

About the Assessment Book

Prerequisite Skills Practice with Item Analysis

The Prerequisite Skills Practice covers material that students should be familiar with from the prior grade. The Item Analysis can be used to determine topics that need to be reviewed.

Pre-Course Test

The Pre-Course Test measures students' current understanding of the content in this course.

Quizzes

The Quizzes provide ongoing assessment of student understanding. There are two quizzes for each chapter.

Chapter Tests

The Chapter Tests provide assessment of student understanding of key concepts taught in the chapter. There are two tests for each chapter.

Course Benchmark Tests

The Course Benchmark Tests measure students' cumulative understanding of topics throughout the course. There are three tests, one after each of the first three quarters.

Alternative Assessment with Scoring Rubric

Each Alternative Assessment includes at least one multi-step problem that combines a variety of concepts from the chapter. Students are asked to explain their solutions, write about the mathematics, or compare and analyze different situations.

STEAM Performance Tasks

The STEAM Performance Tasks present an assessment of the content in each chapter in a real-world situation. These tasks correlated to the STEAM Video in each chapter.

Post-Course Test

The Post-Course Test measures students' understanding of all content in this course.

Chapter
3**Quiz**

For use after Section 3.5

Add or subtract.

1. $\frac{7}{12} - \frac{15}{36}$

2. $4\frac{2}{5} + 1\frac{1}{3}$

3. $18.49 + 47.026$

4. $34.982 - 29.149$

Multiply or divide.

5. $\frac{1}{4} \cdot \frac{2}{7}$

6. $\frac{1}{9} \times 2\frac{3}{4}$

7. $\frac{5}{6} \div 4$

8. $2\frac{2}{3} \div 1\frac{1}{7}$

9. A patio is rectangular. Its length is 8.39 meters, and its width is 5.4 meters. What is the approximate perimeter of the patio? Round your answer to the nearest whole number.
10. A bottle contains 64 fluid ounces of syrup. Each day, you use $3\frac{1}{5}$ fluid ounces of syrup from the bottle. Is there enough syrup in the bottle for 25 days?
11. A mug is $\frac{3}{7}$ full. The mug contains $\frac{1}{2}$ of a cup of water. Find the capacity of the mug. Write the answer as a fraction or mixed number.
12. You bike $11\frac{1}{4}$ miles from your house to a state park. You travel $\frac{1}{6}$ of that distance in the woods. You bike along the bank of a stream for the last $\frac{2}{5}$ of the woods. On how many miles of your trip do you bike along the bank of the stream?
13. Evaluate the expression $5 + \frac{1}{2} \cdot \left(\frac{6}{7} \div \frac{1}{9}\right)$. Write the answer as a fraction or mixed number.

**Chapter
3****Quiz**

For use after Section 3.10

1. Find 8.302×15 .
2. Evaluate $1.2(8.9 - 1.243)$.
3. You make 12 equal payments. You pay a total of \$1308. How much is each payment?
4. Find the quotient of 5441 and 200. Write the answer as a mixed number.

Divide.

5. $5.472 \div 30$
6. $0.896 \div 0.64$
7. $19 \div 1.52$
8. A rectangular mural has a length of 10.6 feet and a perimeter of 33.7 feet. What is the area of the mural?
9. The first four numbers in a pattern are 4, 2, 1, and 0.5. Find the next three numbers in the pattern.
10. A teacher buys 3.25 ounces of a compound for an experiment. The compound costs \$3.56 per ounce. The teacher pays with a \$20 bill. How much change does the teacher receive?

**Chapter
3****Test A****Add, subtract, multiply, or divide.**

1. $\frac{1}{6} \cdot \frac{2}{5}$

2. $\frac{1}{8} + 1\frac{4}{9}$

3. 1.156×8

4. $\frac{7}{9} - \frac{2}{3}$

5. $\frac{4}{9} \div 6$

6. $1\frac{1}{3} \div 1\frac{1}{6}$

Evaluate the expression.

7. $21.171 - 17.135 + 8.356$

8. $3.7(4.13 + 1.299)$

9. You make 12 equal payments. You pay a total of \$1524. How much is each payment?

10. Find the quotient of 3808 and 200. Write the answer as a mixed number.

Divide.

11. $9.348 \div 12$

12. $0.812 \div 0.14$

13. $18 \div 3.75$

14. A pot contains 32 ounces of soil. You use $3\frac{1}{8}$ ounces of soil to plant 1 herb. Is there enough soil in the pot to plant 10 herbs?

