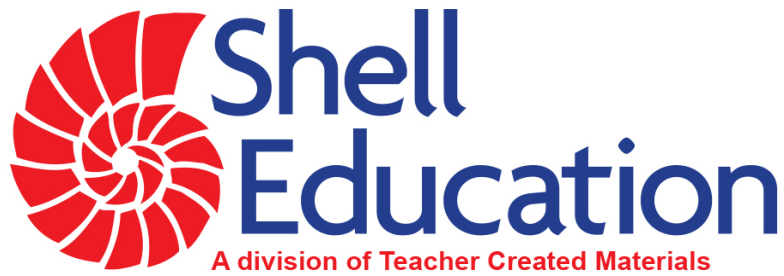


Sample Pages from



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180 DAYSTM of Math for Seventh Grade

7



$$\$52.00 \times 0.25 = \$13.00$$

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How to Use This Resource

Instructional Pages

The math concepts in this resource are organized into five units. Each unit is divided into sections that focus on specific standards-based topics. To introduce mathematical concepts, there are instructional pages at the beginnings of the sections. These pages support students so they can complete the practice pages with confidence and accuracy.

An overview of big ideas, important concepts, and key vocabulary essential to the upcoming pages is explained in grade-appropriate language.

Example problems model problem-solving steps and strategies that students can follow.

Students answer guiding questions, attempt the modeled strategies, and solve problems with support.

UNIT 1

Learn about Ratio and Percent Problems

Percents are part-to-whole comparisons in which the whole amount is 100.
Ratios are comparisons and can be part-to-part or part-to-whole comparisons. You can use proportional relationships to solve percent problems. Set them up like this.

$$\frac{\text{Part}}{\text{Whole}} = \frac{\text{Percent}}{100}$$

Example: What is 25% of 90?
 Since 90 is the total amount, and 25 is the percent, we can set it up as shown: $\frac{x}{90} = \frac{25}{100}$
 To solve this, you can cross multiply, or multiply diagonally.
 $90 \cdot 25 = 100 \cdot x$
 $2,250 = 100x$
 To solve this, we divide 2,250 by 100.
 $x = 22.5$

Total with Tip

The Howard family went out to dinner, and the bill was \$65. They want to leave a 20% tip. How much should they leave for the tip? What is the total amount the Howards have to pay, including the tip?

1. Set up a proportional relationship. $\frac{x}{65} = \frac{20}{100}$
2. Multiply diagonally. $65 \cdot 20 = 100 \cdot x$
3. Solve the equation.
 $100x = 1,300$
 $x = 13$
4. The Howard family should leave \$ _____ for a tip.
5. To find the total amount the Howard family has to pay, add \$65 + the tip. What is the total amount they must pay?
 \$ _____

Discounted Price

Teddy has a coupon for 10% off a new baseball hat. The original price of the hat is \$25. What is the discounted price?

1. Set up a proportional relationship. $\frac{x}{25} = \frac{10}{100}$
2. Cross multiply (multiply diagonally). $100 \cdot x = 25 \cdot 10$
3. Solve the equation.
 $100x = 250$
 $x = 2.5$ or \$2.50
4. Subtract the original price by the discounted amount to find the new price.
 \$ 25 - \$2.50 = _____

