

grade 7

MATH  
WORKBOOK  
SAMPLE



**oak meadow**

INDEPENDENT LEARNING SINCE 1975

# Grade 7 Math

## Oak Meadow Workbook

**Oak Meadow, Inc.**  
Post Office Box 1346  
Brattleboro, Vermont 05302-1346  
oakmeadow.com

Item #b074120

Grade



# Contents

---

## Worksheets

---

<b>Lesson 1</b> .....	1
Skills Check	
New Skills Practice: <b>Mean, Median, Mode, and Range;</b> <b>Exponents; Order of Operations</b>	
Lesson Test	
<b>Lesson 2</b> .....	11
Skills Check	
New Skills Practice: <b>Lowest Common Denominator,</b> <b>LCDs in Mixed Numbers</b>	
Lesson Test	
<b>Lesson 3</b> .....	19
Skills Check	
New Skills Practice: <b>Multiplying and Dividing Fractions</b> <b>and Mixed Numbers, Canceling Fractions, Fractions</b> <b>in the Order of Operations</b>	
Lesson Test	
<b>Lesson 4 Skills Review</b> .....	29
Lesson Test	
<b>Lesson 5</b> .....	35
Skills Check	
New Skills Practice: <b>Comparing Decimal Fractions;</b> <b>Adding and Subtracting Decimals; Multiplying</b> <b>Decimals</b>	
Lesson Test	

**Lesson 6**..... 45  
 Skills Check  
 New Skills Practice: **Dividing Decimals, Dividends of Less Than 1, Factors**  
 Lesson Test

**Lesson 7**..... 53  
 Skills Check  
 New Skills Practice: **Multiplying and Dividing Decimals by 10, 100, and 1000; Calculating Percentages; Principle and Interest; Compound Interest**  
 Lesson Test

**Lesson 8**..... 61  
 Skills Check  
 New Skills Practice: **Converting Between Fractions, Decimals, and Percentages; Percentages in Word Problems; Calculating Square Roots**  
 Lesson Test

**Lesson 9 Skills Review**..... 71  
 Lesson Test

**Lesson 10** ..... 75  
 Skills Check  
 New Skills Practice: **Finding Missing Numbers in Addition and Subtraction Equations; Finding Missing Numbers in Multiplication and Division Equations**  
 Lesson Test

**Lesson 11** ..... 85  
 Skills Check  
 New Skills Practice: **Negative Numbers; Using a Number Line; Graphing Inequalities; Metric Units of Measurement**  
 Lesson Test

**Lesson 12** ..... 95  
 Skills Check  
 New Skills Practice: **Adding and Subtracting Signed Numbers**  
 Lesson Test

<b>Lesson 13</b> .....	103	
Skills Check		
New Skills Practice: <b>Multiplying Signed Numbers;     Dividing Signed Numbers</b>		
Lesson Test		
<b>Lesson 14 Skills Review</b> .....	111	
Lesson Test		
<b>Lesson 15</b> .....	115	
Skills Check		
New Skills Practice: <b>Addition Rule of Equations;     Subtraction Rule for Equations; Division Rule for     Equations; Multiplication Rule for Equations</b>		
Lesson Test		
<b>Lesson 16</b> .....	125	
Skills Check		
New Skills Practice: <b>Calculating Probability; Probability of     a Series</b>		
Lesson Test		
<b>Lesson 17</b> .....	135	
Skills Check		
New Skills Practice: <b>Using a Calculator for Decimals,     Fractions, and Percentages; Using a Calculator with     Signed Numbers; Calculating Square Roots; Third     and Fourth Roots</b>		
Lesson Test		
<b>Lesson 18 Skills Review</b> .....	145	
Lesson Test		
<b>Lesson 19</b> .....	157	
Skills Check		
New Skills Practice: <b>Circumference and Area of a Circle;     Measuring and Classifying Angles; Measuring and     Classifying Triangles</b>		
Lesson Test		

**Lesson 20** ..... 167  
 Skills Check  
 New Skills Practice: **Using a Compass; Constructing Triangles; Calculating the Area of Rectangles and Triangles**  
 Lesson Test

**Lesson 21** ..... 177  
 Skills Check  
 New Skills Practice: **Applying Formulas; Distance, Rate, and Time; Transforming Formulas**  
 Lesson Test

**Lesson 22** ..... 189  
 Skills Check  
 New Skills Practice: **Determining Sequence Patterns; Applying Functions to Find Unknown Values; Identifying Functions**  
 Lesson Test

**Lesson 23 Skills Review**..... 199  
 Lesson Test

**Lesson 24** ..... 205  
 Skills Check  
 New Skills Practice: **Determining Ratios; Calculating Proportions; Converting Units in Proportions; Using Proportions in Congruent and Similar Triangles; Multistep Ratio Problems**  
 Lesson Test

