New York State Common Core

5 GRADE

Mathematics Curriculum

A Story of Units

GRADE 5 • MODULE 1

Place Value and Decimal Fractions

Student Workbook

engage^ny

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A # Correct _____

Multiply.

1	12 x 10 =		23	34 x 10 =	
2	14 x 10 =		24	134 x 10 =	
3	15 x 10 =		25	234 x 10 =	
4	17 x 10 =		26	334 x 10 =	
5	81 x 10 =		27	834 x 10 =	
6	10 x 81 =		28	10 x 834 =	
7	21 x 10 =		29	45 x 10 =	
8	22 x 10 =		30	145 x 10 =	
9	23 x 10 =		31	245 x 10 =	
10	29 x 10 =		32	345 x 10 =	
11	92 x 10 =		33	945 x 10 =	
12	10 x 92 =		34	56 x 10 =	
13	18 x 10 =		35	456 x 10 =	
14	19 x 10 =		36	556 x 10 =	
15	20 x 10 =		37	950 x 10 =	
16	30 x 10 =		38	10 x 950 =	
17	40 x 10 =		39	16 x 10 =	
18	80 x 10 =		40	10 x 60 =	
19	10 x 80 =		41	493 x 10 =	
20	10 x 50 =		42	10 x 84 =	
21	10 x 90 =		43	96 x 10 =	
22	10 x 70 =		44	10 x 580 =	

B Improvement _____ # Correct _____

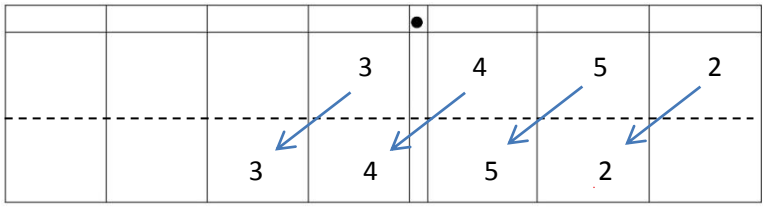
Multiply.

1	13 x 10 =		23	43 x 10 =	
2	14 x 10 =		24	143 x 10 =	
3	15 x 10 =		25	243 x 10 =	
4	19 x 10 =		26	343 x 10 =	
5	91 x 10 =		27	743 x 10 =	
6	10 x 91 =		28	10 x 743 =	
7	31 x 10 =		29	54 x 10 =	
8	32 x 10 =		30	154 x 10 =	
9	33 x 10 =		31	254 x 10 =	
10	38 x 10 =		32	354 x 10 =	
11	83 x 10 =		33	854 x 10 =	
12	10 x 83 =		34	65 x 10 =	
13	28 x 10 =		35	465 x 10 =	
14	29 x 10 =		36	565 x 10 =	
15	30 x 10 =		37	960 x 10 =	
16	40 x 10 =		38	10 x 960 =	
17	50 x 10 =		39	17 x 10 =	
18	90 x 10 =		40	10 x 70 =	
19	10 x 90 =		41	582 x 10 =	
20	10 x 20 =		42	10 x 73 =	
21	10 x 60 =		43	98 x 10 =	
22	10 x 80 =		44	10 x 470 =	

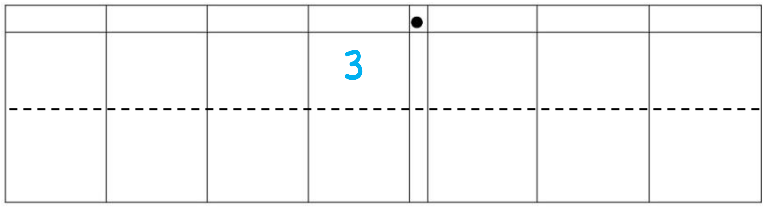
Name _____ Date _____

1. Record the digits of the first factor on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you multiply. Record the product on the second row of the place value chart. The first one has been done for you.

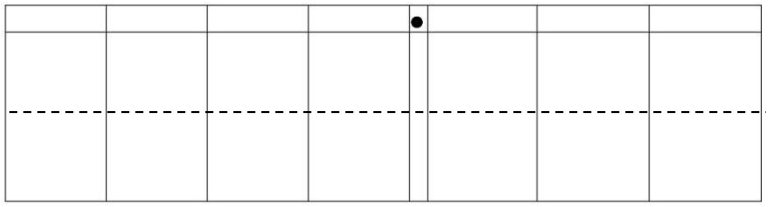
a. 3.452 x 10 = 34.52



b. 3.452 x 100 = _____



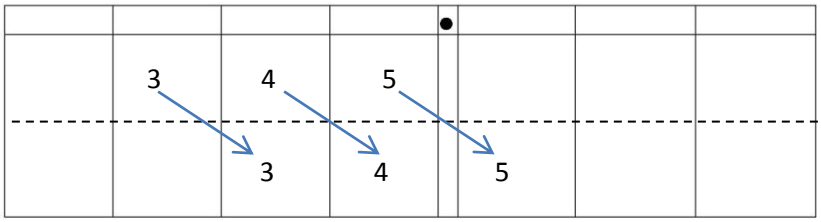
c. 3.452 x 1000 = _____



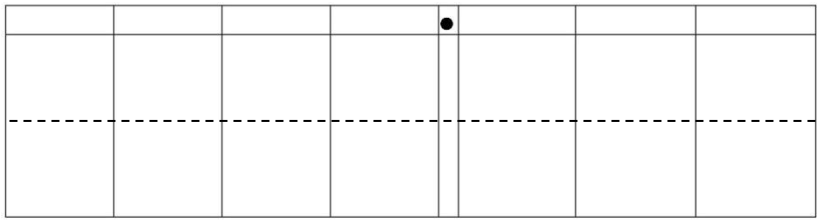
d. Explain how and why the value of the 5 changed in (a), (b), and (c).

2. Record the digits of the dividend on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you divide. Record the quotient on the second row of the place value chart. The first one has been done for you.

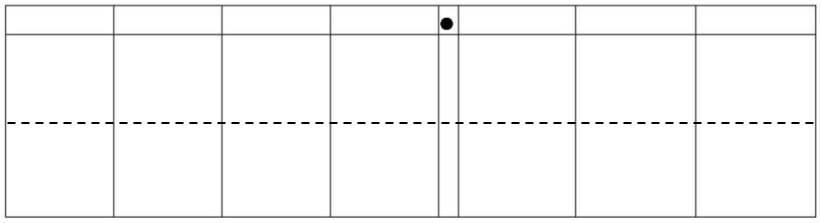
a. 345 ÷ 10 = 34.5



b. 345 ÷ 100 = _____



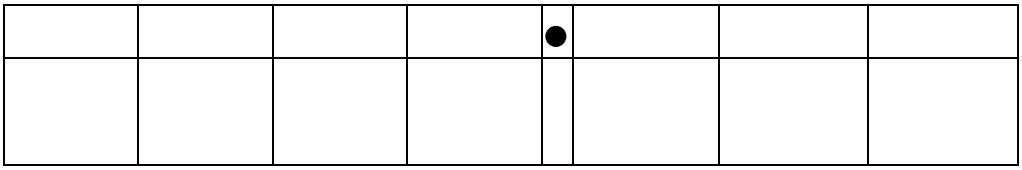
c. 345 ÷ 1000= _____



d. Explain how and why the value of the 4 changed in the quotients in (a), (b), and (c).

3. A manufacturer made 7,234 boxes of coffee stirrers. Each box contains 1000 stirrers. How many stirrers did they make? Explain your thinking and include a statement of the solution.

4. A student used his place value chart to show a number. After the teacher instructed him to multiply his number by 10, the chart showed 3200.4. Draw a picture of what the place value chart looked like at first.



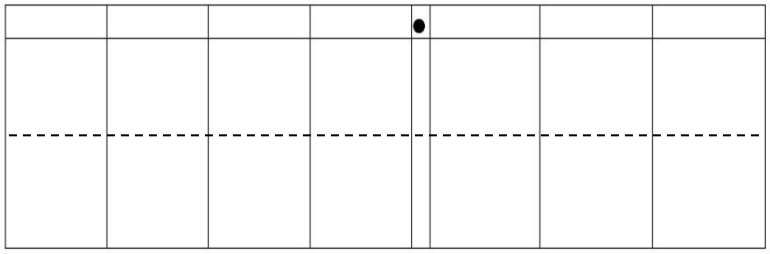
   a. Explain how you decided what to draw on your place value chart. Be sure to include your reasoning about how the value of the digits was affected by the multiplication. Use words, pictures, or numbers.

5. A microscope has a setting that magnifies an object so that it appears 100 times as large when viewed through the eyepiece. If a tiny insect is 0.095 cm long, how long will the insect appear in centimeters through the microscope? Explain how you know.

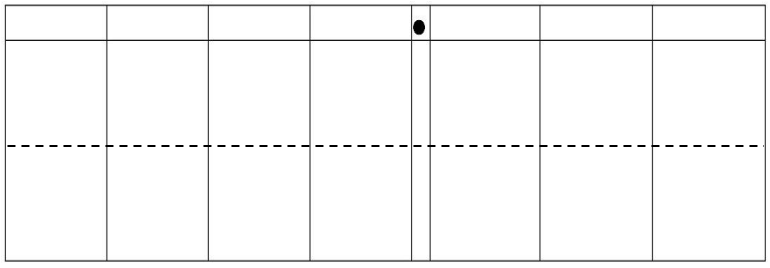
Name _____ Date _____

1. Write the first factor above the dashed line on the place value chart and the product or quotient under the dashed line, using arrows to show how the value of the digits changed. Then write your answer in the blank.

   a. 6.671 × 100 = _____



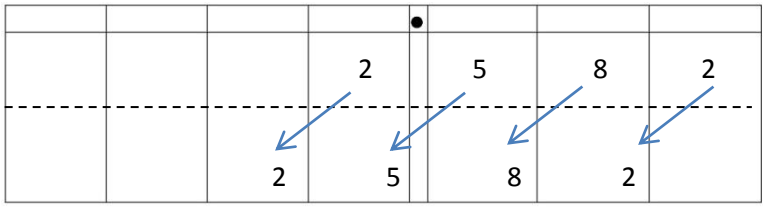
   b. 684 ÷ 1000 = _____



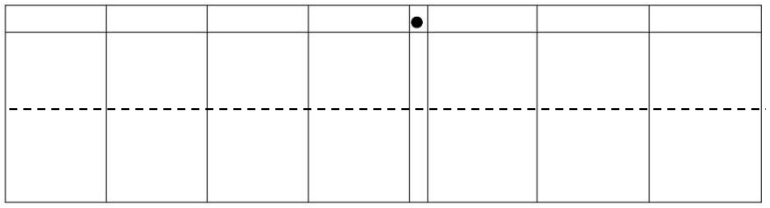
Name _____ Date _____

1. Record the digits of the first factor on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you multiply. Record the product on the second row of the place value chart. The first one has been done for you.

