Chapter 7

Lesson 1

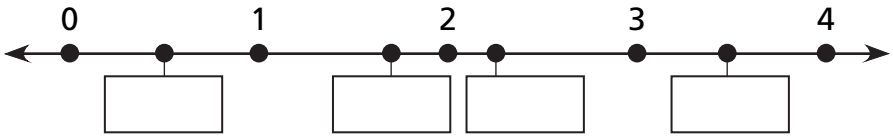
Name _____ Date _____

Investigating Decimals

NCTM Standards 1, 2, 7, 8, 9, 10

1 Locate each decimal on the number line.

1.7	3.48	0.5	2.235



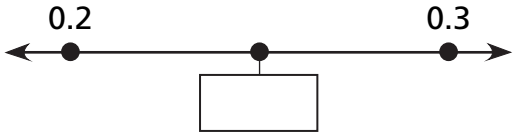
Write any number between the two numbers.

2 9 ☐ 10

3 3.2 ☐ 3.3

Write the decimal that is halfway between the two decimals.

4



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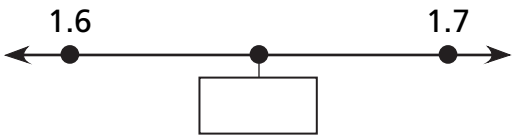

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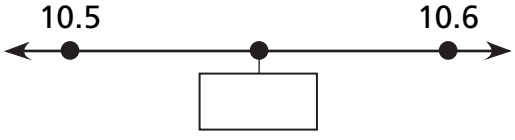

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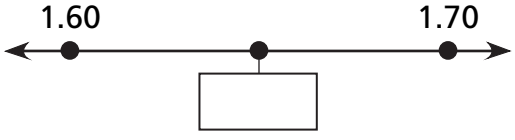

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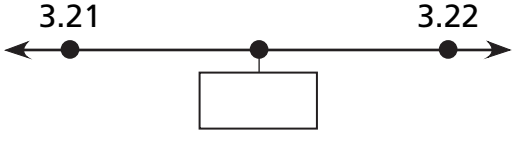

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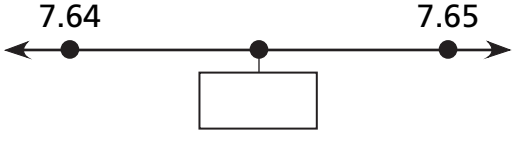


Write any number that is between the two numbers.

10	11	12
0.8 < ☐ < 0.9	3.3 < ☐ < 3.4	9.12 < ☐ < 9.13
13	14	15
7.36 < ☐ < 7.40	56.27 < ☐ < 56.31	100.62 < ☐ < 100.635

16 Explain how you know that the number you wrote for Problem 10 is correct. Use pictures, numbers, or words to explain your answer.

Circle the smaller number in each pair.

17 4.6 4.9	18 10.03 10.3	19 6.60 6.599
20 12.2 12.25	21 8.26 8.3	22 4.3 4.301

23 **Challenge** Put dots on the number line to show the approximate locations of 2.93 and 2.97. Write the numbers next to the dots. Tell why you put them where you did.

Chapter 7

Lesson 2

Name _____ Date _____

Comparing and Ordering Decimals

NCTM Standards 1, 2, 6, 7, 8, 9

Write the numbers in order from least to greatest.

1. 1.23 2.13 21.3 _____ _____ _____

2. 32.1 23.1 1.31 _____ _____ _____

3. 13.1 12.3 2.31 _____ _____ _____

4. 3.12 3.21 31.2 _____ _____ _____

Write >, <, or = to complete the number sentence.

5. 12.02 ◯ 21.01

6. 30.6 ◯ 30.42

7. 4.5 ◯ 4.52

8. 6.002 ◯ 5.9

9. 72.9 ◯ 72.90

10. 28.070 ◯ 28.70

11. 9.8 ◯ 9.10

12. 64.321 ◯ 64.32

13 Write the numbers in order from least to greatest.

589.467 587.946 687.954
589.746 689.574

_____ _____ _____ _____ _____

Circle the smallest number in each set.

