



Chapter Summary

Summarize the following key concepts you learned in this chapter.

Rules and formulas:

Equivalent expressions:

Vocabulary

Look again at the vocabulary table on page 3. List any changes you would make to your definitions. Explain.

True or False? There is only one way to write an algebraic expression to represent a situation. Explain your answer.

Use the formula $F = \left(\frac{9}{5}\right)C + 32$ to find the Fahrenheit equivalent of 35°C . Explain each step of your solution.

Explain the error that was made in simplifying

$$6x^2 + y - 2x - 1 + 5y + 10x.$$

$6x^2 + y - 2x - 1 + 5y + 10x$ $= 6x^2 + 6y - 2x - 1 + 10x$ $= 6x^2 + 4xy - 1 + 10x$	
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This cartoon is found on pg. 53. Kaya is asking Maria and Luis to find equivalent expressions. Maria thinks of an expression that has an *exponent*. Luis *factors* the expression. Write expressions for Maria and Luis in the cartoon.





Chapter Summary

Summarize the following key concepts you learned in this chapter.

GCF and LCM:

Product and quotient laws of exponents:

Vocabulary

Look again at the vocabulary table on page 14. If you disagreed with any statements, rewrite them correctly.

True or False?

The expressions $8^2 \cdot 8^4$, $(8^3)^2$, and $16^6 \div 2^6$ all equal 8^6 . Explain your answer.

Use a law of exponents to find the number that should replace each question mark. Describe each law that you use.

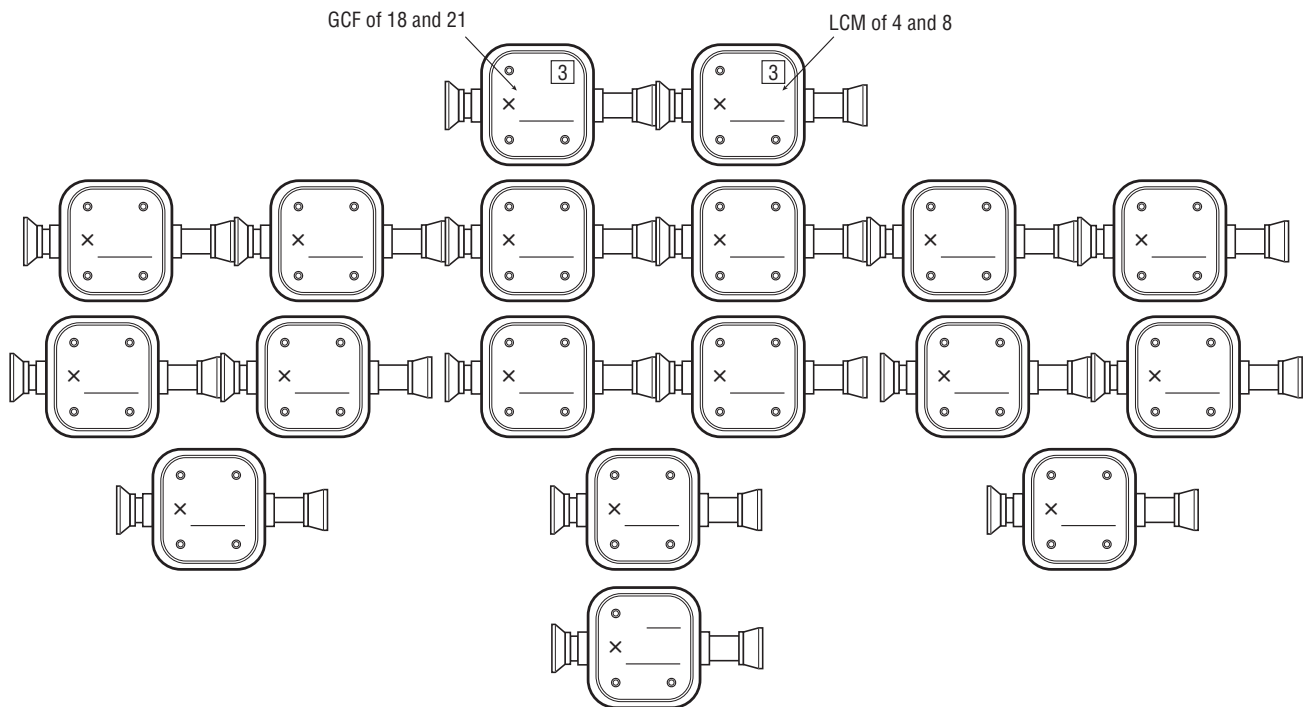
$$7^9 \cdot ?^9 = 35^9 \underline{\hspace{10em}}$$

