Time it takes to stop your bike
20.	The number of minutes you use each month	Your monthly cell phone bill
21.	The number of years of education	The amount of money you earn

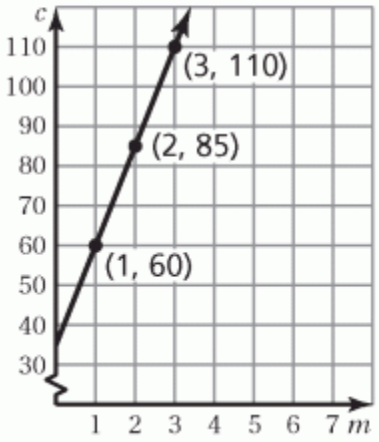
18–21. Sample answers are given.

	Independent Variable	Dependent Variable
18.	The number of hours you study for a test	Your test score
19.	The speed you are pedaling a bike	Time it takes to stop your bike
20.	The number of minutes you use each month	Your monthly cell phone bill
21.	The number of years of education	The amount of money you earn

22. *Sample answer:* $c = 1.5t + 5$ where t is the number of toppings and c is the total cost of the pizza.



23. *Sample answer:* $c = 25m + 35$ where m is the number of months and c is the total cost of the gym membership.



30. 11

31. 1

32. 2

35. 50 city blocks

Pg. 329-330 # 1, 3, 4, 5-15 odd, 17-20, 25, 27, 41

1. Both phrases refer to numbers that are greater than a given number. The difference is that "greater than or equal to" includes the number itself, whereas "greater than" does not.

3. The graph of $x \leq 6$ has a closed circle at 6. The graph of $x < 6$ has an open circle at 6.

4. Both graphs are the same, because both indicate that x is less than or equal to 5.

5. $k < 10$

7. $z < \frac{3}{4}$

9. $1 + y \leq -13$

11. yes

13. yes

15. no

17. B

18. A

19. D

20. C

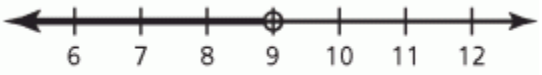
25.

27.

41. See *Taking Math Deeper.*

Pg. 336-337 #5-17 odd, 18, 32

5. $x < 9$;



7. $5 \geq y$;

9. $6 > x$;

11. $y < 106$;

13. $3 < x$;

15. $\frac{1}{4} \leq n$;

17. To solve the inequality, 9 should be added to both sides, not subtracted.

$$\begin{array}{r} 28 \geq t - 9 \\ \underline{+\,9 \qquad +\,9} \\ 37 \geq t \end{array}$$

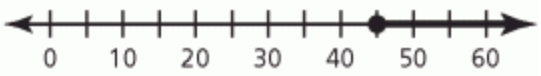
18. $22 + x \leq 40$; $x \leq 18$ lb

32. $6 = z$

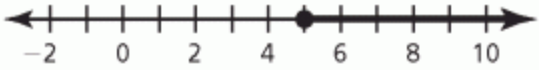
Pg. 342-343, #1, 8, 11-19 odd

1. The solution of $2x \geq 10$ includes the solution of $2x = 10$, $x = 5$, and all other x values that are greater than 5.

8. $t \geq 45$;

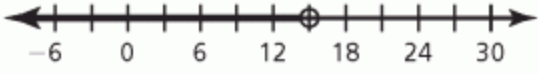


11. $x \geq 5$;



13. $p \leq 6$;

15. $x < 15$;



17. $v \leq 81$;

19. $w \leq 32$;

Pg. 336-337 # 19, 21-24, 27 AND Pg. 342-343 #23, 30

19. $x + 18.99 \leq 24; x \leq \$5.01$

21. $x - 3 > 15; x > 18$

22. $x \leq 8;$

23. $11 > s;$

24. $4.8 \geq c;$

27. See *Taking Math Deeper.*

23. $8x < 168; x < 21$ ft

30. See *Taking Math Deeper.*

Name Answers Date

Chapter 7 Study Guide

Section 7.1 - Writing Equations in One Variable

Write the word sentence as an equation.

1) 32 is the quotient of 16 and a number n.

$32 = \frac{16}{n}$

2) The sum of a number k and 5 is 11.

$k + 5 = 11$

3) The difference of a number x and 2 is 7.

$x - 2 = 7$

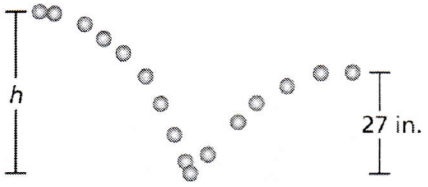
4) 7 times a number a is 42.

$7a = 42$

5) A crew is picking up chairs in the gymnasium after an event. After clearing 117 chairs from the gym floor, 36 chairs still remain. Write an algebraic equation you can use to find the number of chairs placed on the gym floor for the event. (Variable CAN NOT be alone)

$x - 117 = 36$ or $x - 36 = 117$

6) You drop the rubber ball from height h. It bounces back to 27 inches. This is 13 inches lower than it started. Write an algebraic equation you can use to find the height h.



$h - 13 = 27$

Section 7.2 - Solving Equations: Addition or Subtraction

Solve the equation. **Check your solution.**

7) $u + 3 = 7$

$u = 4$

8) $a + 1.9 = 7.2$

$a = 5.3$

9) $n - 17 = 34$

$n = 51$

10) $a - \frac{3}{4} = \frac{1}{8}$

$a = \frac{7}{8}$

Write the word sentence as an equation. Then solve the equation. Check your work.