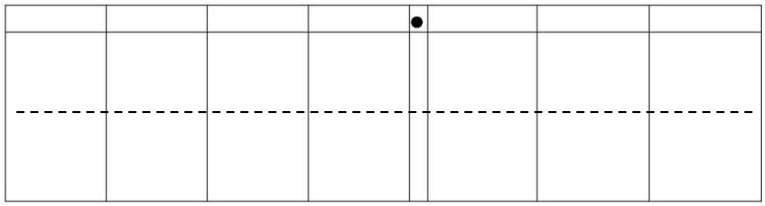
   a. 4.582 x 10 = 45.82



   b. 7.281 x 100 = _____



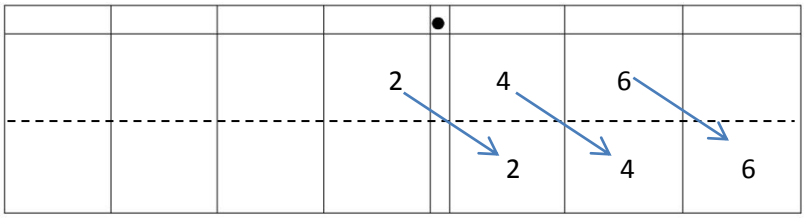
   c. 9.254 x 1000 = _____



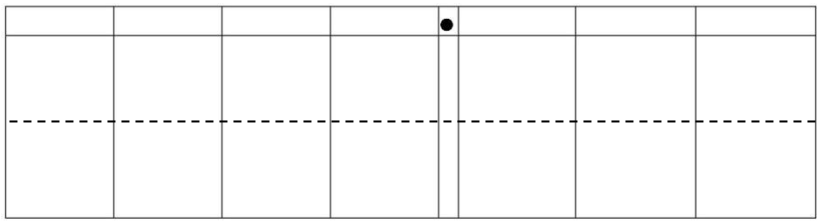
   d. Explain how and why the value of the 2 changed in (a), (b), and (c).

2. Record the digits of the dividend on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you divide. Record the quotient on the second row of the place value chart. The first one has been done for you.

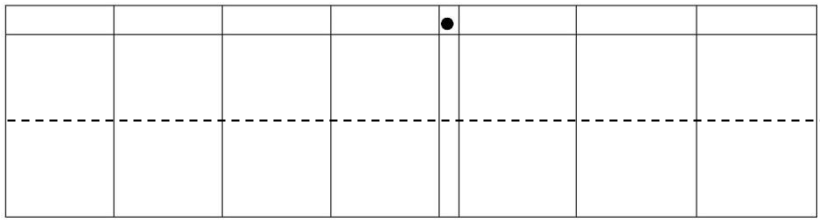
a. 2.46 ÷ 10 = 0.246



b. 678 ÷ 100 =_____



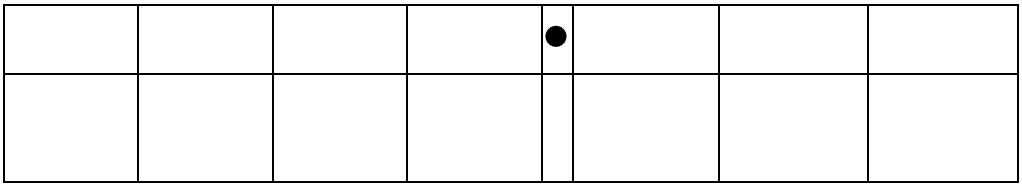
c. 67 ÷ 1000= _____



d. Explain how and why the value of the 6 changed in the quotients in (a), (b), and (c).

3. Researchers counted 8,912 monarch butterflies on one branch of a tree at a site in Mexico. They estimated that the total number of butterflies at the site was 1000 times as large. About how many butterflies were at the site in all? Explain your thinking and include a statement of the solution.

4. A student used his place value chart to show a number. After the teacher instructed him to divide his number by 100, the chart showed 28.003. Draw a picture of what the place value chart looked like at first.



   a. Explain how you decided what to draw on your place value chart. Be sure to include your reasoning about how the value of the digits was affected by the division.

5. On a map, the perimeter of a park is 0.251 meters. The actual perimeter of the park is 1000 times as large. What is the actual perimeter of the park? Explain how you know using a place value chart.

Name _____ Date _____

1. Solve.

a. 54,000 x 10 = _____

b. 54,000 ÷ 10 = _____

c. 8.7 x 10 = _____

d. 8.7 ÷ 10 = _____

e. 0.13 x 100 = _____

f. 13 ÷ 1000 = _____

g. 3.12 x 1000 = _____

h. 4031.2 ÷ 100 = _____

2. Find the products.

a. 19,340 x 10 = _____

b. 19,340 x 100 = _____

c. 19,340 x 1000 = _____

d. Explain how you decided on the number of zeros in the products for (a), (b), and (c).

3. Find the quotients.

a. 152 ÷ 10 = _____

b. 152 ÷ 100 = _____

c. 152 ÷ 1000 = _____

d. Explain how you decided where to place the decimal in the quotients in (a), (b), and (c).

4. Janice thinks that 20 hundredths is equivalent to 2 thousandths because 20 hundreds is equal to 2 thousands. Use words and a place value chart to correct Janice's error.

5. Canada has a population that is about 1/10 as large as the United States. If Canada's population is about 32 million, about how many people live in the United States? Explain the number of zeros in your answer.

Name _____ Date _____

1. Solve.

   a. 32.1 x 10 = _____

   b. 3632.1 ÷ 10 = _____

2. Solve.

   a. 455 x 1000 = _____

   b. 455 ÷ 1000 = _____

Name _____ Date _____

1. Solve.

   a. 36,000 x 10 = _____

   b. 36,000 ÷ 10 = _____

   c. 4.3 x 10 = _____

   d. 4.3 ÷ 10 = _____

   e. 0.24 x 100 = _____

   f. 24 ÷ 1000 = _____

   g. 4.54 x 1000 = _____

   h. 3045.4 ÷ 100 = _____

2. Find the products.

   a. 14,560 x 10 = _____

   b. 14,560 x 100 = _____

   c. 14,560 x 1000 = _____

   d. Explain how you decided on the number of zeros in the products for (a), (b), and (c).

3. Find the quotients.

   a. 1.65 ÷ 10 = _____

   b. 1.65 ÷ 100 = _____

   c. Explain how you decided where to place the decimal in the quotients in (a), (b), and (c).

4. Ted says that 3 tenths multiplied by 100 equal 300 thousandths. Is he correct? Use a place value chart to explain your answer.

5. Alaska has a land area of about 1,700,000 km^2. Florida has a land area 1/10 the size of Alaska. What is the land area of Florida? Explain how you found your answer.

A # Correct _____

Multiply.

1	1 x 3 =		23	10 x 3 =	
2	3 x 1 =		24	9 x 3 =	
3	2 x 3 =		25	4 x 3 =	
4	3 x 2 =		26	8 x 3 =	
5	3 x 3 =		27	5 x 3 =	
6	4 x 3 =		28	7 x 3 =	
7	3 x 4 =		29	6 x 3 =	
8	5 x 3 =		30	3 x 10 =	
9	3 x 5 =		31	3 x 5 =	
10	6 x 3 =		32	3 x 6 =	
11	3 x 6 =		33	3 x 1 =	
12	7 x 3 =		34	3 x 9 =	
13	3 x 7 =		35	3 x 4 =	
14	8 x 3 =		36	3 x 3 =	
15	3 x 8 =		37	3 x 2 =	
16	9 x 3 =		38	3 x 7 =	
17	3 x 9 =		39	3 x 8 =	
18	10 x 3 =		40	11 x 3 =	
19	3 x 10 =		41	3 x 11 =	
20	3 x 3 =		42	12 x 3 =	
21	1 x 3 =		43	3 x 13 =	
22	2 x 3 =		44	13 x 3 =	

B Improvement _____ # Correct _____

Multiply.

1	3 x 1 =		23	9 x 3 =	
2	1 x 3 =		24	3 x 3 =	
3	3 x 2 =		25	8 x 3 =	
4	2 x 3 =		26	4 x 3 =	
5	3 x 3 =		27	7 x 3 =	
6	3 x 4 =		28	5 x 3 =	
7	4 x 3 =		29	6 x 3 =	
8	3 x 5 =		30	3 x 5 =	
9	5 x 3 =		31	3 x 10 =	
10	3 x 6 =		32	3 x 1 =	
11	6 x 3 =		33	3 x 6 =	
12	3 x 7 =		34	3 x 4 =	
13	7 x 3 =		35	3 x 9 =	
14	3 x 8 =		36	3 x 2 =	
15	8 x 3 =		37	3 x 7 =	
16	3 x 9 =		38	3 x 3 =	
17	9 x 3 =		39	3 x 8 =	
18	3 x 10 =		40	11 x 3 =	
19	10 x 3 =		41	3 x 11 =	
20	1 x 3 =		42	13 x 3 =	
21	10 x 3 =		43	3 x 13 =	
22	2 x 3 =		44	12 x 3 =	

Name _____ Date _____

1. Write the following in exponential form (e.g., $100 = 10^2$).

   a. 10,000 = _____

   b. 1000 = _____

   c. 10 x 10 = _____

   d. 100 x 100 = _____

   e. 1,000,000 = _____

   f. 1000 × 1000 = _____

2. Write the following in standard form (e.g., $5 \times 10^2 = 500$).

   a. 9×10^3 = _____

   b. 39×10^4 = _____

   c. $7200 \div 10^2$ = _____

   d. $7{,}200{,}000 \div 10^3$ = _____

   e. 4.025×10^3 = _____

   f. 40.25×10^4 = _____

   g. $725 \div 10^3$ = _____

   h. $7.2 \div 10^2$ = _____

3. Think about the answers to Problem 2(a–d). Explain the pattern used to find an answer when you multiply or divide a whole number by a power of 10.

4. Think about the answers to Problem 2(e–h). Explain the pattern used to place the decimal in the answer when you multiply or divide a decimal by a power of 10.

5. Complete the patterns.

   a. 0.03 0.3 _____ 30 _____ _____

   b. 6,500,000 65,000 _____ 6.5 _____

   c. _____ 9,430 _____ 94.3 9.43 _____

   d. 999 9990 99,900 _____ _____ _____

   e. _____ 7.5 750 75,000 _____ _____

   f. Explain how you found the missing numbers in set (b). Be sure to include your reasoning about the number of zeros in your numbers and how you placed the decimal.

   g. Explain how you found the missing numbers in set (d). Be sure to include your reasoning about the number of zeros in your numbers and how you placed the decimal.

