

Name _____ Date _____

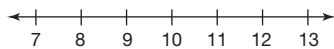
Up, Up, and Away! Solving and Graphing Inequalities in One Variable

A big Algebra test is coming up, and you are worried about how it will affect your grade. It will have 40 multiple-choice questions and you would like to know how many questions you will need to answer correctly in order to receive each grade. (For a review of percents, see Chapter 2.)

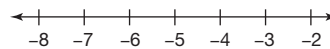
1. What is the number of questions will you need to answer correctly in order to receive a 90%? What is the number of questions will you need to answer correctly in order to receive an 80%? What is the number of questions will you need to answer correctly in order to receive a 70%? What is the number of questions will you need to answer correctly in order to receive a 60%?
2. Let x represent the number of questions answered correctly. Write inequalities for the number of questions that you need to answer correctly in order to receive an A (90%–100%), a B (80%–89%), a C (70%–79%), a D (60%–69%), or an F (0%–59%).
3. Which letter grades are represented by a compound inequality?
4. Students in one particular class did poorly on the test, so the teacher allowed the students to take the tests home and correct them in order to earn more points. If a student answered 20 questions correctly the first time, what number of additional questions will she need to answer correctly in order to raise her grade to at least a C? Let q represent the number of corrected problems. Show all your work and use a complete sentence in your answer.

Solve each inequality and graph the solution.

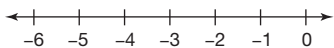
5. $x - 3 > 7$



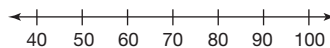
6. $-2x \leq 10$



7. $-3x + 2 \geq 11$



8. $\frac{1}{5}x + 10 < 24$



Assignment

Name _____ Date _____

Moving a Sand Pile Relations and Functions

Define each term in your own words.

1. domain
2. range
3. function

Decide whether each relation is a function. If the relation is a function, identify the domain and range. If the relation is not a function, explain why not. Use complete sentences in your answer.

4. Relation: $\{(2, 5), (3, 7), (-1, -1), (5, 11)\}$
5. Relation: $\{(1, 1), (2, 1), (3, 2), (3, 3)\}$

Identify the input and output for each scenario and decide whether or not it represents a function. Use complete sentences to explain your answer.

6. Each student in your class identifies his or her birthday.
7. Each student in your class identifies his or her phone number.
8. At a family reunion, each person writes down his or her home address to create a family directory.



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Assignment

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Let's Bowl!

Evaluating Functions, Function Notation, Domain, and Range

1. What is the difference between a relation and a function?
2. How do you evaluate a function?

Evaluate each function at the specified value. Show your work.

3. $f(x) = 3 + x$ at $x = -5$ 4. $f(x) = 2x - 15$ at $x = 7$ 5. $f(x) = -4 + 3x$ at $x = -1$

You and your friends from Algebra class have volunteered to tutor fifth grade students at the neighborhood elementary school after school. You would like to provide a snack for the fifth graders during tutoring time. You know that you will have to spend \$6.50 on napkins and plates. You will be able to buy pretzels and juice at a rate of \$.40 per student.

6. Find the total cost of providing snacks if 10 fifth graders come to tutoring. Show your work and use a complete sentence in your answer.
7. Find the total cost of providing snacks if 15 fifth graders come to tutoring. Show your work and use a complete sentence in your answer.
8. Use function notation to write an equation representing the total cost of providing snacks for any number of students.

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9. Use complete sentences to explain how to evaluate the function for any number of students.

 10. What is the domain of the function in Question 8 if you do not consider the problem situation? Use a complete sentence in your answer.

 11. Suppose there are 65 fifth-grade students at the neighborhood elementary school. What is the domain of the function in Question 8 now? Use a complete sentence in your answer.

 12. Suppose there are only enough tutors for 12 fifth graders to attend tutoring. What is the domain and range of the function in Question 8 now? Use complete sentences in your answer.

Assignment

Assignment for Lesson 4.4

Name _____ Date _____

Math Magic The Distributive Property

Use the distributive property to simplify each algebraic expression.

1. $4(x + 3)$

2. $8(3x - 4)$

3. $10x - 15x$

4. $5(9 - 2x)$

5. $\frac{36 - 24x}{6}$

6. $\frac{56 + 7x}{7}$

Use the distributive property in reverse to rewrite each algebraic expression.

7. $5x + 80$

8. $7x - 28$

9. $4x + 18$

10. $28x - 49$

11. $-5 - 15x$

12. $4x + 7$

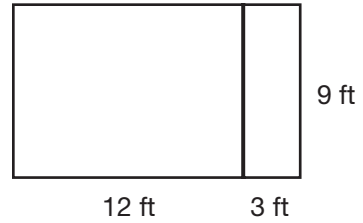
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You and two of your friends have decided to start your own company assembling and selling computers. Suppose that you have already sold the first 20 computers that you assembled for \$1800 each. You will then sell each additional computer that you assemble for \$1800.