14	3.2	3.02	3.20	15	9.98	8.98	9.89
16	14.602	14.61	14.59	17	101.2	10.12	1.012
18	45.901	45.19	45.2	19	3.2	3.14	3.015

20 Keith said that 7.445 is larger than 7.45 because 7.445 has more digits to the right of the decimal point. Is he correct? Explain.

_____

_____

21 **Challenge** Terrell ran the 40-yard dash in 4.6 seconds. His teammate Troy ran it in 4.39 seconds.

Who was faster? Explain how you know.

_____

_____

What is the difference between the two times?

_____

Chapter 7
Lesson 3

Name _____ Date _____

Large and Small Numbers

NCTM Standards 1, 2, 6, 7, 8, 9

Write the numbers in order from greatest to least.

1. 1,560,700 1,067,500 1,506,700 1,076,500 1,065,700

_____ **1,506,700** _____ _____ _____

2. 3.68 3.10 3.71 3.8 3.9

_____ _____ _____ _____ _____

Write the numbers in order from least to greatest.

3. 6,356,406,132 6,365,132,406 6,455,406,132 6,365,132,604

_____ _____ _____ _____

4. 4.010 4.110 4.011 4.100 4.101

_____ _____ _____ _____ _____

Solve the problem.

5. Max said that 0.16 is greater than 0.5. Is Max correct? How do you know?

_____

_____

Complete the table without using a calculator.

6

	6	9	15	162	321
× 1,000					
× 100					
× 10					
× 1					
÷ 10			1.5		
÷ 100		0.09			
÷ 1,000	0.006				

7 Explain how you knew what numbers to write in the column for 6 in Problem 6.

8 **Challenge** Complete the table.

	4.6	12.8	46.37	129.2
× 100				
× 10				
× 1				
÷ 10				

Chapter 7

Lesson 4

Name _____ Date _____

Connecting Decimals to Fractions

NCTM Standards 1, 2, 7, 8, 9, 10

Fill in the fraction notation (above the picture) and decimal notation (below the picture) to match the blocks.

Example

$2 + \frac{4}{10} + \frac{5}{100} = 2\frac{45}{100}$

1s	10ths	100ths
		

2 . 4 5

1 $\square + \frac{\square}{10} + \frac{3}{100} = \frac{\square}{100}$

1s	10ths	100ths
		

□ . 8 □

2 $\square + \frac{\square}{10} + \frac{\square}{100} = \frac{\square}{100}$

1s	10ths	100ths
		

□ . □ □

3 $\square + \square + \square \quad \frac{\square}{100}$

1s	10ths	100ths
		

□ . □ □

4 $\square + \square + \square \quad \square$

1s	10ths	100ths
		

□ . □ □

5 $\square + \square \quad \square = \square$

1s	10ths	100ths
		

□ . □ □

Write the mixed number that matches the decimal.

Example

100s	10s	1s	10ths	100ths
4	2	1	3	6

$421\frac{36}{100}$

6

100s	10s	1s	10ths	100ths
	2	9	9	

_____

7

100s	10s	1s	10ths	100ths
3	6	0	1	0

_____

8

100s	10s	1s	10ths	100ths
	8	9	0	3

_____

Write the decimal that matches the mixed number.

Example

100s	10s	1s	10ths	100ths
	6	2	7	2

$62\frac{72}{100}$

9

100s	10s	1s	10ths	100ths

$103\frac{8}{10}$

10

100s	10s	1s	10ths	100ths

$420\frac{5}{100}$

11

100s	10s	1s	10ths	100ths

$17\frac{70}{100}$

12 Challenge Which decimal has the same value as **72.9**:

72.09 or 72.90? _____

Tell or show how you know.

Chapter 7

Lesson 5

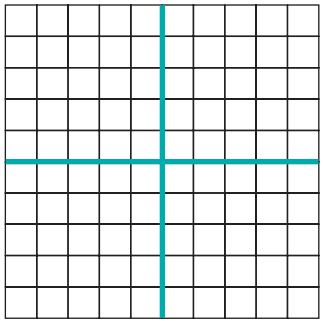
Name _____ Date _____

Connecting Decimals to Other Fractions

NCTM Standards 1, 2, 6, 7, 8, 10

Use the grid to help you write the equivalent decimal for each fraction.