11) 20 equals 8 more than a number y.

$20 = y + 8$
$-8 \quad -8$
$12 = y$

12) The sum of a number x and 12 equals 15.

$x + 12 = 15$
$-12 \quad -12$
$x = 3$

13) The advertised price of a cell phone is \$149 after a \$50 mail-in rebate. Write and solve an algebraic equation to find the price of the cell phone before the rebate is applied.

$x - 50 = 149$
$+50 \quad +50$
$x = \$199$

Section 7.3 - Solving Equations: Multiplication or Division

Solve the equation. **Check your solution.**

14) $\frac{y}{6} = 18$

$y = 108$

15) $15b = 60$

$b = 4$

16) $k \div 5 = 35$

$k = 175$

17) $n \cdot 8 = 96$

$n = 12$

Section 7.4 – Writing Equations with Two Variables

18) $y = 3x - 2$; $(1, 1)$

$1 = 3(1) - 2$
$1 = 1$ ✓
Yes

19) $y = 4x + 1$; $(1, 5)$

$5 = 4(1) + 1$
$5 = 5$ ✓
Yes

20) You are hosting a party. Before the party starts, you are providing 3 food items. Each guest will bring 2 food items to the party.

a) Write an equation in two variables that represents the total number of food items.

$y = 2x + 3$

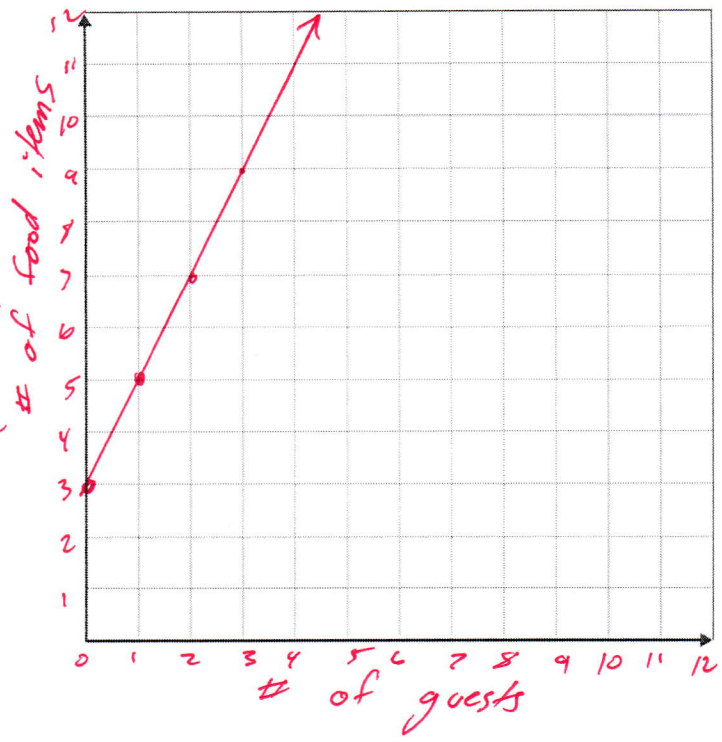
b) Identify the independent and dependent variables.

x is the number of guests (independent variable)

y is the total food item (dependent)

c) Set up a graph to show the relationship between number of guests and food items.

x	y
0	3
1	5
2	7



21) Your choir has 300 tickets to sell. You are responsible for distributing 10 tickets to each choir member to sell.

a) Write an equation in two variables that represents the remaining number of tickets to distribute.

$y = 300 - 10x$

Section 7.6 & 7.7 – Solving Inequalities

Write the word sentence as an inequality.

22) 2 is no more than a number v.

$2 \leq v$

23) A number h is at most 15.

$h \leq 15$

24) A number p is less than $\frac{1}{2}$.

$p < \frac{1}{2}$

25) 12 is fewer than a number n.

$12 < n$

SHOW whether the given value is a solution of the inequality.

26) $x + 3 > 12$; $x = 5$

$5 + 3 > 12$

$8 > 12$ No

27) $n \div 6 \leq 4$; $n = 2$

$2 \div 6 \leq 4$

$.3 \leq 4$

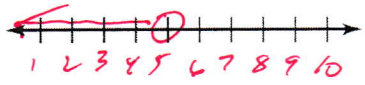
Yes

Solve the inequality. Graph the solution.

28) $k - 3 < 5$

$+3 \quad +3$

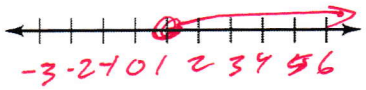
$k < 5$



29) $10 + c \geq 11$

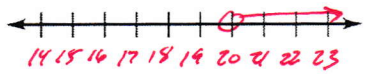
$-10 \quad -10$

$c \geq 1$



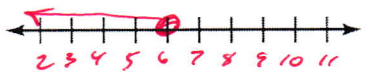
30) $\frac{x}{4} > 5$ $\cdot 4$

$x > 20$



31) $\frac{12c}{12} \leq \frac{72}{12}$

$c \leq 6$



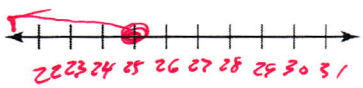
32) A lifeboat can carry up to 24 people. Write an inequality to represent this situation.

$x \leq 24$

33) A produce box can hold no more than 25 pounds of potatoes.

a) Write and graph an inequality to represent this situation.

$x \leq 25$



b) Is 9.8 a solution of the inequality? Show work.

$9.8 \leq 25$ Yes

c) Name a number that is *not* a solution of the inequality and explain your answer.

26 because it is greater than 25.