**Chapter
3****Test A** (continued)

15. You have 4 cups of raisins. A recipe calls for $\frac{3}{8}$ cup of raisins per serving. How many full servings can you make?
16. You run $9\frac{3}{5}$ miles as a part of an exercise routine. You run $\frac{1}{4}$ of that distance on a hill. You run down a slope for the last $\frac{3}{8}$ of the hill. On how many miles of your run do you run down the slope?
17. Evaluate the expression $9 - \frac{3}{4} \cdot \left(\frac{3}{5} \div \frac{1}{8}\right)$. Write the answer as a fraction or mixed number.
18. A patio is rectangular. Its length is 8.32 meters, and its width is 3.1 meters. What is the approximate perimeter of the patio? Round your answer to the nearest whole number.
19. The first four numbers in a pattern are 4, 3.6, 3.2, and 2.8. Find the next three numbers in the pattern.
20. A container can hold a maximum of 17.5 pounds. There are four identical objects in the container. Each object weighs 2.65 pounds. How many more pounds can the container hold?
21. Two computers just scanned for viruses at the same time. Computer A runs a virus scan every 3.75 days. Computer B runs a virus scan every 4.5 days. How long will it be until both computers run a virus scan at the same time again?

**Chapter
3****Test B****Add, subtract, multiply, or divide.**

1. $\frac{6}{7} \cdot \frac{3}{4}$

2. $\frac{1}{4} + 7\frac{2}{3}$

3. 3.67×9

4. $\frac{2}{5} - \frac{1}{3}$

5. $\frac{3}{8} \div 5$

6. $1\frac{1}{3} \div 1\frac{1}{7}$

Evaluate the expression.

7. $23.361 + 8.213 - 15.986$

8. $1.2(6.32 - 2.48)$

9. You make 12 equal payments. You pay a total of \$1224. How much is each payment?

10. Find the quotient of 2708 and 200. Write the answer as a mixed number.

Divide.

11. $1.544 \div 40$

12. $0.928 \div 0.29$

13. $18 \div 1.44$

14. A bottle contains 128 fluid ounces of dish soap. Each week, you use $5\frac{1}{3}$ fluid ounces of dish soap from the bottle. Is there enough dish soap in the bottle for 30 weeks?

**Chapter
3****Test B** (continued)

15. A pharmacy has 7 pints of cough syrup. A prescription calls for $\frac{2}{5}$ pint of cough syrup. How many full prescriptions can be filled?
16. You bike $14\frac{1}{4}$ miles from your house to a state park. You travel $\frac{1}{3}$ of that distance in the woods. You bike along the bank of a stream for the last $\frac{1}{2}$ of the woods. On how many miles of your trip do you bike along the bank of the stream?
17. Evaluate the expression $4 + \frac{1}{9} \cdot \left(\frac{6}{7} \div \frac{1}{2}\right)$. Write the answer as a fraction or mixed number.
18. A patio is rectangular. Its length is 6.89 meters, and its width is 4.2 meters. What is the approximate perimeter of the patio? Round your answer to the nearest whole number.
19. The first four numbers in a pattern are 1, 1.3, 1.6, and 1.9. Find the next three numbers in the pattern.
20. A bag can hold a maximum of 6.95 kilograms. There are five identical objects in the bag. Each object weighs 0.56 kilogram. How many more kilograms can the bag hold?
21. Two machines just completed projects at the same time. Machine A completes a project every 1.25 minutes. Machine B completes a project every 4.5 minutes. How long will it be until both machines complete a project at the same time again?

**Chapter
3****Alternative Assessment**

1. A student learning to divide mixed numbers completed the following homework problem. Describe how you would help the student learn from his or her mistake.

\times	$6\frac{3}{8} \div 2\frac{1}{2} = 3\frac{3}{4}$
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2. Your friend is planning a road trip. The cost of regular grade gasoline is \$3.74 per gallon.
- Find the cost of filling his car's 23-gallon gas tank.
 - Your friend drives 469.2 miles on 1 tank of gasoline. Calculate his fuel efficiency in miles per gallon.
 - At the next gas station, your friend considers purchasing a higher grade of gasoline with a cost of \$3.94 per gallon. How much more does it cost to fill his tank using higher grade gasoline instead of regular grade?
 - Toward the end of his trip, your friend realizes he only has \$35.53 left in his wallet. How many more gallons of regular grade gasoline can he purchase?
 - Your friend is 153 miles from home. Use the car's fuel efficiency calculated in part (b) to determine if your friend will reach home before running out of gasoline.
 - Your friend's entire road trip was 1759.5 miles. Assuming his car had the same fuel efficiency and he always bought regular grade gasoline, calculate the cost of fuel for his trip.

Chapter
3
Alternative Assessment Rubric

Score	Conceptual Understanding	Mathematical Skills	Work Habits
4	Shows complete understanding of: <ul style="list-style-type: none"> • dividing mixed numbers • multiplying and dividing decimals • the operation required to reach the answer 	Shows all work. Answers all questions correctly.	Answers all parts of each problem. Work is neat and well organized.
3	Shows nearly complete understanding of: <ul style="list-style-type: none"> • dividing mixed numbers • multiplying and dividing decimals • the operation required to reach the answer 	Shows most work. Makes one or two computational errors.	Answers all parts of each problem. Work is neat and easy to follow.
2	Shows some understanding of: <ul style="list-style-type: none"> • dividing mixed numbers • multiplying and dividing decimals • the operation required to reach the answer 	Shows some work. Makes more than two computational errors.	Answers most parts of each problem. Work is sloppy and hard to follow.
1	Shows little understanding of: <ul style="list-style-type: none"> • dividing mixed numbers • multiplying and dividing decimals • the operation required to reach the answer 	Shows very little or no work. Makes many computational errors.	Answers some parts of each problem. Work is sloppy and hard to follow.