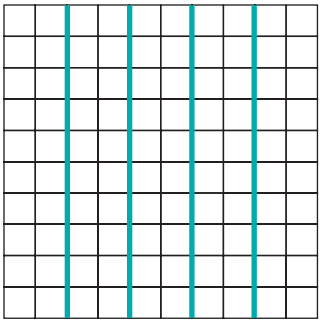
1



$\frac{1}{4} =$ _____

$\frac{3}{4} =$ _____

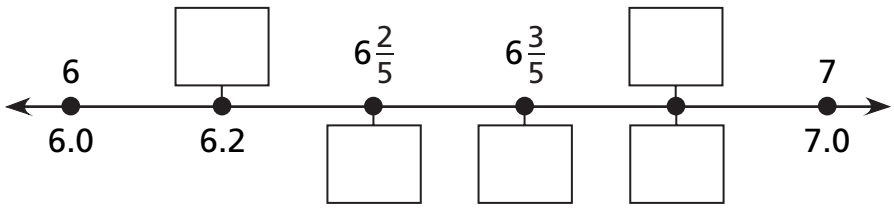
2



$\frac{3}{5} =$ _____

$\frac{2}{5} =$ _____

3 Write the mixed numbers above the number line and the matching decimals below.



Write equivalent fractions and decimals.

Example

$\frac{1}{2} = \frac{5}{10} = 0.5$

4 $\frac{1}{5} = \frac{\square}{10} = 0.$ _____

5 $\frac{1}{4} = \frac{\square}{100} = 0.$ _____

6 $\frac{3}{4} = \frac{\square}{100} = 0.$ _____

7 $\frac{4}{5} = \frac{\square}{10} = 0.$ _____

8 $\frac{1}{20} = \frac{\square}{100} = 0.$ _____

9 Jordan ran $\frac{4}{5}$ mile. Kelley ran 0.75 mile. Who ran farther? Explain how you know.

_____

Simplify each fraction. Then write the equivalent decimal.

Example

$\frac{2}{4} = \frac{1}{2} = 0.5$

10. $\frac{3}{12} = \frac{\square}{4} = 0.\_\_\_$

11. $\frac{12}{16} = \frac{\square}{4} = 0.\_\_\_$

12. $\frac{3}{15} = \frac{\square}{5} = 0.\_\_\_$

13. $\frac{2}{40} = \frac{\square}{20} = 0.\_\_\_$

14. $\frac{6}{8} = \frac{\square}{4} = 0.\_\_\_$

15. $\frac{4}{20} = \frac{\square}{5} = 0.\_\_\_$

16. $\frac{28}{35} = \frac{\square}{5} = 0.\_\_\_$

17. Explain how you simplified the fraction $\frac{28}{35}$ in Problem 16.

_____

_____

_____

18. **Challenge** This square ▢ represents $\frac{1}{100}$. Imagine splitting it into 10 equal pieces.

Write the fraction for 1 piece. _____

Write the decimal for 1 piece. _____

Write one fraction for 5 pieces. _____

Write a different fraction for 5 pieces. _____

Write the decimal for 5 pieces. _____

Chapter 7

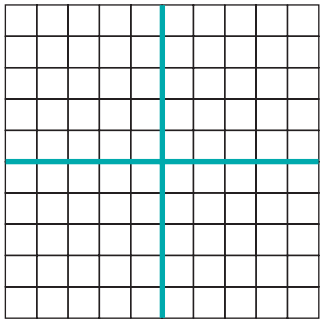
Lesson 6

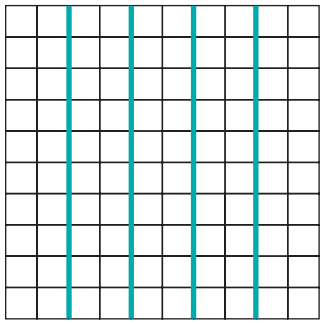
Name _____ Date _____

Estimating Decimals Using Familiar Fractions

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Write a decimal for each fraction.





1. $\frac{1}{2}$ = 0.____
2. $\frac{2}{5}$ = 0.____
3. $\frac{1}{10}$ = 0.____
4. $\frac{1}{4}$ = 0.____
5. $\frac{1}{8}$ = 0.____
6. $\frac{1}{5}$ = 0.____
7. $\frac{3}{4}$ = 0.____
8. $\frac{3}{5}$ = 0.____
9. $\frac{3}{10}$ = 0.____
10. $\frac{4}{5}$ = 0.____

Circle the number that is closer to each decimal.