$$10^4 \div 10^2 = 10^? \underline{\hspace{10em}}$$

Explain the error that was made in writing this expression in simplest form.

$$\begin{aligned} &6wrt^2 \cdot 6w^3r^4t \\ &= 6w^4rt^2 \cdot 6r^4t \\ &= 6w^4r^5t^2 \cdot 6t \\ &= 6w^4r^5t^3 \end{aligned}$$

Insert the correct values in the diagram below.





Chapter Summary

Summarize the following key concepts you learned in this chapter.

Adding and subtracting signed numbers on the number line:

Equivalent operations:

Predicting signs of sums and differences:

Predicting signs of products and quotients:

Vocabulary

Look again at the vocabulary table on page 25. Write two statements that describe situations that may arise when working with a data set that has signed numbers. Then indicate which measures (range, mode, median, mean) are affected.

Statements	Measure(s)

Determine the values that make the following statements true.

$$6a + 4 < -2 \quad \underline{\hspace{2cm}} \qquad 6a + 4 > -2 \quad \underline{\hspace{2cm}}$$

The solution of each number sentence is a value in a data set. Find each solution. Record it as a data value. Then find the range, mode, median, and mean of the data values.

Sentence	Data Value
$1 \cdot (-1) = ?$	
$-6 \div 3 = ?$	
$-4 + (-3) = ?$	
$2 - (-7) = ?$	
$-1 - 5 = ?$	
$-2 \cdot -2 = ?$	

Sentence	Data Value
$9 - (-1) = ?$	
$-2 \cdot 3 = ?$	
$6 + (-5) = ?$	
$24 \div (-4) = ?$	
$-8 + 2 = ?$	
$3 - 5 = ?$	

Range: _____

Mode: _____

Median: _____

Mean: _____



Chapter Summary

Summarize the following key concepts you learned in this chapter.

Scientific notation:

Standard notation:

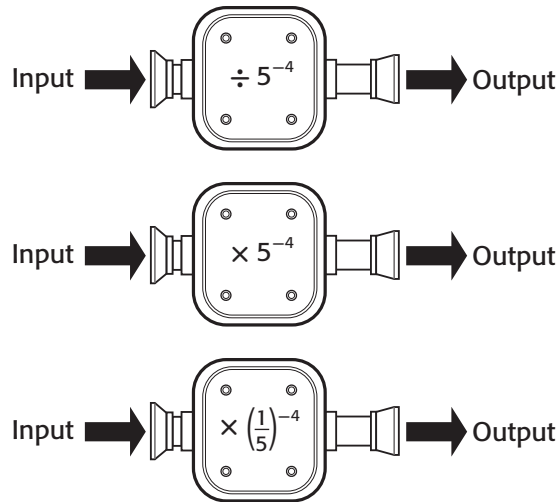
Negative exponents:

Vocabulary

Look again at the vocabulary on page 34. Write another example of a *lesser number* that meets all of the following criteria:

- The number is expressed as a product.
- One factor of the product is a power of 10.
- The number is not correctly expressed in *scientific notation*.

True or False? These three machines do the same thing. Explain.



Consider the following numbers. If a number is written correctly in scientific notation, write *correct*. If not, change the number so it is written correctly in scientific notation.