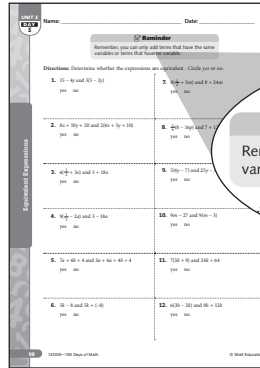
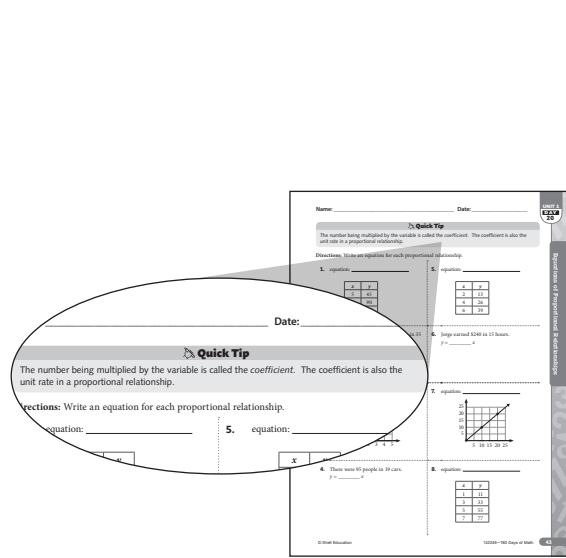
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How to Use This Resource *(cont.)*

Practice Pages

Practice pages are provided for every day of the school year to reinforce grade-level concepts and skills. The practice pages can be easily prepared and implemented as part of a morning routine, at the beginning of each math lesson, or as homework. Each day's math skills are aligned to state mathematics standards. (A chart with these standards can be found on pages 226–227.)



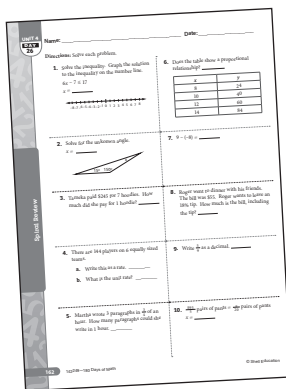
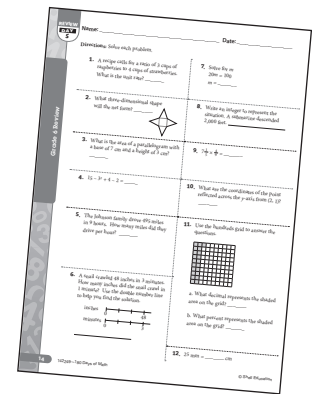
Reminder
Remember, you can only add terms that have the same variables or terms that have no variable.

Quick Tips, Reminders, and Example Problems provide additional support for students.

Review Pages

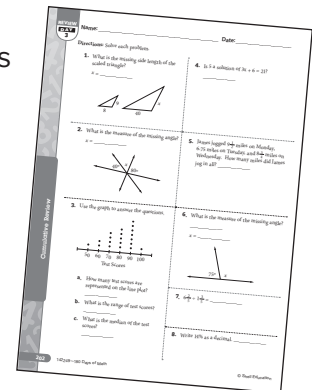
Review is embedded throughout this resource to support students' retention of mathematical concepts.

The first section of practice pages in this resource reviews the math concepts from the previous grade. This activates students' prior knowledge after summer break and offers teachers and families a quick view of students' grade-level readiness.



Spiral review pages at the end of each unit include additional practice in the concepts learned. This helps ensure that students' skills and content knowledge remain fresh, and it helps them build fluency as the year goes on.

A cumulative review serves as the last section of practice pages in this resource, allowing students to showcase their understanding of all grade-level math concepts practiced throughout the year.

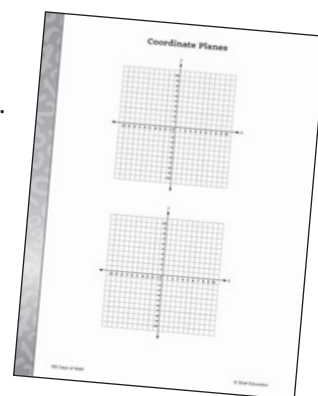
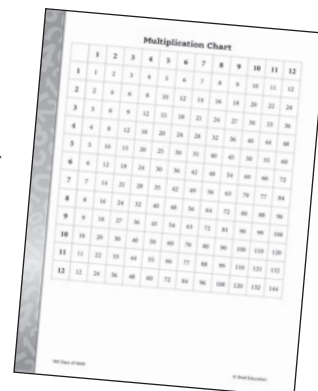