11. **4.6**

    4 or 5

12. **12.9**

    12 or 13

13. **6.52**

    $6\frac{1}{2}$ or $6\frac{1}{4}$

14. **7.76**

    $7\frac{3}{5}$ or $7\frac{3}{4}$

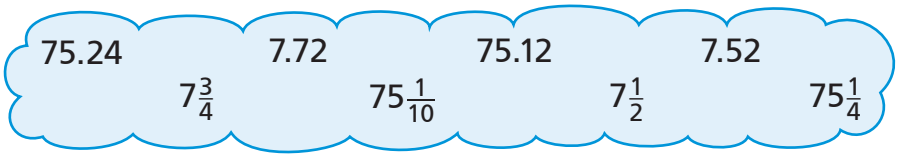
15. **9.26**

    $9\frac{1}{4}$ or $9\frac{1}{10}$

16. **18.22**

    $18\frac{1}{4}$ or $18\frac{1}{5}$

Find pairs of numbers that have approximately the same value.



17 _____ _____ | 18 _____ _____ | 19 _____ _____ | 20 _____ _____

For each decimal, write a mixed number that has approximately the same value.

21 7.48 _____	22 4.61 _____	23 6.124 _____
24 26.23 _____	25 30.52 _____	26 13.801 _____

27 Jessica needs 2 pounds of ground meat to make chili. She has one package with 2.42 pounds of ground meat and another package with 2.08 pounds of ground meat. Which amount is closer to 2 pounds? Explain how you know.

_____

_____

Challenge Write >, <, or = to complete the number sentences.

28 $75.24 \bigcirc 75\frac{1}{4}$

29 $125.125 \bigcirc 125\frac{1}{8}$

30 $67\frac{3}{5} \bigcirc 67.621$

31 $43\frac{3}{4} \bigcirc 43.745$

Chapter 7

Lesson 7

Name _____ Date _____

Estimating Decimals Using Rounding

NCTM Standards 1, 2, 6, 7, 8, 9

Round each number to the nearest whole number.

Example

3.3 → 3	1 9.66 → _____	2 16.91 → _____
3 69.29 → _____	4 102.5 → _____	5 3,080.4 → _____

Round each number to the nearest tenth.

Example

20.82 → 20.8	6 16.46 → _____	7 38.191 → _____
8 42.069 → _____	9 71.96 → _____	10 95.04 → _____

Round each number to the nearest hundredth.

Example

2.456 → 2.46	11 1.90222 → _____	12 6.4781 → _____
13 80.045 → _____	14 9.001 → _____	15 3.496 → _____

Write reasonable estimates.

16 Nick wanted to add the following prices in his head, so he rounded them to the nearest dollar: $19.99, $4.69, and $3.29.

He added _____ + _____ + _____ to get an estimate of _____.

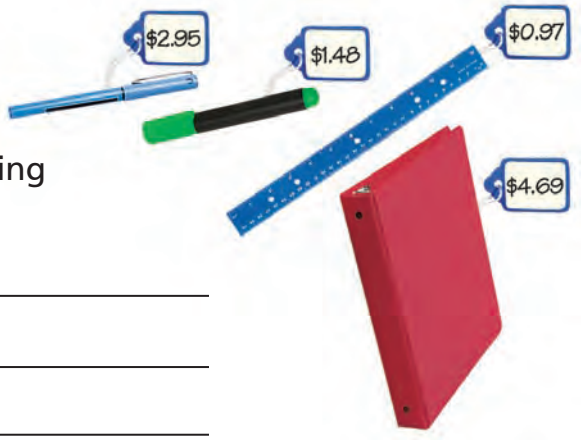
17 Mr. Brown saw 199.7 when he stepped on the scale.

He weighed close to _____ pounds.

18 Ralph's mother took his temperature and it was 101.6°.

It was close to _____ degrees.

For 19 and 20, use these items and prices.



19 Ross has $8.00. He wants to buy all four items. Does he have enough money? Explain how you can use rounding to find out if he has enough money.