$158,040,000,000 = 1.5804 \times 10^{12}$	
$21,900,000 = 21.9 \times 10^6$	
$0.00006 = 6 \times 10^{-5}$	
$0.00000004157 = 4.157 \times 10^{-9}$	

Determine whether the values in each row are equal by using scientific notation to compare them.

Value 1	Value 2	Value 3	Equal or Not Equal?
0.0419×10^{-12} = _____	0.0000419×10^{-9} = _____	41.9×10^{-15} = _____	
0.8×10^7 = _____	0.008×10^9 = _____	800×10^4 = _____	
0.354×10^3 = _____	0.0000354×10^4 = _____	35.4×10^{-1} = _____	
0.72×10^{18} = _____	0.0072×10^{20} = _____	72×10^{16} = _____	



Chapter Summary

Summarize the following key concepts you learned in this chapter.

Prisms:

Surface area and volume:

Mass and weight:

Vocabulary

Look again at the vocabulary on page 41. Choose another vocabulary word from the chapter that is not included in the table. Explain what it means in your own words.

Fill in the blank to make each statement true.

- ▶ Four eight-ounce blocks of cheese weigh _____ pounds.
- ▶ If six rulers have a mass of about 90 grams, I would need to put _____ of these rulers on a metric scale to get a mass of approximately 3 kilograms.
- ▶ When I use scientific notation to express 2,980 milligrams in kilograms, I would write _____ kilograms.

Which figure is a net that folds into a rectangular prism? Explain why the other figure cannot fold into a rectangular prism.

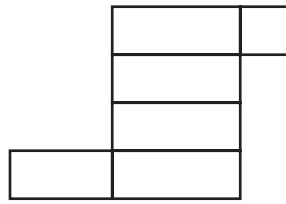


Figure A

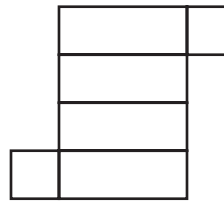


Figure B

Give the dimensions of a container that has the same volume (can be about the same volume for cylinders) but can be produced using less material.

Type of Container	Original Dimensions	New Dimensions
Rectangular Prism	length: 8 inches width: 5 inches height: 2 inches	_____ _____ _____
Cylinder	radius: 6 centimeters height: 8.5 centimeters	_____ _____
Rectangular Prism	length: 2 feet width: 12 feet height: 3 feet	_____ _____ _____
Cylinder	radius: 6 meters height: 4 meters	_____ _____

Show that 12 grams equals 1.2×10^3 centigrams.



Chapter Summary

Summarize the following key concepts you learned in this chapter.

Dependence in probability:

Creating data graphs:

Vocabulary

Look again at the vocabulary on page 53. Think of some more similarities and differences between double-bar graphs and double-line graphs. Write them here.

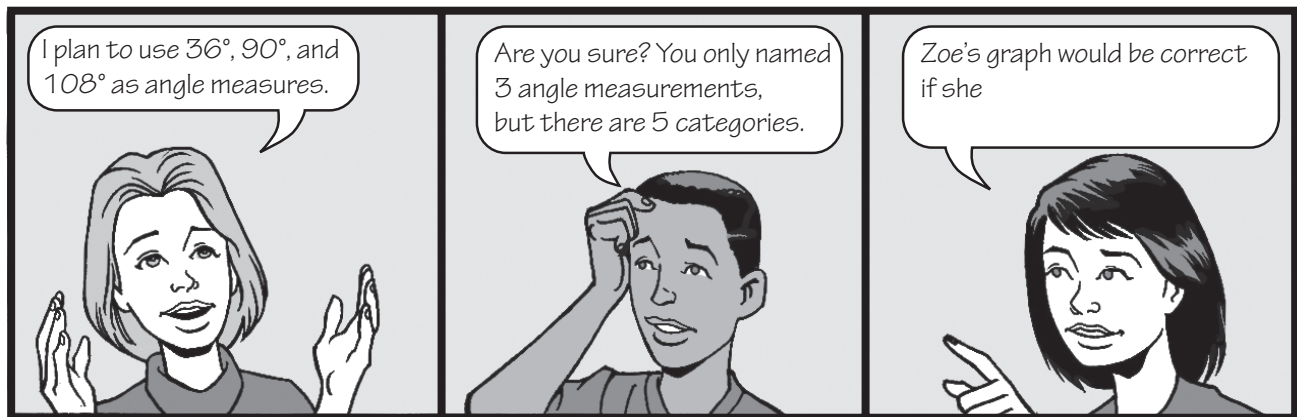
A bag contains blocks labeled from 1 to 5. You draw a block from the bag, put it in your pocket, and then draw a second block. Explain how to find the probability that both numbers will be odd.