**Lesson 25** ..... 217  
 Skills Check  
 New Skills Practice: **Using Two Rules to Solve Equations; Variables, Terms, and Coefficients; Expressions with More Than One Variable; Combining Like Terms; Negative Coefficients; Two-step Evaluation Problems**  
 Lesson Test

<b>Lesson 26</b> .....	227
Skills Check	
New Skills Practice: <b>Constructing a Perpendicular Bisector; Drawing a Geometric Design; Copying Angles by Construction; Bisecting an Angle</b>	
Lesson Test	
<b>Lesson 27 Skills Review</b> .....	235
Lesson Test	
<b>Lesson 28</b> .....	241
Skills Check	
New Skills Practice: <b>Calculating the Perimeter of Polygons; Drawing Geometric Solids; Determining the Volume of Geometric Solids</b>	
Lesson Test	
<b>Lesson 29</b> .....	257
Skills Check	
New Skills Practice: <b>Creating Equations to Solve Problems with Unknowns; Equations for Parts of Numbers; Developing Equations from Word Problems</b>	
Lesson Test	
<b>Lesson 30</b> .....	269
Skills Check	
New Skills Practice: <b>Symbols of Inclusion in the Order of Operations; Evaluating Variables with Exponents; Finding the Value of Squared Variables; Multiple-Term Equations</b>	
Lesson Test	
<b>Lesson 31</b> .....	283
Skills Check	
New Skills Practice: <b>Fractions with Exponents; Roots of Fractions; Exponents with Negative Bases; Roots of Negative Numbers</b>	
Lesson Test	

**Lesson 32 Skills Review**..... 295  
 Lesson Test

**Lesson 33** ..... 301  
 Skills Check  
 New Skills Practice: **Scientific Notation; Multiplying with Scientific Notation; Metric Units of Weight and Volume**  
 Lesson Test

**Lesson 34** ..... 311  
 Skills Check  
 New Skills Practice: **Rectangular Coordinates; Graphing a Line for an Equation; Base 2 Numbers**  
 Lesson Test

**Lesson 35 Skills Review**..... 323  
 Lesson Test

**Lesson 36 Final Exam**..... 329  
 Lesson Test/Final Exam

**Appendix**

**Extra Practice Worksheets**..... 349

**Lesson 1** ..... 349  
 Addition and Subtraction in Order of Operations  
 Parentheses in Order of Operations  
 Multiplication in Order of Operations  
 Division in Order of Operations

**Lesson 2**..... 357  
 Common Denominators in Addition and Subtraction Involving Fractions  
 Finding the Lowest Common Denominator (LCD)  
 LCDs in Mixed Numbers  
 Regrouping in Mixed Number Subtraction



<b>Lesson 3</b> .....	<b>365</b>
Multiplying Fractions	
Multiplying Mixed Numbers	
Reducing Fractions by Canceling before Multiplying	
Dividing Fractions	
<b>Lesson 5</b> .....	<b>373</b>
Comparing Decimals	
Adding Decimals	
Subtracting Decimals	
Multiplying Decimals	
<b>Lesson 6</b> .....	<b>381</b>
Dividing Decimals by Whole Numbers	
Dividends of Less Than 1	
Decimals with Remainders	
Dividing Decimals by Decimals	
Dividing Whole Numbers by Decimals	
<b>Lesson 7</b> .....	<b>391</b>
Multiplying Decimals by 10, 100, and 1,000	
Dividing Decimals by 10, 100, and 1,000	
Calculating Percentages	
Converting Decimals to Percentages	
<b>Lesson 8</b> .....	<b>399</b>
Converting Fractions to Decimals and Percentages	
Converting Decimals to Percentages and Fractions	
Word Problems Involving Percentages	
Calculating Square Roots	
<b>Lesson 10</b> .....	<b>407</b>
Finding Missing Numbers in Addition and Subtraction Equations	
Finding Missing Numbers in Multiplication Equations	
Finding Missing Numbers in Division Equations	
<b>Lesson 12</b> .....	<b>415</b>
Adding Signed Numbers	
Subtracting Signed Numbers	

**Lesson 13** ..... 419  
 Multiplying Signed Numbers  
 Dividing Signed Numbers

**Lesson 15** ..... 423  
 Addition Rule of Equations  
 Subtraction Rule of Equations  
 Division Rule of Equations  
 Multiplication Rule of Equations

**Lesson 17** ..... 431  
 Using a Calculator for Decimals  
 Using a Calculator to Convert Fractions to Decimals  
 Using a Calculator to Determine the Value of Exponents  
 Using a Calculator to Find Square Roots