_____

_____

_____

20 Rebecca has $5.00. She wants to buy the pen and one other item. Which other item can she buy? Explain how you can use rounding to find another item.

_____

_____

21 **Challenge** Round 402.955 to the nearest

whole number _____ tenth _____ hundredth _____

Explain how you rounded 402.955 to the nearest hundredth.

_____

_____

_____

_____

Chapter 7

Lesson 8

Name _____ Date _____

Adding with Decimals

NCTM Standards 1, 2, 6, 7, 8, 9, 10

Complete.

1 6 + 2.6 = _____

6.5 + 2 = _____

6.5 + 2.6 = _____

65 + 26 = _____

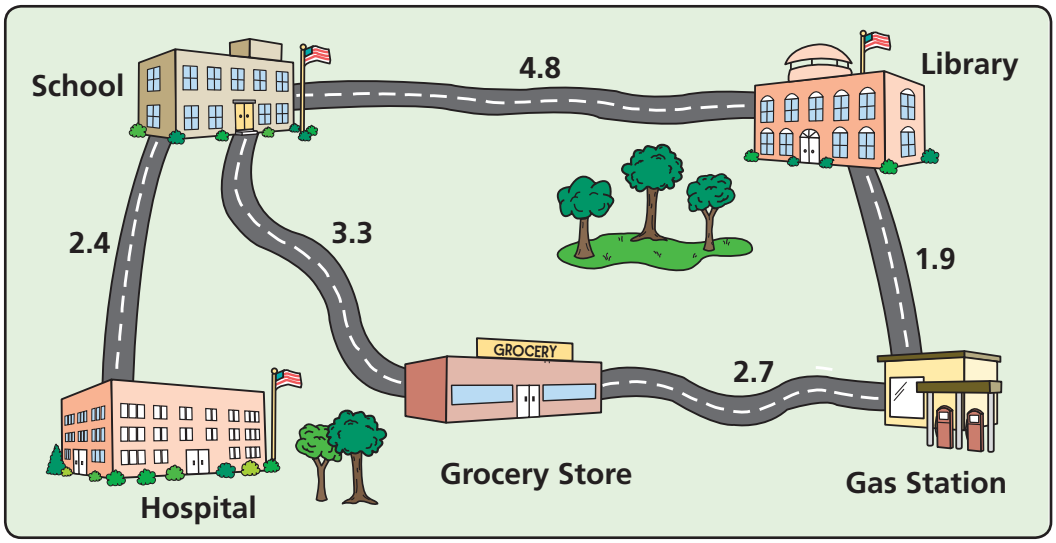
0.65 + 0.26 = _____

2 8 + 1.8 = _____

8.2 + 1 = _____

8.2	82	0.82
+1.8	+18	+0.18

Use the map to answer the questions below.
The number along each route shows the distance in miles.



3 On her way home from school, Alane went to the library, and then to the gas station. How many miles did she travel to get from school to the gas station?

_____

4 Ms. Ashe rode her bicycle from school to the grocery store, and then to the gas station to pump up her tires. How far did she ride? Explain your answer.