13. What will your company's total sales be if you sell 10 additional computers? What will your company's total sales be if you sell 50 additional computers? What will your company's total sales be if you sell 100 additional computers? What will your company's total sales be if you sell 200 additional computers?

14. Write an expression that can be used to calculate your company's total sales. Write your expression in factored form and in simplified form using the distributive property.

15. Write two expressions for the total area of the two rectangular sections of garden. Then find the total area. Show all your work.



Assignment

Name _____ Date _____

Numbers in Your Everyday Life Real Numbers and Their Properties

Define each term in your own words.

1. closure
2. rational number
3. irrational number

Determine whether each decimal value is rational or irrational number. If it is a rational number, write it as a fraction.

- | | | |
|--------|-------------------|----------------------|
| 4. 0.5 | 5. 0.5555... | 6. 0.151155111555... |
| 7. 0.1 | 8. 0.152542384... | 9. 0.151515... |

Identify the property illustrated by each statement.

- | | |
|---------------------------------------|---|
| 10. $2 = 2$ | 11. $3(7) = 7(3)$ |
| 12. $(4 + 7) + (-2) = 4 + (7 + (-2))$ | 13. If $\frac{1}{5} = 0.2$ and $0.2 = 20\%$, then $\frac{1}{5} = 20\%$. |

14. Identify the property or reason that is used in each step.

$3(5 + 1) - 4 = 5(2 - 8) + 44$	_____
$15 + 3 - 4 = 5(2 - 8) + 44$	_____
$15 + 3 - 4 = 10 - 40 + 44$	_____
$(15 + 3) - 4 = (10 - 40) + 44$	_____
$18 - 4 = -30 + 44$	_____
$14 = 14$	_____

Assignment

Assignment for Lesson 4.6

Name _____ Date _____

Technology Reporter Solving More Complicated Equations

Solve each equation. Show all your work. Be sure to check your answer in the original equation.

1. $3x = 2x + 5$

2. $3x + 2 = 2x + 4$

3. $-2x + 1 = 3(x + 2)$

4. $5x - 1 = 7(x - 1)$

5. $-x + 4 = -3x + 8$

6. $2(10 + 3x) = 4(x - 4)$

As a member of the local teen community group, you and your friends take on the responsibility to analyze the most economical option for flooring for the new center. After all the bids are collected, the two most promising bids are for vinyl flooring and carpeting. The vinyl flooring costs \$31,000 to install, along with a monthly cleaning and maintenance fee of \$175. The carpeting costs \$22,500 to install along with a monthly cleaning and maintenance fee of \$325.

7. What is the cost of vinyl flooring for 1 month? What is the cost of vinyl flooring for 10 months? What is the cost of vinyl flooring for 50 months? What is the cost of vinyl flooring for 60 months?
8. Write an expression for the cost of vinyl flooring.
9. What is the cost of carpeting for 1 month? What is the cost of carpeting for 10 months? What is the cost of carpeting for 50 months? What is the cost of carpeting for 60 months?
10. Write an expression for the cost of carpeting.

11. Complete the table below.

Quantity Name	Time	Cost of vinyl flooring	Cost of carpeting
Unit	months	dollars	dollars
Expression	m		
	1		
	10		
	50		
	60		

12. Based on the table, estimate when the cost of the vinyl flooring will equal the cost of the carpeting. Use complete sentences to explain your answer.

13. Write and solve an equation to find when the two flooring options will cost the same. Show all your work and use a complete sentence in your answer.

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14. Why is it helpful to isolate the variable m on the right side of the equation in Question 13, instead of the left side? Use a complete sentence in your answer.

15. Your group must determine the best option over time. Consider the fact that both products carry a 10-year warranty. Justify your recommendation using your calculations above.

Assignment

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Rules of Sports Solving Absolute Value Equations and Inequalities

Evaluate each expression. Show all your work.

1. $|-13 + 5|$

2. $|6 - 10| \cdot (-2)$

3. $|(-5)(2)|$

4. $|-2| + |3|$

5. $|-2 + 3|$

6. $\left| \frac{-24}{4} \right|$

7. Complete the table below for the functions $y = x + 2$ and $y = |x + 2|$.

x	$x + 2$	$ x + 2 $
-4		
-3		
-2		
-1		
0		
1		
2		

8. Graph both functions from Question 7 on the grid at the right.

9. How does the absolute value change the graph of the function?