6. Shaunnie and Marlon missed the lesson on exponents. Shaunnie incorrectly wrote $10^5 = 50$ on her paper, and Marlon incorrectly wrote $2.5 \times 10^2 = 2.500$ on his paper.

   a. What mistake has Shaunnie made? Explain using words, numbers, and pictures why her thinking is incorrect and what she needs to do to correct her answer.

   b. What mistake has Marlon made? Explain using words, numbers, and pictures why his thinking is incorrect and what he needs to do to correct his answer.

Name _____ Date _____

1. Write the following in exponential form and as a multiplication sentence using only 10 as a factor (e.g., $100 = 10^2 = 10 \times 10$).

   a. 1,000 = _____ = _____

   b. 100×100 = _____ = _____

2. Write the following in standard form (e.g., $4 \times 10^2 = 400$).

   a. 3×10^2 = _____

   b. 2.16×10^4 = _____

   c. $800 \div 10^2$ = _____

   d. $754.2 \div 10^3$ = _____

Name _____ Date _____

1. Write the following in exponential form (e.g., $100 = 10^2$).

a. 1000 = _____

b. 10 × 10 = _____

c. 100,000 = _____

d. 100 x 10 = _____

e. 1,000,000 = _____

f. 10,000 × 10 = _____

2. Write the following in standard form (e.g., $4 \times 10^2 = 400$).

a. 4×10^3 = _____

b. 64×10^4 = _____

c. $5300 \div 10^2$ = _____

d. $5{,}300{,}000 \div 10^3$ = _____

e. 6.072×10^3 = _____

f. 60.72×10^4 = _____

g. $948 \div 10^3$ = _____

h. $9.4 \div 10^2$ = _____

3. Complete the patterns.

a. 0.02 0.2 _____ 20 _____ _____

b. 3,400,000 34,000 _____ 3.4 _____

c. _____ 8,570 _____ 85.7 8.57 _____

d. 444 4440 44,400 _____ _____ _____

e. _____ 9.5 950 95,000 _____ _____

4. After a lesson on exponents, Tia went home and said to her mom, "I learned that 10^4 is the same as 40,000." She has made a mistake in her thinking. Use words, numbers or a place value chart to help Tia correct her mistake.

5. Solve $247 \div 10^2$ and 247×10^2.

   a. What is different about the two answers? Use words, numbers or pictures to explain how the decimal point shifts.

   b. Based on the answers from the pair of expressions above, solve $247 \div 10^3$ and 247×10^3.

Name _____ Date _____

1. Convert using an equation with an exponent.

   a. 3 meters to centimeters _____ = _____ cm
   b. 900 centimeters to meters _____ = _____ m

   c. 8.1 liters to milliliters _____ = _____ ml
   d. 537 milliliters to liters _____ = _____ l

   e. 90.5 kilometers to meters _____ = _____ m
   f. Convert 23 meters to kilometers. _____ = _____ km

   g. 0.4 kilograms to grams _____ = _____ g
   h. 80 grams to kilograms _____ = _____ kg

   i. Circle the conversion factor in each equation above. Explain why converting from meters to centimeters uses a different conversion factor than converting from liters to milliliters, kilometers to meters, and kilograms to grams.

2. Read each aloud as you write the equivalent measures.

   a. 3.5 km = _____ km _____ m
   b. 1.23 l = _____ l _____ ml
   c. 2.002 kg = _____kg _____ g
   d. 3 ml = _____ l
   e. 3012 g = _____ kg
   f. _____ m = 2.10 cm

3. The length of the bar for a high jump competition must always be 4.75 m. Express this measurement in millimeters. Explain your thinking using an equation that includes an exponent.

4. A honey bee's length measures 1 cm. Express this measurement in meters.

   a. Explain your thinking using a place value chart.

   b. Explain your thinking using an equation that includes an exponent.

5. James drinks 800 ml of water each day during his workout. Henry drinks 600 ml daily during his workout. If James works out 3 days each week, and Henry works out 5 days each week, how many liters do the boys drink in all each week while working out?

6. Katrina needs to tie ribbons around 10 flower arrangements for a party. Each arrangement requires 1.2 m of ribbon. She also needs 325 cm of ribbon to tie to the balloons for the party. If Katrina buys 15 m of ribbon, will she have enough? If so, how much ribbon (in meters) will she have left? If not, how many more meters of ribbon will she need to buy?

Name _____ Date _____

1. Convert:

   a. 2 meters to centimeters 2 m × _____ = _____ cm

   b. 40 milliliters to liters 40 ml ÷ _____ = _____ l

2. Read each aloud as you write the equivalent measures.

   a. 4.37 l = _____ l _____ ml

   b. 81.62 kg = _____ kg _____ g

Name _____ Date _____

1. Convert:

   a. 5 meters to centimeters 5 m × _____ = _____cm

   b. 60 centimeters to meters 60 cm ÷ _____ = _____ m

   c. 2300 milliliters to liters. 2.3 l ÷ _____ = _____ml

   d. 0.462 liters to milliliters 0.462 l × _____ = _____ml

   e. 80.4 kilometers to meters _____ = _____m

   f. 0.725 kilometers to meters _____ = _____m

   g. 456 grams to kilograms _____ = _____kg

   h. 0.3 kilograms to grams _____ = _____g

2. Read each aloud as you write the equivalent measures.

   a. 2.7 km = _____ km _____ m

   b. 3.46 l = _____ l _____ ml

   c. 5.005 kg = _____ kg _____ g

   d. 8 ml = _____ l

   e. 4079 g = _____ kg

3. A dining room table measures 1.78 m long. Express this measurement in millimeters.

   a. Explain your thinking using a place value chart.

   b. Explain your thinking using an equation that includes an exponent.

4. Eric and YiTing commute to school every day. Eric walks 0.81 km and YiTing walks 0.65 km. How far did each of them walk in meters? Explain your answer using an equation that includes an exponent.

5. There were 9 children at a birthday party. Each child drank one 200 ml juice box. How many liters of juice did they drink altogether? Explain your answer using an equation that includes an exponent.

A

Correct _____

Multiply.

1	62.3 x 10 =		23	4.1 x 1000 =	
2	62.3 x 100 =		24	7.6 x 1000 =	
3	62.3 x 1000 =		25	0.01 x 1000 =	
4	73.6 x 10 =		26	0.07 x 1000 =	
5	73.6 x 100 =		27	0.072 x 100 =	
6	73.6 x 1000 =		28	0.802 x 10 =	
7	0.6 x 10 =		29	0.019 x 1000 =	
8	0.06 x 10 =		30	7.412 x 1000 =	
9	0.006 x 10 =		31	6.8 x 100 =	
10	0.3 x 10 =		32	4.901 x 10 =	
11	0.3 x 100 =		33	16.07 x 100 =	
12	0.3 x 1000 =		34	9.19 x 10 =	
13	0.02 x 10 =		35	18.2 x 100 =	
14	0.02 x 100 =		36	14.7 x 1000 =	
15	0.02 x 1000 =		37	2.021 x 100 =	
16	0.008 x 10 =		38	172.1 x 10 =	
17	0.008 x 100 =		39	3.2 x 20 =	
18	0.008 x 1000 =		40	4.1 x 20 =	
19	0.32 x 10 =		41	3.2 x 30 =	
20	0.67 x 10 =		42	1.3 x 30 =	
21	0.91 x 100 =		43	3.12 x 40 =	
22	0.74 x 100 =		44	14.12 x 40 =	

B Improvement _____ # Correct _____

Multiply.

1	46.1 x 10 =		23	5.2 x 1000 =	
2	46.1 x 100 =		24	8.7 x 1000 =	
3	46.1 x 1000 =		25	0.01 x 1000 =	
4	89.2 x 10 =		26	0.08 x 1000 =	
5	89.2 x 100 =		27	0.083 x 10 =	
6	89.2 x 1000 =		28	0.903 x 10 =	
7	0.3 x 10 =		29	0.017 x 1000 =	
8	0.03 x 10 =		30	8.523 x 1000 =	
9	0.003 x 10 =		31	7.9 x 100 =	
10	0.9 x 10 =		32	5.802 x 10 =	
11	0.9 x 100 =		33	27.08 x 100 =	
12	0.9 x 1000 =		34	8.18 x 10 =	
13	0.04 x 10 =		35	29.3 x 100 =	
14	0.04 x 100 =		36	25.8 x 1000 =	
15	0.04 x 1000 =		37	3.032 x 100 =	
16	0.007 x 10 =		38	283.1 x 10 =	
17	0.007 x 100 =		39	2.1 x 20 =	
18	0.007 x 1000 =		40	3.3 x 20 =	
19	0.45 x 10 =		41	3.1 x 30 =	
20	0.78 x 10 =		42	1.2 x 30 =	
21	0.28 x 100 =		43	2.11 x 40 =	
22	0.19 x 100 =		44	13.11 x 40 =	

Name _____ Date _____

1. Express as decimal numerals. The first one is done for you.

a. four thousandths	0.004
b. twenty-four thousandths	
c. one and three hundred twenty-four thousandths	
d. six hundred eight thousandths	
e. six hundred and eight thousandths	
f. $\frac{46}{1000}$	
g. $3\frac{946}{1000}$	
h. $200\frac{904}{1000}$	

2. Express in words.

   a. 0.005

   b. 11.037

   c. 403.608

3. Write the number on a place value chart then write it in expanded form using fractions or decimals to express the decimal place value units. The first one is done for you.

   a. 35.827

tens	ones		tenths	hundredths	thousandths
3	5	●	8	2	7

$35.827 = 3 \times 10 + 5 \times 1 + 8 \times \left(\frac{1}{10}\right) + 2 \times \left(\frac{1}{100}\right) + 7 \times \left(\frac{1}{1000}\right)$ *or*

$= 3 \times 10 + 5 \times 1 + 8 \times 0.1 + 2 \times 0.01 + 7 \times 0.001$

b. 0.249

c. 57.281

4. Write a decimal for each of the following. Use a place value chart to help if necessary.

a. $7 \times 10 + 4 \times 1 + 6 \times \left(\frac{1}{10}\right) + 9 \times \left(\frac{1}{100}\right) + 2 \times \left(\frac{1}{1000}\right)$

b. $5 \times 100 + 3 \times 10 + 8 \times 0.1 + 9 \times 0.001$

c. $4 \times 1000 + 2 \times 100 + 7 \times 1 + 3 \times \left(\frac{1}{100}\right) + 4 \times \left(\frac{1}{1000}\right)$

5. Mr. Pham wrote 2.619 on the board. Christy says its two and six hundred nineteen thousandths. Amy says its 2 ones 6 tenths 1 hundredth 9 thousandths. Who is right? Use words and numbers to explain your answer.

Name _____ Date _____

1. Express nine thousandths as a decimal.

2. Express twenty-nine thousandths as a fraction.

3. Express 24.357 in words.

   a. Write the expanded form using fractions or decimals.

   b. Express in unit form.