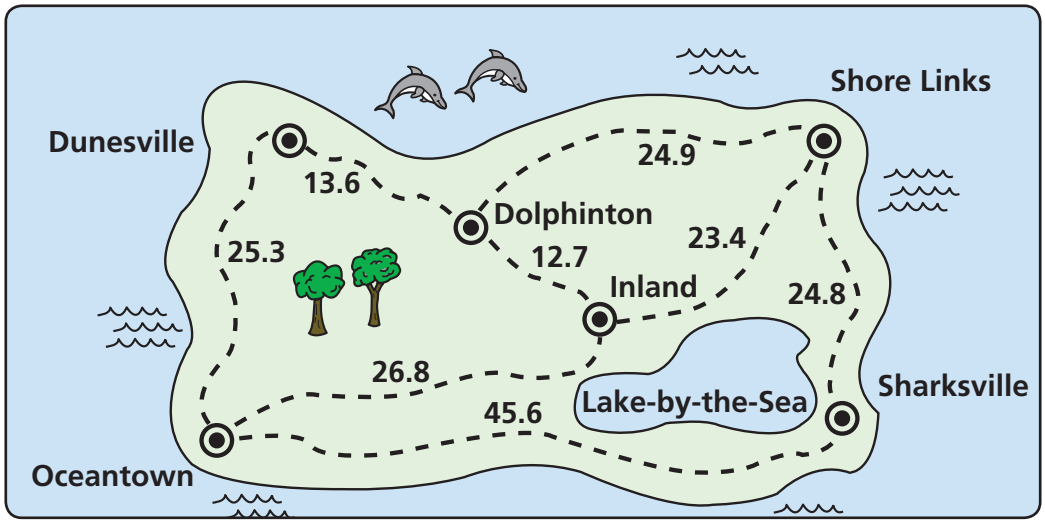
_____

_____

_____

_____

The number along each route shows the distance in miles.



5 Which town is closer to Dunesville: Oceantown or Inland?

_____

Tell or show how you know.

6 What is the distance along the shortest route from Inland to Sharksville?

_____

Show your computation.

7 **Challenge** Which town or towns do you pass through along the shortest route from Sharksville to Dunesville?

_____

Show how you know.

Chapter 7

Lesson 9

Name _____ Date _____

Subtracting with Decimals

NCTM Standards 1, 2, 6, 7, 8, 9

Complete. Use base-ten blocks, if you wish.

1

6.5 − 2 = _____

6.5 − 2.5 = _____

6.5 − 2.6 = _____

65 − 26 = _____

6 − 2.6 = _____

2

3.6 − 2 = _____

3.6 − 2.4 = _____

$$\begin{array}{r} 3.6 \\ -2.8 \\ \hline \end{array} \qquad \begin{array}{r} 36 \\ -28 \\ \hline \end{array} \qquad \begin{array}{r} 3 \\ -2.8 \\ \hline \end{array}$$

3 Carla set the trip meter in her van to 0 before she started her trip. She drove 4.6 miles from home to school using Route A. The trip meter showed:

0	0	4	6

miles traveled

Then she drove back home using Route B. She did not reset the meter. At the end of the trip, the trip meter showed this.

0	0	9	1

miles traveled

0	0	0	0

miles traveled

- tenths of a mile
- unit miles
- tens of miles
- hundreds of miles

How long was Route B? Explain how you know.

_____

_____

4 Write a word problem that involves subtracting decimals, and then show how to solve it. You might use a trip meter in your problem.

_____

_____

_____

5 The family set the trip meter to 0 before the trip began. Write the number of miles between each town and the next.

0 0 0 0	Home
→ ☐	
0 1 7 5	Malta
→ ☐	
0 2 7 6	Troy
→ ☐	
0 4 7 9	Dover
→ ☐	
0 5 0 0	Union
→ ☐	
0 8 5 2	Lee City
→ ☐	
0 9 9 9	Olan
→ ☐	
1 7 5 2	Benton
→ ☐	
2 0 0 0	Knox

6 The shortest distance between two towns was _____ miles.

7 The longest distance between two towns was _____ miles.

8 Write the distance in miles between these cities.

Malta and Dover **30.4**

Dover and Lee City. . . . . _____

Olan and Knox . . . . . _____

_____ and _____ **22.4**

9 A trip from Olan to Benton and back again is _____ miles.

10 Challenge The family drove from Knox back to Lee City to pick up a forgotten suitcase. What did the trip meter show when they arrived back in Knox? Show your work.

☐☐☐☐

Chapter 7

Lesson 10

Name _____ Date _____

Adding and Subtracting Decimals

NCTM Standards 1, 2, 6, 7, 8, 9

Three of these problems are answered incorrectly. As quickly as you can, and without writing anything, use rounding and compatible numbers to find the incorrect answers. If a problem is incorrect, put a check in the box.

1 8.721 0.49 8.1211 ☐ INCORRECT?

2 5.453 1.1 4.353 ☐ INCORRECT?

3 0.025 0.96 0.985 ☐ INCORRECT?

4 16.7 3.284 13.416 ☐ INCORRECT?

5
$$\begin{array}{r} 5.23 \\ 2.77 \\ \hline 8.00 \end{array}$$
☐ INCORRECT?

6
$$\begin{array}{r} 12.085 \\ 1.6 \\ \hline 10.485 \end{array}$$
☐ INCORRECT?