**Chapter
3****Performance Task****Space Explorers**

It takes three days to send a spacecraft to the Moon. How long would it take to send astronauts to the Sun? What about the other planets in our solar system? How far away from the Sun are they?

Astronomers call the average distance from Earth to the Sun an astronomical unit (AU). The table shows the average distance of each planet in our solar system from the Sun.

Planet	Average Distance from the Sun (AU)
Mercury	0.387
Venus	0.723
Earth	1.000
Mars	1.524
Jupiter	5.203
Saturn	9.537
Uranus	19.189
Neptune	30.07

1. How much farther is Saturn from the Sun than Jupiter?
2. How far apart would Mars and Jupiter be if they were on opposite sides of the Sun?
3. A space probe is a type of spacecraft that explores space without astronauts. A space probe is 4 times farther from the Sun than Mercury. How far is the probe from the Sun? Which planet is the probe near?
4. How many times farther is Jupiter from the Sun than Venus? How many times farther is Saturn from the Sun than Mars? Round your answers to the nearest tenth.

**Chapter
3**
Performance Task (continued)

Space Explorers

Instructional Overview	
Launch Question	It takes three days to send a spacecraft to the Moon. How long would it take to send astronauts to the Sun? What about the other planets in our solar system? How far away from the Sun are they?
Summary	Students will use information about our solar system to calculate and compare distances in astronomical units by adding and subtracting decimals. Students will multiply decimals to calculate the distance a space probe is from the Sun. Students will divide decimals to calculate how many times farther away one planet is from the Sun than another. Using known speeds of existing spacecraft, they will multiply and divide decimals to calculate the distance traveled and the time traveled.
Teacher Notes	<p>Because each planet is a different distance from the Sun, each planet has a different orbit. The table provided shows the average distance from each planet to the Sun. Actual distances will vary from day to day. For example, the distance from Mercury to the Sun varies from 0.313 AU to 0.459 AU.</p> <p>The spacecraft Orion is designed to explore deep space, possibly taking astronauts farther from Earth than ever before. Students may find it interesting to conduct research about the missions planned for Orion.</p>
Supplies	Copies of the task
Mathematical Discourse	What is an example of an everyday problem that requires you to make calculations with decimals?
Writing/Discussion Prompts	<ol style="list-style-type: none"> 1. Why is an astronomical unit (AU) a good measure for distances in the solar system? 2. Imagine that you are an engineer in charge of planning an expedition to the Moon. What do you need to consider in your plans?

Curriculum Content	
Content Objective	The student will add, subtract, multiply, and divide decimals to solve problems.
Mathematical Practices	<ul style="list-style-type: none"> • Understand complex problems and show determination when solving them. Students will choose strategies to answer questions about space travel. • Discern and employ patterns and structures. Students will follow established processes as they perform operations with decimals. • Decipher relationships in problems, solutions, and mathematical representations. Students will develop strategies to solve problems.

Chapter 3

Performance Task (continued)

Rubric

Space Explorers	Points
1. The student correctly calculates the distance. On average, Saturn is 4.334 AU farther from the Sun than Jupiter.	2 Correctly calculates the distance
2. The student correctly calculates the distance. If on opposite sides of the Sun, Mars and Jupiter are 6.727 AU apart.	2 Correctly calculates the distance
3. The student correctly calculates the distance and states which planet the probe is near. The probe is about 1.548 AU from the Sun; near Mars	2 Total possible points 1 Point for each correct answer
4. The student correctly calculates the amounts. Jupiter is about 7.2 times farther from the Sun than Venus. Saturn is about 6.3 times farther from the Sun than Mars.	2 Total possible points 1 Point for each correct answer
5. The student correctly calculates the distance. Orion could travel about 0.000215 AU in one hour.	2 Correctly calculates the distance
6. The student correctly calculates the distances. Orion could travel about 0.00516 AU in one day and about 1.8834 AU in one year.	2 Total possible points 1 Point for each correct answer
7. The student uses a correct strategy to solve the problem and communicates the answer using a correct unit of measure. It would take about 4650 hours, or about 194 days, for Orion to travel 1 AU from Earth.	2 Correctly calculates the time with accurate unit of measure 1 Chooses correct strategy and does not calculate accurately
8. The student uses a correct strategy to solve the problem and communicates the answer using a correct unit of measure. <i>Sample answer:</i> On average, Mars is 0.524 AU from Earth. It would take about 2400 hours, or about 101 days, to travel from Earth to Mars.	2 Correctly estimates time and expresses using accurate unit of measure 1 Chooses correct strategy and does not calculate accurately
Mathematical Practices: Understand complex problems and show determination when solving them. Students will choose strategies to answer questions about space travel.	4 The student uses problem-solving skills, applies appropriate modeling, and correctly implements the results of the models. Award partial credit as needed.
Total Points	20 points