Name _____ Date _____

1. Express as decimal numerals. The first one is done for you.

a. Five thousandths	0.005
b. Thirty-five thousandths	
c. Nine and two hundred thirty-five thousandths	
d. Eight hundred and five thousandths	
e. $\frac{8}{1000}$	
f. $\frac{28}{1000}$	
g. $7\frac{528}{1000}$	
h. $300\frac{502}{1000}$	

2. Express in words.

a. 0.008

b. 15.062

c. 607.409

3. Write the number on a place value chart then write it in expanded form using fractions or decimals to express the decimal place value units. The first one is done for you.

a. 27.346

tens	ones	●	tenths	hundredths	thousandths
2	7		3	4	6

$27.346 = 2 \times 10 + 7 \times 1 + 3 \times \left(\frac{1}{10}\right) + 4 \times \left(\frac{1}{100}\right) + 6 \times \left(\frac{1}{1000}\right)$

OR

$27.346 = 2 \times 10 + 7 \times 1 + 3 \times 0.1 + 4 \times 0.01 + 6 \times 0.001$

b. 0.362

c. 49.564

4. Write a decimal for each of the following. Use a place value chart to help if necessary.

a. $3 \times 10 + 5 \times 1 + 2 \times \left(\frac{1}{10}\right) + 7 \times \left(\frac{1}{100}\right) + 6 \times \left(\frac{1}{1000}\right)$

b. $9 \times 100 + 2 \times 10 + 3 \times 0.1 + 7 \times 0.001$

c. $5 \times 1000 + 4 \times 100 + 8 \times 1 + 6 \times \left(\frac{1}{100}\right) + 5 \times \left(\frac{1}{1000}\right)$

5. At the beginning of a lesson, a piece of chalk is 2.967 of an inch. At the end of lesson, it's 2.308 of an inch. Write the two amounts in expanded form using fractions.

a. At the beginning of the lesson:

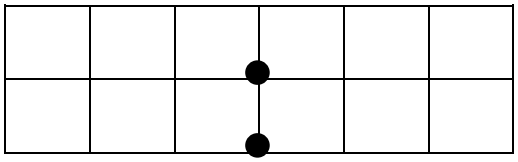
b. At the end of the lesson:

6. Mrs. Herman asked the class to write an expanded form for 412.638. Nancy wrote the expanded form using fractions and Charles wrote the expanded form using decimals. Write their responses.

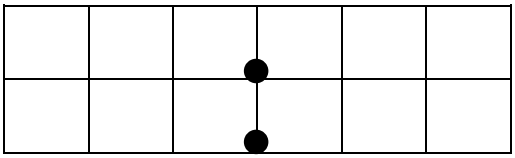
Name _____ Date _____

1. Show the numbers on the place value chart using digits. Use >, <, or = to compare. Explain your thinking to the right.

34.223 ◯ 34.232



0.8 ◯ 0.706



2. Use >, <, or = to compare the following. Use a place value chart to help if necessary.

a. 16.3	◯	16.4
b. 0.83	◯	$\frac{83}{100}$
c. $\frac{205}{1000}$	◯	0.205
d. 95.580	◯	95.58
e. 9.1	◯	9.099
f. 8.3	◯	83 tenths
g. 5.8	◯	Fifty-eight hundredths

h. Thirty-six and nine thousandths	◯	4 tens
i. 202 hundredths	◯	2 hundreds and 2 thousandths
j. One hundred fifty-eight thousandths	◯	158,000
k. 4.15	◯	415 tenths

3. Arrange the numbers in increasing order.

   a. 3.049 3.059 3.05 3.04

   _____

   b. 182.205 182.05 182.105 182.025

   _____

4. Arrange the numbers in decreasing order.

   a. 7.608 7.68 7.6 7.068

   _____

   b. 439.216 439.126 439.612 439.261

   _____

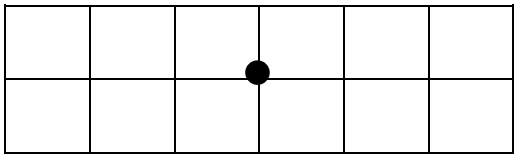
5. Lance measured 0.485 liter of water. Angel measured 0.5 liter of water. Lance said, "My beaker has more water than yours because my number has 3 decimal places and yours only has 1." Is Lance correct? Use words and numbers to explain your answer.

6. Dr. Hong prescribed 0.019 liter more medicine than Dr. Tannenbaum. Dr. Evans prescribed 0.02 less than Dr. Hong. Who prescribed the most medicine? Who prescribed the least? Explain how you know using a place value chart.

Name _____ Date _____

1. Show the numbers on the place value chart using digits. Use >, <, or = to compare. Explain your thinking to the right.

167.4 ◯ 167.462



2. Use >, <, and = to compare the numbers.

32.725 ◯ 32.735

3. Arrange in descending order.

76.342 76.332 76.232 76.343

Name _____ Date _____

1. Use >, <, or = to compare the following.

a. 16.45	◯	16.454
b. 0.83	◯	$\frac{83}{100}$
c. $\frac{205}{1000}$	◯	0.205
d. 95.045	◯	95.545
e. 419.10	◯	419.099
f. Five ones and eight tenths	◯	Fifty-eight tenths
g. Thirty-six and nine thousandths	◯	Four tens
h. One hundred four and twelve hundredths	◯	One hundred four and two thousandths
i. One hundred fifty-eight thousandths	◯	0.58
j. 703.005	◯	Seven hundred three and five hundredths

2. Arrange the numbers in increasing order.

a. 8.08 8.081 8.09 8.008

_____

b. 14.204 14.200 14.240 14.210

_____

3. Arrange the numbers in decreasing order.

   a. 8.508 8.58 7.5 7.058

   _____

   b. 439.216 439.126 439.612 439.261

   _____

4. James measured his hand. It was 0.17 meters. Jennifer measured her hand. It was 0.165 meters. Whose hand is bigger? How do you know?

5. In a paper airplane contest, Marcel's plane travels 3.345 meters. Salvador's plane travels 3.35 meters. Jennifer's plane travels 3.3 meters. Based on the measurements, whose plane traveled the farthest distance? Whose plane traveled the shortest distance? Explain your reasoning using a place value chart.

A

Correct _____

Find the midpoint.

1	0	10	23	8.5	8.6
2	0	1	24	2.8	2.9
3	0	0.01	25	0.03	0.04
4	10	20	26	0.13	0.14
5	1	2	27	0.37	0.38
6	2	3	28	80	90
7	3	4	29	90	100
8	7	8	30	8	9
9	1	2	31	9	10
10	0.1	0.2	32	0.8	0.9
11	0.2	0.3	33	0.9	1
12	0.3	0.4	34	0.08	0.09
13	0.7	0.8	35	0.09	0.1
14	0.1	0.2	36	26	27
15	0.01	0.02	37	7.8	7.9
16	0.02	0.03	38	1.26	1.27
17	0.03	0.04	39	29	30
18	0.07	0.08	40	9.9	10
19	6	7	41	7.9	8
20	16	17	42	1.59	1.6
21	38	39	43	1.79	1.8
22	0.4	0.5	44	3.99	4

B Improvement _____ # Correct _____

Find the midpoint.

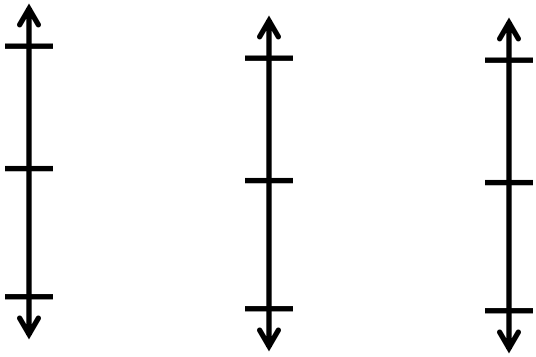
1	10	20	23	0.7	0.8
2	1	2	24	4.7	4.8
3	0.1	0.2	25	2.3	2.4
4	0.01	0.02	26	0.02	0.03
5	0	10	27	0.12	0.13
6	0	1	28	0.47	0.48
7	1	2	29	80	90
8	2	3	30	90	100
9	6	7	31	8	9
10	1	2	32	9	10
11	0.1	0.2	33	0.8	0.9
12	0.2	0.3	34	0.9	1
13	0.3	0.4	35	0.08	0.09
14	0.6	0.7	36	0.09	0.1
15	0.1	0.2	37	36	37
16	0.01	0.02	38	6.8	6.9
17	0.02	0.03	39	1.46	1.47
18	0.03	0.04	40	39	40
19	0.06	0.07	41	9.9	10
20	7	8	42	6.9	7
21	17	18	43	1.29	1.3
22	47	48	44	6.99	7

Name _____ Date _____

Fill in the table then round to the given place. Label the number lines to show your work. Circle the rounded number.

1. 3.1

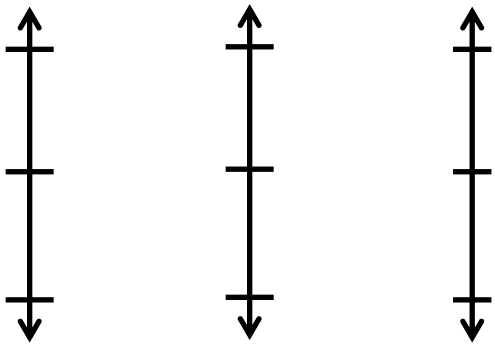
a. hundredths b .tenths c. tens



tens	1s	Tenths	Hundredths	Thousandths

2. 115.376

a. hundredths b. ones c. tens



Tens	Ones	Tenths	Hundredths	Thousandths

3. 0.994

Tens	Ones	Tenths	Hundredths	thousandths

a. hundredths

b. tenths

c. ones

d. tens

4. For open international competition, the throwing circle in the men's shot put must have a diameter of 2.135 meters. Round this number to the nearest hundredth to estimate the diameter. Use a number line to show your work.

5. Jen's pedometer said she walked 2.549 miles. She rounded her distance to 3 miles. Her brother rounded her distance to 2.5 miles. When they argued about it, their mom said they are both right. Explain how that could be true. Use number lines and words to explain your reasoning.

Name _____ Date _____

Use the table to round the number to the given places. Label the number lines and circle the rounded value.

0	8 ones	5 tenths	4 hundredths	6 thousandths
		85 tenths	4 hundredths	6 thousandths
			854 hundredths	6 thousandths
				8546

8.546

a. hundredths

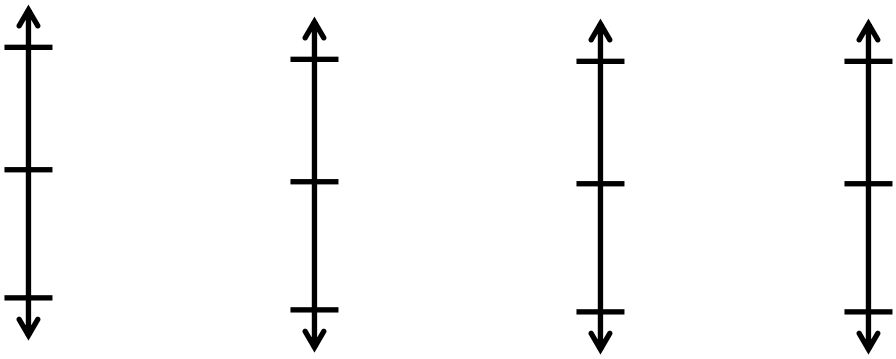
b. tens

Name _____ Date _____

Round to the given place value. Label the number lines to show your work. Circle the rounded number. Use a separate sheet to show your decompositions for each one.