**Lesson 20** ..... 439  
 Calculating the Area of a Triangle

**Lesson 21** ..... 441  
 Applying Formulas  
 Transforming Formulas

**Lesson 22** ..... 445  
 Determining Sequence Patterns  
 Applying and Identifying Functions

**Lesson 24** ..... 449  
 Determining Ratios  
 Calculating Proportions  
 Proportions in Word Problems  
 Converting Units in Proportion Problems  
 Multistep Ratio Problems

**Lesson 25** ..... 459  
 Using Two Rules to Solve Equations  
 Equations with Two Variables  
 Combining Like Terms

<b>Lesson 29</b> .....	465
Creating Equations to Solve Problems with Unknowns	
Equations for Parts of Numbers	
<b>Lesson 30</b> .....	471
Symbols of Inclusion in the Order of Operations	
Evaluating Variables with Exponents	
Multiple-Term Equations	
<b>Lesson 31</b> .....	479
Roots of Fractions	
Exponents with Negative Bases	
Roots of Negative Numbers	
<b>Lesson 33</b> .....	485
Scientific Notation	
<b>Lesson 35</b> .....	487
Grade 7 Year-end Review Practice Sheet 1	
Grade 7 Year-end Review Practice Sheet 2	
Grade 7 Year-end Review Practice Sheet 3	
Grade 7 Year-end Review Practice Sheet 4	
Grade 7 Year-end Review Practice Sheet 5	
Grade 7 Year-end Review Practice Sheet 6	
Grade 7 Year-end Review Practice Sheet 7	
Grade 7 Year-end Review Practice Sheet 8	
Grade 7 Year-end Review Practice Sheet 9	
Grade 7 Year-end Review Practice Sheet 10	
<b>B-tests for enrolled students</b> .....	527
<b>Answer Key</b> .....	611

## Grade 7



# Skills Check

---

Use a calculator to solve decimal problems, and solve common fraction problems by hand. Round off longer answers to two decimal places.

1. 
$$\begin{array}{r} 16.75 \\ + 18.63 \\ \hline \end{array}$$

2.  $3\frac{1}{3} + 2\frac{1}{4}$

3. 
$$\begin{array}{r} 71.56 \\ \times 0.68 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 18.43 \\ - 7.09 \\ \hline \end{array}$$

5.  $3\frac{1}{3} \sqrt{2\frac{2}{9}}$

6.  $9.2 \times 3.5$

7.  $12.6 - 9.04$

8.  $1\frac{1}{4} \times 2\frac{3}{5}$

9.  $1.287 + 0.94$

Grade 7



# New Skills Practice: Dividing Decimals; Factors and Prime Numbers

---

1.  $4.2\overline{\smash{)}3}$

2.  $7\overline{)22.47}$

3.  $9\overline{)13.536}$

4.  $0.795\overline{\smash{)}5}$

5.  $6\overline{)0.528}$

6.  $0.204\overline{\smash{)}3}$

7.  $34.7\overline{\smash{)}4}$

8.  $11.53\overline{\smash{)}5}$

9.  $8\overline{)42.6}$

**Lesson 6 New Skills Practice** *(continued)*

10.  $9.240\sqrt{.3}$

11.  $.14\overline{)7686}$

12.  $1.922\sqrt{.2}$

13.  $9\sqrt{.5}$

14.  $145\sqrt{.4}$

15.  $1.6\overline{)15}$

Write the factors of the following numbers.

16. 8

17. 14

18. 1

19. 24

20. 10

21. 7

# Grade 7



# Test

---

Reduce all common fractions to lowest terms.

1.  $0.7 + 0.538$

2.  $6 \overline{)14.976}$

3.  $1\frac{3}{4} \sqrt{2\frac{1}{2}}$

4.  $8 \overline{).032}$

5.  $48 \sqrt{2.4}$

6.  $4 \overline{)15.8}$

7.  $1\frac{7}{8} \times 1\frac{1}{3}$

8.  $5 \overline{)19.46}$

9. 
$$\begin{array}{r} 74.65 \\ \times 8.3 \\ \hline \end{array}$$

**Lesson 6 Test** *(continued)*

10.  $14.32 - 0.587$

11. 
$$\begin{array}{r} 15.68 \\ \times \quad 23 \\ \hline \end{array}$$

12.  $.3 \overline{)45}$

13. Mrs. Johnson drives to work every day. When she left for work one day, the odometer (mileage gauge) on her car read 38,643.8. When she returned to her house at the end of the day, the odometer read 38,668.6. If she didn't drive anywhere else during the day but to work and back, how many miles is it from her house to her work?
14. Jason is buying a car, and he wants to pay for it in 48 monthly installments. If the total cost of the car is \$9,300, how much would Jason have to pay each month?