7
$$\begin{array}{r} 2.906 \\ +\ 9.0482 \\ \hline 11.1388 \end{array}$$
☐ INCORRECT?

8
$$\begin{array}{r} 3.58 \\ 0.001 \\ \hline 3.579 \end{array}$$
☐ INCORRECT?

9
$$\begin{array}{r} 8.88 \\ 2.22 \\ \hline 11.10 \end{array}$$
☐ INCORRECT?

10
$$\begin{array}{r} 10.01 \\ 3.6 \\ \hline 9.65 \end{array}$$
☐ INCORRECT?

For each problem above with an incorrect answer, explain how you used rounding or compatible numbers to find the ones that were wrong. Then find the correct answer.

11

12

13

14 Nicholas earned twenty dollars doing yard work for his neighbor. He spent $9.45 of the money he earned on a ticket to a baseball game and $3.40 on snacks. How much of the twenty dollars does he have left? Explain.

Here are more student responses. All of these are incorrect. Describe what the student may have done wrong, and then correct the problem.

15 ROLANDO

0.103 0.09 **0.112**

16 STACEY

22.6 1.73 **5.3**

17 CARMEN

18.62 2.7 **20.132**

18 **Challenge**

DANTE

18.009 0.75 **10.509**

Chapter 7

Lesson 11

Name _____ Date _____

Multiplying with Decimals

NCTM Standards 1, 2, 6, 7, 8, 9

First circle the best estimate for each problem. Then multiply. Finally place the decimal point.

1 7 . 4 × 5 — closer to: 35 / 350 / 3.5	**2** 0 . 8 1 × 9 — closer to: 7.2 / 72 / 0.72	**3** 2 . 9 8 × 4 — closer to: 1.2 / 12 / 0.12
4 6 . 3 × 0 . 4 — closer to: 24 / 2.4 / 0.24	**5** 1 . 5 3 × 4 . 2 — closer to: 40 / 4 / 0.4	**6** 1 . 8 × 0 .2 — closer to: 4.0 / 40 / 0.40
7 0 . 1 2 × 0 . 9 — closer to: 0.12 / 1.2 / 12	**8** 2 4 . 3 7 × 0 . 8 — closer to: 240 / 2.4 / 24	**9** 1 0 . 5 × 5 — closer to: 50 / 500 / 5.0

Solve each problem.

10 Each juice bottle contains 67.6 fluid ounces of liquid. You buy 3 bottles.

A Is the total number of ounces closer to 2, 20, 200, or 2,000? _____

B What is the total number of ounces? Show your work.

_____ fluid ounces

11 Petunia plants are on sale for $0.88 each. Jon has $15. Does he have enough money to buy 15 plants? Explain how you can use estimation to solve the problem.

_____

_____

Multiply and then place the decimal point.

12	41 × 5	4.1 × 5	0.41 × 5	41 × 0.5	4.1 × 0.5	0.41 × 0.5
13	16 × 3	1.6 × 3	0.16 × 3	16 × 0.3	1.6 × 0.3	0.16 × 0.3

14 36.2×0.7	15 1.73×3.1	16 6.8×4.5
17 0.3×14	18 2.7×5.6	19 12.92×7.2

20 Challenge Mr. Walker travels 45.8 miles a day to work. He rounded 45.8 miles to 46 miles to figure out that he travels about 184 miles a week to work.

A How many days a week does he travel to work? _____

B How many miles does he travel each week? _____ miles

Show your work.

Chapter 7

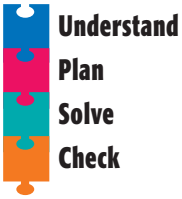
Lesson 12

Name _____ Date _____

Problem Solving Strategy

Act It Out—Make a Model

NCTM Standards 1, 2, 6, 7, 8, 9, 10



Solve. Show your work.

1 Rori insisted that the number 4.85 is "four and eighty-five hundredths." Her friend Maria was sure that it was "four and eight tenths and five hundredths." How can you show who is correct?

_____

_____

_____

Can you think of another way to describe 4.85?

_____

2 The directions that Mr. Di Marzio will follow for this trip say that he will travel 16.8 miles before turning right onto Route 140. He will then drive another 24.9 miles to his destination.