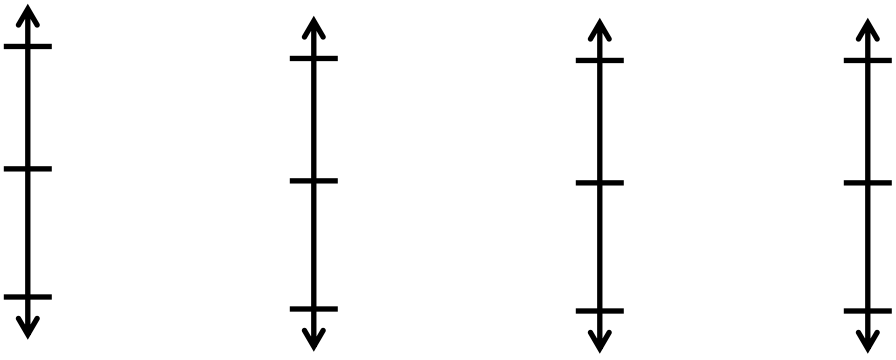
1. 4.3

a. hundredths b. tenths c. ones d. tens



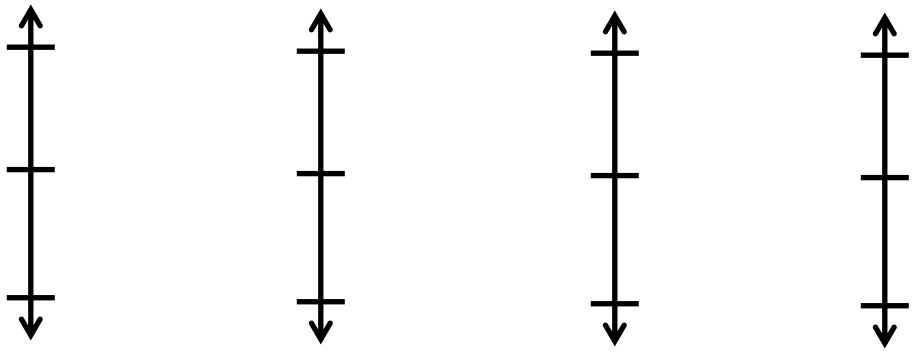
2. 225.286

a. hundredths b. tenths c. ones d. tens



3. 8.984

   a. hundredths b. tenths c. ones d. tens



4. On a major League Baseball diamond, the distance from the pitcher's mound to home plate is 18.386 meters.

   a. Round this number to the nearest hundredth of a meter to estimate the distance. Use a number line to show your work.

   b. About how many centimeters is it from the pitcher's mound to home plate?

5. Jules reads that one pint is equivalent to 0.473 liters. He asks his teacher how many liters there are in a pint. His teacher responds that there are about 0.47 liters in a pint. He asks his parents, and they say there are about 0.5 liters in a pint. Jules says they are both correct. How can that be true? Explain your answer.

Name _____ Date _____

1. Write the decomposition that helps you, and then round to the given place value. Draw number lines to explain your thinking. Circle the rounded value on each number line.

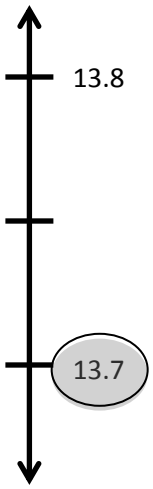
   a. Round 32.697 to nearest tenth, hundredth, and whole number.

   b. Round 141.999 to nearest tenth, hundredth, ten, and hundred.

2. A root beer factory produces 132,554 cases in 100 days. About how many cases does the factory produce in 1 day? Round your answer to the nearest tenth of a case. Show your thinking on the number line.

3. A decimal number has two digits to the right of its decimal point. If we round it to the nearest tenth, the result is 13.7.

   a. What is the maximum possible value of this number? Use words and the number line to explain your reasoning. Include the midpoint on your number line.



   b. What is the minimum possible value of this decimal? Use words and the number line to explain your reasoning. Include the midpoint on your number line.

Name _____ Date _____

1. Round the quantity to the given place value. Draw number lines to explain your thinking. Circle the rounded value on the number line.

   a. 13.989 to nearest tenth

   b. 382.993 to nearest hundredth

Name _____ Date _____

1. Round the quantity to the given place value. Draw number lines to explain your thinking. Circle the rounded value on the number line.

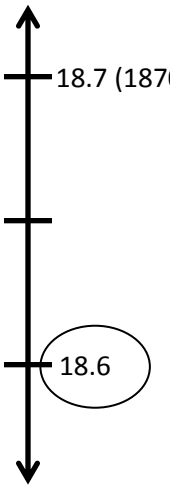
   a. 43.586 to nearest tenth, hundredth, and whole number

   b. 243.875 to nearest tenth, hundredth, ten, and hundred

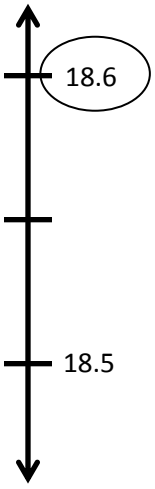
2. A trip from New York City to Seattle is 2,852.1 miles. A family wants to make the drive in 10 days, driving the same number of miles each day. About how many miles will they drive each day? Round you answer to the nearest tenth of a mile.

3. A decimal number has two digits to the right of its decimal point. If we round it to the nearest tenth, the result is 18.6.

   a. What is the maximum possible value of this decimal? Use words and the number line to explain your reasoning.



   b. What is the minimum possible value of this decimal? Use words, numbers and pictures to explain your reasoning.



A # Correct _____

Round to the nearest whole number.

1	3.1 ≈		23	12.51 ≈	
2	3.2 ≈		24	16.61 ≈	
3	3.3 ≈		25	17.41 ≈	
4	3.4 ≈		26	11.51 ≈	
5	3.5 ≈		27	11.49 ≈	
6	3.6 ≈		28	13.49 ≈	
7	3.9 ≈		29	13.51 ≈	
8	13.9 ≈		30	15.51 ≈	
9	13.1 ≈		31	15.49 ≈	
10	13.5 ≈		32	6.3 ≈	
11	7.5 ≈		33	7.6 ≈	
12	8.5 ≈		34	49.5 ≈	
13	9.5 ≈		35	3.45 ≈	
14	19.5 ≈		36	17.46 ≈	
15	29.5 ≈		37	11.76 ≈	
16	89.5 ≈		38	5.2 ≈	
17	2.4 ≈		39	12.8 ≈	
18	2.41 ≈		40	59.5 ≈	
19	2.42 ≈		41	5.45 ≈	
20	2.45 ≈		42	19.47 ≈	
21	2.49 ≈		43	19.87 ≈	
22	2.51 ≈		44	69.51 ≈	

B Improvement _____ # Correct _____

Round to the nearest whole number.

1	4.1 ≈		23	13.51 ≈	
2	4.2 ≈		24	17.61 ≈	
3	4.3 ≈		25	18.41 ≈	
4	4.4 ≈		26	12.51 ≈	
5	4.5 ≈		27	12.49 ≈	
6	4.6 ≈		28	14.49 ≈	
7	4.9 ≈		29	14.51 ≈	
8	14.9 ≈		30	16.51 ≈	
9	14.1 ≈		31	16.49 ≈	
10	14.5 ≈		32	7.3 ≈	
11	7.5 ≈		33	8.6 ≈	
12	8.5 ≈		34	39.5 ≈	
13	9.5 ≈		35	4.45 ≈	
14	19.5 ≈		36	18.46 ≈	
15	29.5 ≈		37	12.76 ≈	
16	79.5 ≈		38	6.2 ≈	
17	3.4 ≈		39	13.8 ≈	
18	3.41 ≈		40	49.5 ≈	
19	3.42 ≈		41	6.45 ≈	
20	3.45 ≈		42	19.48 ≈	
21	3.49 ≈		43	19.78 ≈	
22	3.51 ≈		44	59.51 ≈	

Name _____ Date _____

1. Solve then write your sum in standard form. You may draw a place value mat on a separate sheet to help you, if necessary.

   a. 1 tenth + 2 tenths = _____ tenths = _____

   b. 14 tenths + 9 tenths = _____ tenths = _____ one(s)_____ tenth(s) = _____

   c. 1 hundredth + 2 hundredths = _____ hundredths = _____

   d. 27 hundredths + 5 hundredths = _____ hundredths = _____ tenths _____ hundredths = _____

   e. 1 thousandth + 2 thousandths = _____ thousandths = _____

   f. 35 thousandths + 8 thousandths = ____ thousandths = ____ hundredths ____ thousandths = _____

   g. 6 tenths + 3 thousandths = _____ thousandths = _____

   h. 7 ones 2 tenths + 4 tenths = _____ tenths = _____

   i. 2 thousandths + 9 ones 5 thousandths = _____ thousandths = _____

2. Solve using the standard algorithm.

a. 0.3+ 0.82 = _____	b. 1.03 + 0.08 = _____
c. 7.3 + 2.8 = _____	d. 57.03 + 2.08 = _____

e. 62.573 + 4.328 = _____	f. 85.703 + 12.197 = _____

3. Van Cortlandt Park's walking trail is 1.02 km longer than Marine Park. Central Park's walking trail is 0.242 km longer than Van Cortlandt's.

   a. Fill in the missing information in the chart below.

New York City Walking Trails	
Central Park	_____ km
Marine Park	1.28 km
Van Cortlandt Park	_____ km

   b. If a tourist walked all 3 trails in a day, how many km would they have walked?

4. Meyer has 0.64 GB of space remaining on his iPod. He wants to download a pedometer app (0.24 GB) a photo app (0.403 GB) and a math app (0.3 GB). Which combinations of apps can he download? Explain your thinking.