For a statistics project, you want to predict which electronic devices are the favorites of seventh graders in two schools. Jonah wants to survey 30 students who enter the study hall classes of each school. Explain why you think this is or is not an appropriate survey method.

This cartoon is found on page 306.

Zoe is planning to make a circle graph of the data in the table. Insert dialogue so that Maya explains how Zoe's graph would be correct.

Preferred Nuts	Walnuts	Pistachios	Almonds	Pecans	Peanuts
Number of Students	25	10	10	25	30





Chapter Summary

Summarize the following key concepts you learned in this chapter.

Rational numbers and irrational numbers:

Right triangles and the Pythagorean Theorem:

Vocabulary

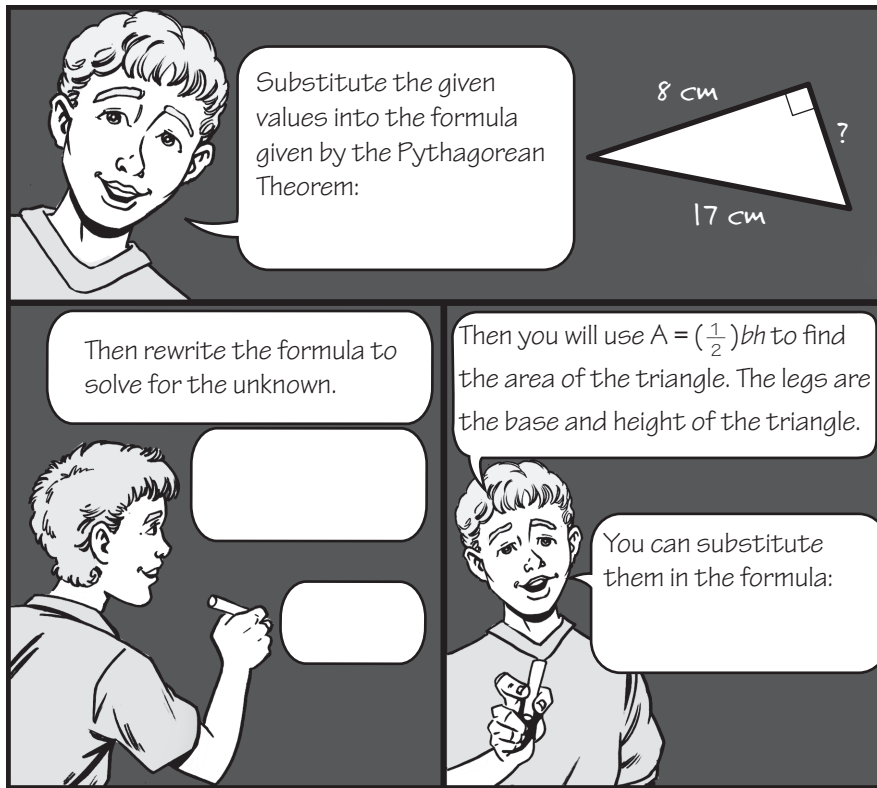
► Look again at the flowchart you created for vocabulary terms on page 65. Explain what you think the arrows mean in the chart. If you were to insert a new box with the word *integers* in the chart, where would it go?

► Is it possible to name an integer that is not a rational number? Why or why not?

► Is it possible to name a rational number that is not an integer? Why or why not?