How to Use This Resource *(cont.)*

Digital Math Learning Resources

A variety of math resources are provided digitally (see page 248 for instructions on how to download these pages). These quick references and tools support students in understanding and solving many different problem types. You may choose to print the resources ahead of time or as needed. Some of the resources available include the following:

- **Multiplication Chart**—This helps students quickly reference math facts if they have not committed them to memory. This allows students to continue learning grade-level content.
- **Number Lines**—These can help students add and subtract with positive and negative numbers, multiply and divide with fractions, and understand equivalent ratios.
- **Coordinate Planes**—Students can use these to practice with ordered pairs and to better visualize equations and distances between points.
- **Measurement Conversions**—When working with ratios and measurement conversions, students will find this a convenient resource to have on hand.



Instructional Options

180 Days of Math is a flexible resource that can be used in various instructional settings for different purposes.

- Use the student pages as daily warm-up activities or as review.
- Work with students in small groups, allowing them to focus on specific concepts and skills. This setting also lends itself to partner and group discussions about problem-solving strategies.
- Student pages in this resource can be completed independently during center times and as activities for early finishers.



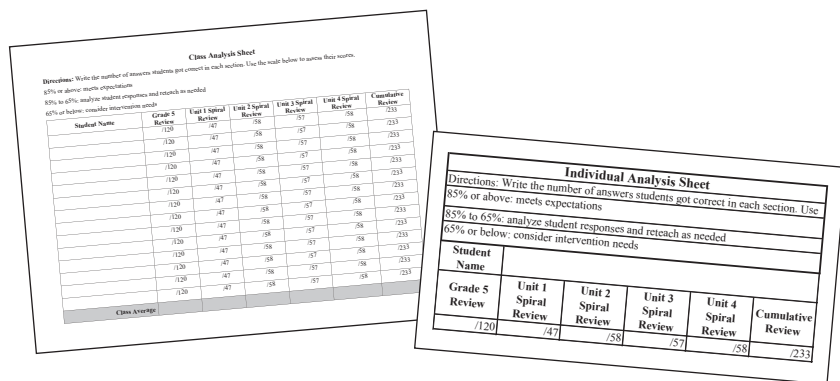
How to Use This Resource *(cont.)*

Diagnostic Assessment

The practice pages in this book can be used as diagnostic assessments. These activity pages require students to think critically, use problem-solving strategies, and utilize mathematical skills and content knowledge. (An answer key is provided starting on page 229.)

The diagnostic analysis tools included in the digital resources allow for quick evaluation and ongoing monitoring of student work. See at a glance which math topics students may need to focus on further to develop proficiency.

Analysis sheets are provided as *Microsoft Word*[®] files in the digital resources. There is a *Class Analysis Sheet* and an *Individual Analysis Sheet*. Use the file that matches your assessment needs. After each review section, record how many answers each student got correct on the analysis sheet. Then, analyze the data on the analysis sheet to determine instructional needs for your child or class.



Class Analysis Sheet

Directions: Write the number of correct answers students got correct in each section. Use the table below to assess their scores.

85% or above: meets expectations
65% or below: consider intervention needs

Student Name	Grade 5 Review	Unit 1 Spiral Review	Unit 2 Spiral Review	Unit 3 Spiral Review	Unit 4 Spiral Review	Cumulative Review
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
	/120	/47	/58	/57	/58	/233
Class Average						

Individual Analysis Sheet

Directions: Write the number of answers students got correct in each section. Use 85% or above: meets expectations
65% or below: consider intervention needs

Student Name	Grade 5 Review	Unit 1 Spiral Review	Unit 2 Spiral Review	Unit 3 Spiral Review	Unit 4 Spiral Review	Cumulative Review
	/120	/47	/58	/57	/58	/233

Using the Results to Differentiate Instruction

Once results are gathered and analyzed, use the data to inform differentiation. The data can help determine which concepts are the most difficult for students and which students need additional instructional support and continued practice. The results of the diagnostic analysis may show that the class is struggling with a particular topic.