Name _____ Date _____

1. Solve.
   a. 4 hundredths + 8 hundredths = _____ hundredths = _____ tenths _____ hundredths

   b. 64 hundredths + 8 hundredths = _____ hundredths = _____ tenths _____ hundredths

2. Solve using the standard algorithm.

a. 2.40 + 1.8 = _____	b. 36.25 + 8.67 = _____

Name _____ Date _____

1. Solve.

   a. 3 tenths + 4 tenths = _____ tenths

   b. 12 tenths + 9 tenths = _____ tenths = _____ one(s) _____ tenth(s)

   c. 3 hundredths + 4 hundredths = _____ hundredths

   d. 27 hundredths + 7 hundredths = _____ hundredths = _____ tenths _____ hundredths

   e. 4 thousandth + 3 thousandths = _____ thousandths

   f. 39 thousandths + 5 thousandths = ____ thousandths = ____ hundredths ____ thousandths

   g. 5 tenths + 7 thousandths = _____ thousandths

   h. 4 ones 4 tenths + 4 tenths = _____ tenths

   i. 8 thousandths + 6 ones 8 thousandths = _____ thousandths

2. Solve using the standard algorithm.

a. 0.4 + 0.7 = _____	b. 2.04 + 0.07 = _____
c. 6.4 + 3.7 = _____	d. 56.04 + 3.07 = _____

e. 72.564 + 5.137 = _____	f. 75.604 + 22.296 = _____

3. Walkway Over the Hudson, a bridge that crosses the Hudson River in Poughkeepsie, is 2.063 kilometers. Anping Bridge, which was built in China 850 years ago, is 2.07 kilometers long.

   a. Which bridge is longer? How much longer? Show your thinking.

   b. Leah likes to walk her dog on the Walkway Over the Hudson. If she walks across and back, how far do she and her dog walk?

4. For his parents' anniversary, Danny spends $5.87 on a photo. He also buys 3 balloons for $2.49 each and a box of strawberries for $4.50. How much money does he spend all together?

Name _____ Date _____

1. Subtract, writing the difference in standard form. You may use a place value chart to solve.

   a. 5 tenths – 2 tenths = _____ tenths = _____

   b. 5 ones 9 thousandths – 2 ones = _____ ones _____ thousandths = _____

   c. 7 hundreds 8 hundredths – 4 hundredths = _____ hundreds _____ hundredths = _____

   d. 37 thousandths – 16 thousandths = _____ thousandths = _____

2. Solve using the standard algorithm.

a. 1.4 – 0.7 = _____	b. 91.49 – 0.7 = _____	c. 191.49 – 10.72 = _____
d. 7.148 – 0.07 = _____	e. 60.91 – 2.856 = _____	f. 361.31 – 2.841 = _____

3. Solve.

a. 10 tens – 1 ten 1 tenth	b. 3 – 22 tenths	c. 37 tenths – 1 one 2 tenths
d. 8 ones 9 hundredths – 3.4	e. 5.622 – 3 hundredths	f. 2 ones 4 tenths – 0.59

4. Mrs. Fan wrote 5 tenths minus 3 hundredths on the board. Michael said the answer is 2 tenths because 5 minus 3 is 2. Is he correct? Explain.

5. A pen costs $2.09. It costs $0.45 less than a marker. Ken paid for one pen and one marker with a five dollar bill. Use a tape diagram with calculations to determine his change.

Name _____ Date _____

1. Subtract.

   1.7 – 0.8 = _____tenths – _____tenths = _____tenths = _____

2. Subtract vertically, showing all work.

   a. 84.637 – 28.56 = _____

   b. 7 – 0.35 = _____

Name _____ Date _____

1. Subtract. You may use a place value chart.

   a. 9 tenths – 3 tenths = _____ tenth

   b. 9 ones 2 thousandths – 3 ones = _____ ones _____ thousandths

   c. 4 hundreds 6 hundredths – 3 hundredths = _____hundreds _____ hundredths

   d. 56 thousandths – 23 thousandths = _____thousandths

      = _____ hundredths _____ thousandths

2. Solve using the standard algorithm.

a. 1.8 – 0.9 = _____	b. 41.84 – 0.9 = _____	c. 341.84 – 21.92 = _____
d. 5.182 – 0.09 = _____	e. 50.416 – 4.25 = _____	f. 741. – 3.91 = _____

3. Solve.

a. 30 tens – 3 tens 3 tenths	b. 5 – 16 tenths	c. 24 tenths – 1 one 3 tenths
d. 6 ones 7 hundredths – 2.3	e. 8.246 – 5 hundredths	f. 5 ones 3 tenths – 0.53

4. Mr. House wrote 8 tenths minus 5 hundredths on the board. Maggie said the answer is 3 hundredths because 8 minus 5 is 3. Is she correct? Explain.

5. A clipboard costs $2.23. It costs $0.58 more than a notebook. Lisa buys two clipboards and one notebook, and paid with a ten dollar bill. Use a tape diagram with calculations to show her change.

Name _____ Date _____

1. Solve by drawing disks on a place value chart. Write an equation and express the product in standard form.

   a. 3 copies of 2 tenths

   b. 5 groups of 2 hundredths

   c. 3 times 6 tenths

   d. 6 times 4 hundredths

   e. 5 times as much as 7 tenths

   f. 4 thousandths times 3

2. Draw a model similar to the one pictured below for Parts (b), (c), and (d). Find the sum of the partial products to evaluate each expression.

   a. 7 × 3.12

	3 ones	+	**1 tenth**	+	**2 hundredths**
7	7 x 3 ones		7 x 1 tenth		7 x 2 hundredths

_____ + _____ + 0.14 = _____

   b. 6 x 4.25

c. 3 copies of 4.65

d. 4 times as much as 20.075

3. Miles incorrectly gave the product of 7 x 2.6 as 14.42. Use a place value chart or an area model to help Miles understand his mistake.

4. Mrs. Zamir wants to buy 8 protractors and some erasers for her classroom. She has $30. If protractors cost $2.65 each, how much will Mrs. Zamir have left to buy erasers?

Name _____ Date _____

1. Solve by drawing disks on a place value chart. Write an equation and express the product in standard form.

   4 copies of 3 tenths

2. Complete the area model, and then find the product.

   3 × 9.63

	_____	_____	_____
_____	3 x ____ ones	3 x ____ tenths	4 x _____ hundredths

Name _____ Date _____

1. Solve by drawing disks on a place value chart. Write an equation and express the product in standard form.

a. 2 copies of 4 tenths

b. 4 groups of 5 hundredths

b. 4 times 7 tenths

d. 3 times 5 hundredths

c. 9 times as much as 7 tenths

f. 6 thousandths times 8

2. Draw a model similar to the one pictured below. Find the sum of the partial products to evaluate each expression.

a. 4 × 6.79

	6 ones	+	**7 tenths**	+	**9 hundredths**
4	4 x 6 ones		4 x 7 tenths		4 x 9 hundredths

_____ + _____ + _____ = _____

b. 6 x 7.49 hundredths

c. 9 copies of 3.65

d. 3 times 20.175

3. Leanne multiplied 8 x 4.3 and got 32.24. Is Leanne correct? Use an area model to explain your answer.

4. Anna buys groceries for her family. Hamburger meat is $3.38 per pound, sweet potatoes are $0.79 each, and hamburger rolls are $2.30 a bag. If Anna buys 3 pounds of meat, 5 sweet potatoes, and one bag of hamburger rolls, what will she pay in all for the groceries?

A # Correct _____

Add.

1	3 + 1 =		23	5 + 0.1 =	
2	3.5 + 1 =		24	5.7 + 0.1 =	
3	3.52 + 1 =		25	5.73 + 0.1 =	
4	0.3 + 0.1 =		26	5.736 + 0.1 =	
5	0.37 + 0.1 =		27	5.736 + 1 =	
6	5.37 + 0.1 =		28	5.736 + 0.01 =	
7	0.03 + 0.01 =		29	5.736 + 0.001 =	
8	0.83 + 0.01 =		30	6.208 + 0.01 =	
9	2.83 + 0.01 =		31	3 + 0.01 =	
10	30 + 10 =		32	3.5 + 0.01 =	
11	32 + 10 =		33	3.58 + 0.01 =	
12	32.5 + 10 =		34	3.584 + 0.01 =	
13	32.58 + 10 =		35	3.584 + 0.001 =	
14	40.789 + 1 =		36	3.584 + 0.1 =	
15	4 + 1 =		37	3.584 + 1 =	
16	4.6 + 1 =		38	6.804 + 0.01 =	
17	4.62 + 1 =		39	8.642 + 0.001 =	
18	4.628 + 1 =		40	7.65 + 0.001 =	
19	4.628 + 0.1 =		41	3.987 + 0.1 =	
20	4.628 + 0.01 =		42	4.279 + 0.001 =	
21	4.628 + 0.001 =		43	13.579 + 0.01 =	
22	27.048 + 0.1 =		44	15.491 + 0.01 =	

B Improvement _____ # Correct _____

Add.

1	2 + 1 =		23	4 + 0.1 =	
2	2.5 + 1 =		24	4.7 + 0.1 =	
3	2.53 + 1 =		25	4.73 + 0.1 =	
4	0.2 + 0.1 =		26	4.736 + 0.1 =	
5	0.27 + 0.1 =		27	4.736 + 1 =	
6	5.27 + 0.1 =		28	4.736 + 0.01 =	
7	0.02 + 0.01 =		29	4.736 + 0.001 =	
8	0.82 + 0.01 =		30	5.208 + 0.01 =	
9	4.82 + 0.01 =		31	2 + 0.01 =	
10	20 + 10 =		32	2.5 + 0.01 =	
11	23 + 10 =		33	2.58 + 0.01 =	
12	23.5 + 10 =		34	2.584 + 0.01 =	
13	23.58 + 10 =		35	2.584 + 0.001 =	
14	30.789 + 1 =		36	2.584 + 0.1 =	
15	3 + 1 =		37	2.584 + 1 =	
16	3.6 + 1 =		38	5.804 + 0.01 =	
17	3.62 + 1 =		39	7.642 + 0.001 =	
18	3.628 + 1 =		40	6.75 + 0.001 =	
19	3.628 + 0.1 =		41	2.987 + 0.1 =	
20	3.628 + 0.01 =		42	3.279 + 0.001 =	
21	3.628 + 0.001 =		43	12.579 + 0.01 =	
22	37.048 + 0.1 =		44	14.391 + 0.01 =	

Name _____ Date _____

1. Choose the reasonable product for each expression. Explain your reasoning in the spaces below using words, pictures and numbers.

a.	2.5 x 4	0.1	1	10	100

b.	3.14 x 7	2198	219.8	21.98	2.198

c.	8 x 6.022	4.8176	48.176	481.76	4817.6

d.	9 x 5.48	493.2	49.32	4.932	.4932

2. Pedro is building a spice rack with 4 shelves that are each 0.55 meter long. At the hardware store, Pedro finds that he can only buy the shelving in whole meter lengths. Exactly how many meters of shelving does Pedro need? Since he can only buy whole number lengths, how many meters of shelving should he buy? Justify your thinking.

3. Marcel rides his bicycle to school and back on Tuesdays and Thursdays. He lives 3.62 kilometers away from school. Marcel's gym teacher wants to know about how many kilometers he bikes in a week. Marcel's math teacher wants to know exactly how many kilometers he bikes in a week. What should Marcel tell each teacher? Show your work.