Insert dialogue in the cartoon so that Luke describes how to find the missing side length of the triangle. Then Luke should explain how to use this length to find the area of the triangle.

This cartoon is found on page 334.



Explain how to estimate the decimal equivalent of $\sqrt{75}$.

What fraction, written in simplest form, is located halfway between $\frac{5}{8}$ and $\frac{7}{9}$? Explain how you found your answer.

CHAPTER
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Chapter Summary

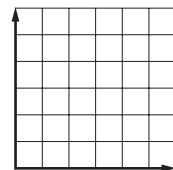
Summarize the following key concepts you learned in this chapter.

Determining whether a relationship is linear:

Identifying slope and y -intercept:

Vocabulary

Look again at the vocabulary table on page 77. Select a term and illustrate it on the grid below. Explain how your illustration relates to the term you chose. Be sure to number and label the graph as necessary to appropriately illustrate the term.



Describe the graph of $y = -8x + 2$. Is the relationship between x and y proportional? Explain.

Suppose you know that the points $(2, 5)$, $(3, 7)$, and $(4, 9)$ describe a linear relationship. Name another point you would expect to find in this relationship. Explain why your point works.

This cartoon is found on page 334.

Insert dialogue and/or drawings in the cartoon so that each student is thinking of a different way to express the teacher's statement.





Chapter Summary

Summarize the following key concepts you learned in this chapter.

Solution methods for equations:

Solving inequalities:

Vocabulary

Look again at the vocabulary table on page 89. Select a term. Explain how you can use its everyday meaning to help you remember its mathematical meaning.

Show how you would solve the equation $5(x - 2) = 6 + 3x$ by using backtracking or guess-check-and-improve. Explain why you chose the method that you used.

Kate solves and graphs the inequality $4(2 + x) - (4 + 3x) \geq 10$ as shown to the right. Identify her error. Find and graph the correct answer.

$$4(2 + x) - (4 + 3x) \geq 10$$

$$8 + 4x - (4 + 3x) \geq 10$$

$$8 + 4x - 4 + 3x \geq 10$$

$$4 + 7x \geq 10$$

$$7x \geq 6$$

$$x \geq \frac{6}{7}$$



Kiley, Roque, and Samantha are collecting aluminum cans. Kiley has 13 more than three times the number of cans Samantha has. Roque has 18 fewer cans than Kiley has. Together, they have 113 cans. Write and solve an equation to find the number of cans each friend has.

CHAPTER
10

Chapter Summary

Summarize the following key concepts you learned in this chapter.

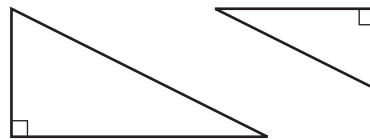
Comparing two ratios:

Scaling ratios:

Vocabulary

- ▶ Look again at the vocabulary on page 102. Describe an example of how a proportion can be used with respect to one of the terms to which it is connected.

- ▶ Explain how you can use proportions to decide whether the triangles are similar.



A chef makes 3 pans of chicken pot pie to feed 28 people. Maya, Malik, and Darnell each write a proportion to find the number of pans the chef needs to make to feed 196 people. Whose proportion is incorrect? How would you change this proportion?

Maya's Proportion	Malik's Proportion	Darnell's Proportion
$\frac{3}{28} = \frac{x}{196}$	$\frac{196}{a} = \frac{28}{3}$	$\frac{p}{196} = \frac{28}{3}$

Lydia pays \$39 to spend 5 hours at a museum. Show two ways that you can find the unit rate for this situation.

Method 1

Method 2

Complete the dialogue between the two students.

Kate: I am planning to bring \$550 with me when I travel to Mexico.

Zach: You should know that the exchange rate right now is
1 U.S. Dollar = 10.832 Mexican pesos.

Kate: I can write the proportion

Zach: It looks like you would have _____

Suppose you measure a distance of 8.25 inches on a map with a scale of 1 inch = 25 miles. Show how you would write and solve a proportion to find the actual distance represented on the map.