The results of the diagnostic analysis may also show that an individual or small group of students is struggling with a particular concept or group of concepts. Consider pulling aside these students while others are working independently to instruct further on the concept(s). You can also use the results to help identify individuals or groups of proficient students who are ready for enrichment or above-grade-level instruction. These students may benefit from independent learning contracts or more challenging activities.

Learn about Unit Rates

A **rate** is a comparison of two quantities of different units.

A **unit rate** is a comparison of a quantity to 1. Unit rates have a denominator of 1. Unit rates are found by dividing a ratio of different units to find the amount of a unit per 1 of the other unit.

Example 1

What is the rate and the unit rate for the given phrase?

40 sandwiches for 5 campers

- Write the comparison as a fraction. Label the numerator and denominator.

$$\text{Rate: } \frac{40 \text{ sandwiches}}{5 \text{ campers}}$$

- To find the unit rate, divide the numerator of the rate by the denominator.

$$40 \div 5 = \underline{\hspace{2cm}}$$

- You can write it two ways. $\frac{8 \text{ sandwiches}}{1 \text{ camper}}$ or $8 \frac{\text{sandwiches}}{\text{camper}}$

Example 2

Marco jogs $\frac{1}{2}$ of a mile in $\frac{1}{4}$ of an hour. How far does he jog in one hour?

- Divide the distance Marco jogs by the time it takes him.

$$\frac{1}{2} \div \frac{1}{4} \text{ is the same as } \frac{1}{2} \times \frac{4}{1}$$

$$\frac{1}{2} \times \frac{4}{1} = \frac{4 \text{ miles}}{2 \text{ hours}}$$

- Simplify the rate so the denominator is 1 hour.

$$\frac{4 \text{ miles}}{2 \text{ hours}} = \frac{2 \text{ miles}}{1 \text{ hour}}$$

- Marco jogs 2 miles in 1 hour.
- You can also draw a diagram to find the answer or check your work.

miles	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
hours	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

Example 3

Frank ran 4 miles in $\frac{2}{3}$ of an hour. Find his unit rate.

- To find Frank's unit rate, we can divide the number of miles he ran by the amount of time it took him to run the distance.
- To divide by a fraction, we can multiply by the reciprocal.

$$4 \div \frac{2}{3} = \frac{4}{1} \times \frac{3}{2} = \frac{12}{2} = 6$$

- Frank ran $\underline{\hspace{2cm}}$ miles per hour.

Name: _____ Date: _____

**Quick Tip**

Be sure to label both the numerator and the denominator in a rate. When writing the unit rate, label the answer in the number of units in the numerator per one unit of the denominator.

Directions: Write the rate and the unit rate for each phrase.

1. 150 students for 15 tables

Rate: _____

Unit Rate: _____

7. 90 students in 3 classrooms

Rate: _____

Unit Rate: _____

2. 56 party hats in 8 packages

Rate: _____

Unit Rate: _____

8. 12 birds in 4 nests

Rate: _____

Unit Rate: _____

3. 36 peaches in 3 boxes

Rate: _____

Unit Rate: _____

9. 48 pounds of potatoes in 6 bags

Rate: _____

Unit Rate: _____

4. 120 campers in 10 tents

Rate: _____

Unit Rate: _____

10. 60 books on 5 shelves

Rate: _____

Unit Rate: _____

5. 81 golf balls in 9 boxes

Rate: _____

Unit Rate: _____

11. 35 juice boxes in 7 packages

Rate: _____

Unit Rate: _____

6. \$400 for 20 hours of work

Rate: _____

Unit Rate: _____

12. 125 candles in 5 boxes

Rate: _____

Unit Rate: _____

Name: _____ Date: _____

Directions: Find each unit rate.