4. The poetry club had its first bake sale, and they made $79.35. The club members are planning to have 4 more bake sales. Leslie said, "If we make the same amount at each bake sale, we'll earn $3,967.50." Peggy said, "No way, Leslie! We'll earn $396.75 after five bake sales." Use estimation to help Peggy explain why Leslie's reasoning is inaccurate. Show your reasoning using words, numbers and pictures.

Name _____ Date _____

1. Use estimation to choose the correct value for each expression.

a.	5.1 x 2	0.102	1.02	10.2	102
b.	4 x 8.93	3.572	35.72	357.2	3572

2. Estimate the answer for 7.13 x 6. Explain your reasoning using words, pictures or numbers.

Name _____ Date _____

1. Choose the reasonable product for each expression. Explain your thinking in the spaces below using words, pictures, and numbers.

a.	2.1 x 3	0.63	6.3	63	630

_____

b.	4.27 x 6	2562	256.2	25.62	2.562

_____

c.	7 x 6.053	4237.1	423.71	42.371	4.2371

_____

d.	9 x 4.82	4.338	43.38	433.8	4338

_____

2. YiTing weighs 8.3 kg. Her older brother is 4 times as heavy as her. How much does her older brother's weight in kg?

3. Tim is painting his storage shed. He buys 4 gallons of white paint and 3 gallons of blue paint. If each gallon of white paint costs $15.72 and each gallon of blue paints is $21.87, how much will Tim spend in all on paint?

4. Ribbon is sold at 3 yards for $6.33. Jackie bought 24 yards of ribbon for a project. How much did she pay?

A # Correct _____

Subtract.

1	5 - 1 =	.	23	7.985 - 0.002 =	.
2	5.9 - 1 =	.	24	7.985 - 0.004 =	.
3	5.93 - 1 =	.	25	2.7 - 0.1 =	.
4	5.932 - 1 =	.	26	2.785 - 0.1 =	.
5	5.932 - 2 =	.	27	2.785 - 0.5 =	.
6	5.932 - 4 =	.	28	4.913 - 0.4 =	.
7	0.5 - 0.1 =	.	29	3.58 - 0.01 =	.
8	0.53 - 0.1 =	.	30	3.586 - 0.01 =	.
9	0.539 - 0.1 =	.	31	3.586 - 0.05 =	.
10	8.539 - 0.1 =	.	32	7.982 - 0.04 =	.
11	8.539 - 0.2 =	.	33	6.126 - 0.001 =	.
12	8.539 - 0.4 =	.	34	6.126 - 0.004 =	.
13	0.05 - 0.01 =	.	35	9.348 - 0.006 =	.
14	0.057 - 0.01 =	.	36	8.347 - 0.3 =	.
15	1.057 - 0.01 =	.	37	9.157 - 0.05 =	.
16	1.857 - 0.01 =	.	38	6.879 - 0.009 =	.
17	1.857 - 0.02 =	.	39	6.548 - 2 =	.
18	1.857 - 0.04 =	.	40	6.548 - 0.2 =	.
19	0.005 - 0.001 =	.	41	6.548 - 0.02 =	.
20	7.005 - 0.001 =	.	42	6.548 - 0.002 =	.
21	7.905 - 0.001 =	.	43	6.196 - 0.06 =	.
22	7.985 - 0.001 =	.	44	9.517 - 0.004 =	.

B Improvement _____ # Correct _____

Subtract.

1	6 - 1 =	.	23	7.986 - 0.002 =	.
2	6.9 - 1 =	.	24	7.986 - 0.004 =	.
3	6.93 - 1 =	.	25	3.7 - 0.1 =	.
4	6.932 - 1 =	.	26	3.785 - 0.1 =	.
5	6.932 - 2 =	.	27	3.785 - 0.5 =	.
6	6.932 - 4 =	.	28	5.924 - 0.4 =	.
7	0.6 - 0.1 =	.	29	4.58 - 0.01 =	.
8	0.63 - 0.1 =	.	30	4.586 - 0.01 =	.
9	0.639 - 0.1 =	.	31	4.586 - 0.05 =	.
10	8.639 - 0.1 =	.	32	6.183 - 0.04 =	.
11	8.639 - 0.2 =	.	33	7.127 - 0.001 =	.
12	8.639 - 0.4 =	.	34	7.127 - 0.004 =	.
13	0.06 - 0.01 =	.	35	1.459 - 0.006 =	.
14	0.067 - 0.01 =	.	36	8.457 - 0.4 =	.
15	1.067 - 0.01 =	.	37	1.267 - 0.06 =	.
16	1.867 - 0.01 =	.	38	7.981 - 0.001 =	.
17	1.867 - 0.02 =	.	39	7.548 - 2 =	.
18	1.867 - 0.04 =	.	40	7.548 - 0.2 =	.
19	0.006 - 0.001 =	.	41	7.548 - 0.02 =	.
20	7.006 - 0.001 =	.	42	7.548 - 0.002 =	.
21	7.906 - 0.001 =	.	43	7.197 - 0.06 =	.
22	7.986 - 0.001 =	.	44	1.627 - 0.004 =	.

Name _____ Date _____

1. Complete the sentences with the correct number of units and complete the equation.

   a. 4 groups of _____ tenths is 1.6. 1.6 ÷ 4 = _____

   b. 8 groups of _____hundredths is 0.32. 0.32 ÷ 8 = _____

   c. 7 groups of _____thousandths is 0.084. .084 ÷ 7 = _____

   d. 5 groups of _____tenths is 2.0 2.0 ÷ 5 = _____

2. Complete the number sentence. Express the quotient in units and then in standard form.

   a. 4.2 ÷ 7 = _____ tenths ÷ 7 = _____ tenths = _____

   b. 2.64 ÷ 2 = _____ ones ÷ 2 + _____ hundredths ÷ 2

   = _____ ones + _____ hundredths

   = _____

   c. 12.64 ÷ 2 = _____ ones ÷ 2 + _____ hundredths ÷ 2

   = _____ ones + _____ hundredths

   = _____

d. 4.26 ÷ 6 = _____ tenths ÷ 6 + _____ hundredths ÷ 6

= _____

= _____

e. 4.236 ÷ 6 = _____

= _____

= _____

3. Find the quotients. Then use words, numbers, or pictures to describe any relationships you notice between each pair of problems and quotients.

a. 32 ÷ 8 = _____ 3.2 ÷ 8 = _____

b. 81 ÷ 9 = _____ 0.081 ÷ 9 = _____

4. Are the quotients below reasonable? Explain your answer.

a. 5.6 ÷ 7 = 8

b. 56 ÷ 7 = 0.8

c. .56 ÷ 7 = 0.08

5. 12.48 milliliters of medicine were separated into doses of 4 ml each. How many doses were made?

6. The price of most milk in 2013 is around $3.28 a gallon. This is eight times as much as you would have probably paid for a gallon of milk in the 1950's. What was the cost for a gallon of milk during the 1950's? Use a tape diagram and show your calculations.

Name _____ Date _____

1. Complete the sentences with the correct number of units and complete the equation.

   a. 2 groups of _____ tenths is 1.8 1.8 ÷ 2 = _____

   b. 4 groups of _____hundredths is 0.32 0.32 ÷ 4 = _____

   c. 7 groups of _____ thousandths is 0.021 0.021 ÷ 7 = _____

2. Complete the number sentence. Express the quotient in units and then in standard form.

   a. 4.5 ÷ 5 = _____ tenths ÷ 5 = _____ tenths = _____

   b. 6.12 ÷ 6 = _____ ones ÷ 6 + _____ hundredths ÷ 6

      = _____ ones + _____ hundredths

      = _____

Name _____ Date _____

1. Complete the sentences with the correct number of units and complete the equation.

   a. 3 groups of _____ tenths is 1.5 1.5 ÷ 3 = _____

   b. 6 groups of _____ hundredths is 0.24 0.24 ÷ 6 = _____

   c. 5 groups of _____ thousandths is 0.045 0.045 ÷ 5 = _____

2. Complete the number sentence. Express the quotient in units and then in standard form.

   a. 9.36 ÷ 3 = _____ ones ÷ 3 + _____ hundredths ÷ 3

   = _____ ones + _____ hundredths

   = _____

   b. 36.012 ÷ 3 = _____ ones ÷ 3 + _____ thousandths ÷ 3

   = _____ ones + _____ thousandths

   = _____

   c. 3.55 ÷ 5 = _____ tenths ÷ 5 + _____ hundredths ÷ 5

   = _____

   = _____

d. 3.545 ÷ 5 = _____

= _____

= _____

3. Find the quotients. Then use words, numbers, or pictures to describe any relationships you notice between each pair of problems and quotients.

a. 21 ÷ 7 = _____ 2.1 ÷ 7 = _____

b. 48 ÷ 8 = _____ 0.048 ÷ 8 = _____

4. Are the quotients below reasonable? Explain your answer.

a. 0.54 ÷ 6 = 9

b. 5.4 ÷ 6 = 0.9

c. $54 \div 6 = 0.09$

5. A toy airplane costs $4.84. It costs 4 times as much as a toy car. What is the cost of the toy car?

6. Julian bought 3.9 liters of cranberry juice and Jay bought 8.74 liters of apple juice. They mixed the two juices together then poured them equally into 2 bottles. How many liters of juice are in each bottle?

Name _____ Date _____

1. Draw number disks on the place value chart to solve. Show your steps using the standard algorithm.

a. 4.236 ÷ 3 = _____

Ones	Tenths	Hundredths	Thousandths
b. c. d. e. f. g. h. i.			

$3\overline{)4.236}$

b. 1.324 ÷ 2 = _____

Ones	Tenths	Hundredths	Thousandths

$2\overline{)1.324}$

2. Solve using the standard algorithm.

a. $0.78 \div 3 =$ _____	b. $7.28 \div 4 =$ _____	c. $17.45 \div 5 =$ _____

3. Grayson wrote the following in her math journal: $1.47 \div 7 = 2.1$
Use words, numbers and pictures to explain why Grayson's thinking is incorrect.

4. Mrs. Nguyen used 1.48 meters of netting to make 4 identical mini hockey goals. How much netting did she use per goal?

5. Esperanza usually buys avocados for $0.94 apiece. During a sale, she gets 5 avocados for $4.10. How much money did she save per avocado? Use a tape diagram and show your calculations.