**Lesson 6 Test** *(continued)*

- 15.** Jennifer bought an axe at the hardware store. The axe cost \$19.95 and the tax was \$1.20. If she gave the clerk \$25.00, how much change should she receive?
- 16.** Rahima goes jogging on a course that is 2.75 kilometers long. If she completes the full course every morning, how many kilometers does she jog in one week?

**Lesson 6 Learning Checklist**

LESSON 6 SKILLS	Developing	Consistent	Competent	Notes
Divide using decimals and whole numbers				
Divide decimals by decimals				
Solve division problems involving rounding remainders in decimals				
Solve division problems involving repeating decimals				
Determine factors of a whole number				
Identify prime numbers				

## Grade 7



# Skills Check

---

Reduce all fractions to lowest terms.

1.  $0.06 + 17.375$

2.  $1\frac{7}{8} \sqrt{1\frac{1}{4}}$

3. 
$$\begin{array}{r} 15.69 \\ \times \quad 24 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 9 \overline{)0.036} \end{array}$$

5. 
$$\begin{array}{r} 7.69 \\ \times \quad .4 \\ \hline \end{array}$$

6.  $9.6 - 1.308$

7.  $40.6 \times 5.3$

8.  $3\frac{1}{8} \times 1\frac{6}{10}$

9. 
$$2 \overline{)6.13}$$

**Lesson 7 Skills Check** *(continued)*

10.  $6 \overline{)9.84}$

11.  $5 \overline{)32.05}$

12.  $0.286 \times 12$

13. On Saturday, Naomi drove 42.9 miles. On Sunday, she drove 28.7 miles. How many total miles did she drive on Saturday and Sunday?

14. Write  $29\frac{5}{10}$  as a decimal fraction.

15. Ibrahim bought a pair of pants, and the total came to \$31.75. If he gave the clerk two \$20 bills, how much change should he receive?

16. Write 15.75 as a common fraction.

Grade 7



# New Skills Practice: Percentages, Simple and Compound Interest

---

1.  $7.902 \times 10$

2.  $7.891 \times 100$

3.  $5.732 \times 1000$

4.  $290.7 \sqrt{10}$

5.  $348.7 \sqrt{100}$

6.  $169.2 \sqrt{1000}$

7. How much is 25% of 600?

8. How much is 14% of 325?

9. 2% of 96 is how much?

**Lesson 7 New Skills Practice** *(continued)*

Convert the following decimals to percents and include the percent sign.

10. .79

13. .80

11. .548

14. 5.96

12. .6

15. .3

16. Samantha is interested in a stereo system that she saw at Stereo Warehouse. The system normally sells for \$849, but it's on sale for 20% off the regular price. How much will Susan save off the regular price if she buys during the sale?

17. Ellen goes to an exercise class every Wednesday night. 40% of the students in the class are men. If there are 30 students in the class, how many men are in Ellen's exercise class?

18. 60% of the members of the Riverview Kiwanis Club voted for Jeff Bridges for President. If there were 75 members in the club, how many members voted for Jeff?

# Grade 7



# Test

---

Reduce all common fractions to lowest terms.

1.  $.6 \overline{)14.04}$

2.  $2^5$

3.  $7 \overline{)1.435}$

4.  $9(7.1 - 2.6)$

5.  $\frac{3}{4} \times 3\frac{1}{5}$

6. 5% of 240

7.  $1.8 \overline{)428.4}$

8.  $2\frac{3}{5} \sqrt{\frac{4}{5}}$

9.  $49\sqrt{3}$

**Lesson 7 Test** *(continued)*

**10.** 12.5% of 86

**11.** 
$$\begin{array}{r} .638 \\ \times 4.2 \\ \hline \end{array}$$

**12.**  $10\left(\frac{1}{2} \cdot \frac{3}{4}\right)$

**13.**  $18 - 6 \cdot 2 + 9 - 3(3)$

**14.**  $25 - (6 + 3) + 8 \div 2 - (12 - 8)$

**15.**  $3(4 + 2) - 6 + 5 \cdot 2 + (12 - 5)$

**16.**  $4(8) - 16 + (6 + 2) - 18 \div 3$

## Lesson 7 Learning Checklist

LESSON 7 SKILLS	Developing	Consistent	Competent	Notes
Multiply decimals by 10, 100, and 1,000				
Divide decimals by 10, 100, and 1,000				
Convert between percentages and decimals				
Calculate percentages				
Determine simple interest based on a principal amount				
Calculate compound interest				