1. $\frac{\$1,050}{50 \text{ hours}} = \frac{\quad}{1 \text{ hour}}$

8. $\frac{112 \text{ pages}}{2 \frac{1}{2} \text{ hours}} = \frac{\quad}{1 \text{ hour}}$

2. $\frac{45 \text{ dogs}}{15 \text{ houses}} = \frac{\quad}{1 \text{ house}}$

9. $\frac{\$216}{18 \text{ hours}} = \frac{\quad}{1 \text{ hour}}$

3. $\frac{\$333}{6 \text{ video games}} = \frac{\quad}{1 \text{ video game}}$

10. $\frac{8 \text{ pizzas}}{16 \text{ teammates}} = \frac{\quad}{1 \text{ teammate}}$

4. $\frac{\$48}{6\text{-month membership}} = \frac{\quad}{1\text{-month membership}}$

11. $\frac{400 \text{ miles}}{16 \text{ gallons}} = \frac{\quad}{1 \text{ gallon}}$

5. $\frac{40 \text{ driveways snowplowed}}{4 \text{ hours}} = \frac{\quad}{1 \text{ hour}}$

12. $\frac{\$192}{6 \text{ sweaters}} = \frac{\quad}{1 \text{ sweater}}$

6. $\frac{80 \text{ gallons}}{10 \text{ minutes}} = \frac{\quad}{1 \text{ minute}}$

13. $\frac{450 \text{ words}}{9 \text{ minutes}} = \frac{\quad}{1 \text{ minute}}$

7. $\frac{3 \text{ miles}}{\frac{1}{4} \text{ hour}} = \frac{\quad}{1 \text{ hour}}$

14. $\frac{54 \text{ wins}}{6 \text{ seasons}} = \frac{\quad}{1 \text{ season}}$

Name: _____ Date: _____

Directions: Solve each problem.

1. Tamyra bought 8 pairs of shoes for \$256. How much was 1 pair of shoes?

2. Li ate 2 hot dogs in $\frac{1}{3}$ of a minute. How many hot dogs could Li eat in 1 minute?

3. Bart bought 8 candy bars for \$4. How much did each candy bar cost?

4. Camille read 84 pages of her book in 4 hours. At that speed, how many pages did Camille read in 1 hour?

5. Yan used 12 cups of sugar to make 6 pies. How many cups of sugar did Yan use for 1 pie?

6. Devin earned \$186 for $15\frac{1}{2}$ hours of work. How much did Devin earn in 1 hour?

7. Patty finished 16 math problems in $\frac{2}{3}$ of an hour. At this rate, how many problems will Patty complete in 1 hour?

8. Lonnie bought 4 pounds of oranges for \$6. How much was each pound of oranges?

9. Diana drove $942\frac{1}{2}$ miles in $14\frac{1}{2}$ hours. How many miles did Diana drive in 1 hour?

10. Grant can run $\frac{1}{2}$ miles in $5\frac{1}{2}$ minutes. How many miles can Grant run in 1 minute?

11. Walt mowed 5 lawns in his neighborhood in $2\frac{1}{3}$ hours. Each lawn was the same size. How many lawns could Walt mow in 1 hour?

12. At the movies, Ron bought 4 buckets of popcorn for \$43.96. How much was 1 bucket of popcorn?

Name: _____ Date: _____

Directions: Solve each problem.