Mr. Di Marzio set his car's trip meter to 0.0 before he began the trip. What will the meter read when he arrives at his destination?

_____

3 Nikki had to measure chemicals very carefully for a science experiment. She measured out 1.92 grams of one chemical and 3.86 grams of another. What is the difference between these two measures?

_____

Problem Solving Test Prep

Choose the correct answer.

1 There are 96 members of the Lincoln School marching band. Which of the following arrangements will not include all of the band members?

A. 8 rows of 12

B. 7 rows of 12 and 2 rows of 6

C. 5 rows of 15 and 1 row of 12

D. 3 rows of 16 and 6 rows of 8

2 Each of 8 students is standing on one vertex of an 8-sided polygon. They are modeling a telephone network by connecting each person to every other person with strings. How many strings do they use in all?

A. 64

B. 56

C. 49

D. 28

Show What You Know

Solve each problem. Explain your answer.

3 Rachel has 25 plants in her garden. She has a row of 6 tomato plants, a row of 14 carrots, and a row of 5 bean plants. The bean plants are in the back. The tomato plants are behind the carrots. Which plants are in the front? Explain how you know your answer is correct.

4 Mr. Yu's class is comparing the types of snacks they have in their backpacks. There are 20 students, and each student has at least one snack. Twelve of them have a piece of fruit, and 10 have some type of chips. How many students have both fruit and chips? Explain how you know your answer is correct.

Chapter 7

Name _____ Date _____

Review/Assessment

NCTM Standards 1, 2, 6, 7, 9

Write two numbers that come between the two given numbers. Lessons 1

1. 5 ☐ ☐ 6

2. 4.2 ☐ ☐ 4.3

3. 29.25 ☐ ☐ 29.26

Write >, <, or = to complete the number sentences. Lessons 2 and 3

4. 9.20 ◯ 9.021

5. 16.100 ◯ 16.10

6. 12.10 ◯ 12.8

Write the numbers in order from least to greatest. Lessons 2 and 3

7. 4.2, 4.241, 4.124, 4.12

_____ _____ _____ _____

8. 8,495,704,123; 8,459,123,704; 8,594,704,123; 8,459,123,407

_____ _____ _____ _____

Write equivalent fractions and decimals. Lessons 4 and 5

9. $\frac{1}{4} = \frac{\square}{100} =$ 0._____

10. $\frac{1}{5} = \frac{\square}{10} =$ 0._____

11. $\frac{4}{5} = \frac{\square}{10} =$ 0._____

12. $\frac{1}{20} = \frac{\square}{100} =$ 0._____

13. $\frac{1}{2} =$ 0._____

14. $\frac{3}{4} =$ 0._____

15. $2\frac{3}{5} =$ _____

Circle the number that is closest to each decimal. Lesson 6

16 **3.52**

$3\frac{1}{5}$ or $3\frac{1}{2}$

17 **6.76**

$6\frac{1}{8}$ or $6\frac{3}{4}$

18 **12.41**

$12\frac{2}{5}$ or $12\frac{3}{4}$

Round to the nearest whole number. Lesson 7

19 48.61 → _____

20 2.468 → _____

21 3.099 → _____

Round to the nearest tenth. Lesson 7

22 14.07 → _____

23 0.562 → _____

24 20.046 → _____

Round to the nearest hundredth. Lesson 7

25 3.123 → _____

26 4.678 → _____

27 0.008 → _____

Complete the number sentences. Lessons 8 and 9

28 8.2 + 5 = _____

8.2 + 1.9 = _____

0.82 + 1.9 = _____

29 7.5 − 3 = _____

7.5 − 3.5 = _____

7.5 − 3.6 = _____

Solve. Lessons 8–10

30
$$\begin{array}{r} 8.2 \\ +\ 5.25 \\ \hline \end{array}$$

31
$$\begin{array}{r} 34 \\ -\ 2.6 \\ \hline \end{array}$$

32
$$\begin{array}{r} 2.6 \\ \times\ 3.8 \\ \hline \end{array}$$

Solve the problem. Show your work. Lesson 11

33 On Monday, Heather drove 8.4 miles from her home to work. On her way home, she drove 2.5 miles from work to the book store. After buying a book, she drove another 7.3 miles straight home. How many miles did she drive that Monday?

_____ miles