- | | |
|---|---|
| <p>1. Geno swam 3 miles at the same speed in $\frac{1}{4}$ of an hour. How many miles could Geno swim in 1 hour?</p> <p>_____</p> | <p>7. Marci needed $\frac{1}{4}$ of a cup of chocolate chips for $\frac{1}{3}$ of a cookie recipe. How many cups of chocolate chips does Marci need for 1 full cookie recipe?</p> <p>_____</p> |
| <p>2. Keith rode his bicycle 15 miles at the same speed in $1\frac{1}{4}$ hours. How many miles could Keith ride in 1 hour?</p> <p>_____</p> | <p>8. Rob's plant grew $\frac{1}{8}$ of an inch in $\frac{1}{2}$ of a week. How many inches will Rob's plant grow in 1 week?</p> <p>_____</p> |
| <p>3. Wendy made 5 ceramic bowls in $\frac{1}{4}$ of an hour. How many bowls could she make in 1 hour?</p> <p>_____</p> | <p>9. Connie kept score at $\frac{1}{6}$ of her softball games for $\frac{1}{2}$ of the season. If there were 36 games this season, for how many games did Connie keep score?</p> <p>_____</p> |
| <p>4. Lance skateboarded $\frac{1}{2}$ of a mile in $\frac{1}{3}$ of an hour. How many miles could he skateboard in 1 hour?</p> <p>_____</p> | <p>10. Ling's garden takes $\frac{1}{8}$ of a bag of flower seeds for $\frac{1}{16}$ of the garden. How many bags of seeds will Ling need to fill the entire garden?</p> <p>_____</p> |
| <p>5. Carol folded 16 origami animals in $\frac{2}{5}$ of an hour. How many animals could she fold in 1 hour?</p> <p>_____</p> | <p>11. Angus ran 9 miles in $\frac{4}{5}$ of an hour. How many miles will Angus run in 1 hour?</p> <p>_____</p> |
| <p>6. Darci cut out 10 character drawings in $\frac{1}{5}$ of an hour. How many character drawings could she cut out in 1 hour?</p> <p>_____</p> | <p>12. Gus mows 7 lawns in $2\frac{1}{4}$ hours. How many lawns does Gus mow in 1 hour?</p> <p>_____</p> |

Name: _____ Date: _____

**Reminder**

You can divide the numerator by the denominator to find the unit rate.

Directions: Solve each problem.

- | | |
|--|---|
| <p>1. Marcella takes her sister for a walk in the stroller every day. She walks $\frac{1}{3}$ of a mile in $\frac{1}{6}$ of an hour. How many miles can she walk in 1 hour?</p> <p>_____</p> | <p>7. A plant grew $\frac{2}{3}$ of an inch in $\frac{1}{6}$ of a week. How many inches will the plant grow in 1 week?</p> <p>_____</p> |
| <p>2. Kenny walks his dog after school every day. He walks $\frac{3}{5}$ of a mile in $\frac{1}{10}$ of an hour. How many miles can he walk in 1 hour?</p> <p>_____</p> | <p>8. Pears cost \$14 for $3\frac{1}{2}$ pounds. How much is the cost of 1 pound of pears?</p> <p>_____</p> |
| <p>3. Michael runs $\frac{4}{5}$ of a mile in $\frac{1}{10}$ of an hour. How many miles can Michael run in 1 hour?</p> <p>_____</p> | <p>9. Pizzas cost \$109.50 for 6 pizzas. How much does 1 pizza cost?</p> <p>_____</p> |
| <p>4. Gracie bakes $\frac{1}{2}$ a dozen cupcakes with $1\frac{1}{2}$ cups of flour. How many cupcakes can Gracie bake with 1 cup of flour?</p> <p>_____</p> | <p>10. Stan paints $4\frac{1}{4}$ walls in $2\frac{1}{2}$ hours. How many walls does Stan paint per hour?</p> <p>_____</p> |
| <p>5. Manny makes pillows. He sews $2\frac{1}{2}$ pillows in $\frac{2}{4}$ of an hour. How many pillows can Manny make in 1 hour?</p> <p>_____</p> | <p>11. Justine needs $4\frac{1}{2}$ cups of strawberries for 3 cakes. How many cups of strawberries does she need for 1 cake?</p> <p>_____</p> |
| <p>6. Jennifer frosts $3\frac{1}{5}$ cakes in $\frac{1}{5}$ of an hour. How many cakes can Jennifer frost in 1 hour?</p> <p>_____</p> | <p>12. There are 130 students in $4\frac{1}{3}$ classes. If the number of students is the same in each class, how many students are in 1 class?</p> <p>_____</p> |