Name _____ Date _____

1. Draw number disks on the place value chart to solve. Show your steps using long division.

   a. 5.372 ÷ 2 = _____

Ones	Tenths	Hundredths	Thousandths

$$2\overline{)5.372}$$

2. Solve using the standard algorithm.

   a. 0.178 ÷ 4 = _____

Name _____ Date _____

1. Draw number disks on the place value chart to solve. Show your steps using long division.

   a. 5.241 ÷ 3 = _____

Ones	Tenths	Hundredths	Thousandths

$$3\overline{)5.241}$$

   b. 3.445 ÷ 5 = _____

Ones	Tenths	Hundredths	Thousandths

$$5\overline{)3.445}$$

2. Solve using the standard algorithm.

a. $0.64 \div 4 =$ _____	b. $6.45 \div 5 =$ _____	c. $16.404 \div 6 =$ _____

3. Mrs. Mayuko paid $40.68 for 3 kg of shrimp. What's the cost of 1 kg of shrimp?

4. The total weight of 6 pieces of butter and a bag of sugar is 3.8 lb. If the weight of the bag of sugar is 1.4 lb., what's the weight of each piece of butter?

A

Correct _____

Solve.

1	$10 \times 10 =$		23	$24 \times 10^2 =$	
2	$10^2 =$		24	$24.7 \times 10^2 =$	
3	$10^2 \times 10 =$		25	$24.07 \times 10^2 =$	
4	$10^3 =$		26	$24.007 \times 10^2 =$	
5	$10^3 \times 10 =$		27	$53 \times 1000 =$	
6	$10^4 =$		28	$53 \times 10^3 =$	
7	$3 \times 100 =$		29	$53.8 \times 10^3 =$	
8	$3 \times 10^2 =$		30	$53.08 \times 10^3 =$	
9	$3.1 \times 10^2 =$		31	$53.082 \times 10^3 =$	
10	$3.15 \times 10^2 =$		32	$9.1 \times 10{,}000 =$	
11	$3.157 \times 10^2 =$		33	$9.1 \times 10^4 =$	
12	$4 \times 1000 =$		34	$91.4 \times 10^4 =$	
13	$4 \times 10^3 =$		35	$9.104 \times 10^4 =$	
14	$4.2 \times 10^3 =$		36	$9.107 \times 10^4 =$	
15	$4.28 \times 10^3 =$		37	$1.2 \times 10^2 =$	
16	$4.283 \times 10^3 =$		38	$0.35 \times 10^3 =$	
17	$5 \times 10{,}000 =$		39	$5.492 \times 10^4 =$	
18	$5 \times 10^4 =$		40	$8.04 \times 10^3 =$	
19	$5.7 \times 10^4 =$		41	$7.109 \times 10^4 =$	
20	$5.73 \times 10^4 =$		42	$0.058 \times 10^2 =$	
21	$5.731 \times 10^4 =$		43	$20.78 \times 10^3 =$	
22	$24 \times 100 =$		44	$420.079 \times 10^2 =$	

B Improvement _____ # Correct _____

Solve.

1	$10 \times 10 \times 1 =$		23	$42 \times 10^2 =$	
2	$10^2 =$		24	$42.7 \times 10^2 =$	
3	$10^2 \times 10 =$		25	$42.07 \times 10^2 =$	
4	$10^3 =$		26	$42.007 \times 10^2 =$	
5	$10^3 \times 10 =$		27	$35 \times 1000 =$	
6	$10^4 =$		28	$35 \times 10^3 =$	
7	$4 \times 100 =$		29	$35.8 \times 10^3 =$	
8	$4 \times 10^2 =$		30	$35.08 \times 10^3 =$	
9	$4.1 \times 10^2 =$		31	$35.082 \times 10^3 =$	
10	$4.15 \times 10^2 =$		32	$8.1 \times 10{,}000 =$	
11	$4.157 \times 10^2 =$		33	$8.1 \times 10^4 =$	
12	$5 \times 1000 =$		34	$81.4 \times 10^4 =$	
13	$5 \times 10^3 =$		35	$8.104 \times 10^4 =$	
14	$5.2 \times 10^3 =$		36	$8.107 \times 10^4 =$	
15	$5.28 \times 10^3 =$		37	$1.3 \times 10^2 =$	
16	$5.283 \times 10^3 =$		38	$0.53 \times 10^3 =$	
17	$7 \times 10{,}000 =$		39	$4.391 \times 10^4 =$	
18	$7 \times 10^4 =$		40	$7.03 \times 10^3 =$	
19	$7.5 \times 10^4 =$		41	$6.109 \times 10^4 =$	
20	$7.53 \times 10^4 =$		42	$0.085 \times 10^2 =$	
21	$7.531 \times 10^4 =$		43	$30.87 \times 10^3 =$	
22	$42 \times 100 =$		44	$530.097 \times 10^2 =$	

Name _____ Date _____

1. Draw number disks on the place value chart to solve, and show your steps using long division.

a. 0.5 ÷ 2 = _____

Ones	●	Tenths	Hundredths	Thousandths

$$2\overline{)0.5}$$

b. 5.7 ÷ 4 = _____

Ones	●	Tenths	Hundredths	Thousandths

$$4\overline{)5.7}$$

2. Solve using the standard algorithm.

a. 0.9 ÷ 2 =	b. 9.1 ÷ 5=	c. 9 ÷ 6 =
d. 0.98 ÷ 4 =	e. 9.3 ÷ 6 =	f. 91 ÷ 4 =

3. Six bakers shared 7.5 kg of flour equally. How much flour did they each receive?

4. Mrs. Henderson makes punch by mixing 10.9 liters of apple juice, 600 milliliters of orange juice, and 8 liters of ginger ale. She pours the mixture equally into 6 large punch bowls. How much punch is in each bowl? Express your answer in liters.

Name _____ Date _____

1. Draw number disks on the place value chart to solve, and show your steps using long division.

0.9 ÷ 4 = _____

Ones	●	Tenths	Hundredths	Thousandths

$4 \overline{)0.9}$

2. Solve using the standard algorithm.

9.8 ÷ 5 =

Name _____ Date _____

1. Draw number disks on the place value chart to solve, and show your steps using long division.

a. 0.7 ÷ 4 = _____

Ones	●	Tenths	Hundredths	Thousandths

$4\overline{)0.7}$

b. 8.1 ÷ 5 = _____

Ones	●	Tenths	Hundredths	Thousandths

$5\overline{)8.1}$

2. Solve using the standard algorithm.

a. 0.7 ÷ 2 =	b. 3.9 ÷ 6 =	c. 9 ÷ 4 =
d. 0.92 ÷ 2 =	e. 9.4 ÷ 4 =	f. 91 ÷ 8 =

3. A rope 8.7 m long is cut into 5 equal pieces. How long is each piece?

4. Yasmine bought 6 gallons of apple juice. After filling up 4 bottles of the same size with apple juice, she had 0.3 gallon of apple juice left. What's the amount of apple juice in each bottle?

A

Correct _____

Solve.

1	$10 \times 10 =$		23	$3{,}400 \div 10^2 =$	
2	$10^2 =$		24	$3{,}470 \div 10^2 =$	
3	$10^2 \times 10 =$		25	$3{,}407 \div 10^2 =$	
4	$10^3 =$		26	$3{,}400.7 \div 10^2 =$	
5	$10^3 \times 10 =$		27	$63{,}000 \div 1000 =$	
6	$10^4 =$		28	$63{,}000 \div 10^3 =$	
7	$3 \times 100 =$		29	$63{,}800 \div 10^3 =$	
8	$3 \times 10^2 =$		30	$63{,}080 \div 10^3 =$	
9	$3.1 \times 10^2 =$		31	$63{,}082 \div 10^3 =$	
10	$3.15 \times 10^2 =$		32	$81{,}000 \div 10{,}000 =$	
11	$3.157 \times 10^2 =$		33	$81{,}000 \div 10^4 =$	
12	$4 \times 1000 =$		34	$81{,}400 \div 10^4 =$	
13	$4 \times 10^3 =$		35	$81{,}040 \div 10^4 =$	
14	$4.2 \times 10^3 =$		36	$91{,}070 \div 10^4 =$	
15	$4.28 \times 10^3 =$		37	$120 \div 10^2 =$	
16	$4.283 \times 10^3 =$		38	$350 \div 10^3 =$	
17	$5 \times 10{,}000 =$		39	$45{,}920 \div 10^4 =$	
18	$5 \times 10^4 =$		40	$6{,}040 \div 10^3 =$	
19	$5.7 \times 10^4 =$		41	$61{,}080 \div 10^4 =$	
20	$5.73 \times 10^4 =$		42	$7.8 \div 10^2 =$	
21	$5.731 \times 10^4 =$		43	$40{,}870 \div 10^3 =$	
22	$24 \times 100 =$		44	$52{,}070.9 \div 10^2 =$	

B Improvement _____ # Correct _____

Solve.

1	10 x 10 x 1 =		23	$4{,}370 \div 10^2 =$	
2	$10^2 =$		24	$4{,}370 \div 10^2 =$	
3	$10^2 \times 10 =$		25	$4{,}307 \div 10^2 =$	
4	$10^3 =$		26	$4{,}300.7 \div 10^2 =$	
5	$10^3 \times 10 =$		27	$73{,}000 \div 1000 =$	
6	$10^4 =$		28	$73{,}000 \div 10^3 =$	
7	$500 \div 100 =$		29	$73{,}800 \div 10^3 =$	
8	$500 \div 10^2 =$		30	$73{,}080 \div 10^3 =$	
9	$510 \div 10^2 =$		31	$73{,}082 \div 10^3 =$	
10	$516 \div 10^2 =$		32	$91{,}000 \div 10{,}000 =$	
11	$516.7 \div 10^2 =$		33	$91{,}000 \div 10^4 =$	
12	$6{,}000 \div 1000 =$		34	$91{,}400 \div 10^4 =$	
13	$6{,}000 \div 10^3 =$		35	$91{,}040 \div 10^4 =$	
14	$6{,}200 \div 10^3 =$		36	$81{,}070 \div 10^4 =$	
15	$6{,}280 \div 10^3 =$		37	$170 \div 10^2 =$	
16	$6{,}283 \div 10^3 =$		38	$450 \div 10^3 =$	
17	$70{,}000 \div 10{,}000 =$		39	$54{,}920 \div 10^4 =$	
18	$70{,}000 \div 10^4 =$		40	$4{,}060 \div 10^3 =$	
19	$76{,}000 \div 10^4 =$		41	$71{,}080 \div 10^4 =$	
20	$76{,}300 \div 10^4 =$		42	$8.7 \div 10^2 =$	
21	$76{,}310 \div 10^4 =$		43	$60{,}470 \div 10^3 =$	
22	$4{,}300 \div 100 =$		44	$72{,}050.9 \div 10^2 =$	

Name _____ Date _____

Solve.

1. Mr. Frye distributed $126 equally among his 4 children for their weekly allowance.
   a. How much money did each child receive?

   b. John, the oldest child, paid his siblings to do his chores. If John pays his allowance equally to his brother and two sisters, how much money will each of his siblings have received in all?

2. Ava is 23 cm taller than Olivia, and Olivia is half the height of Lucas. If Lucas is 1.78 m tall, how tall are Ava and Olivia? Express their heights in centimeters.

3. Mr. Hower can buy a computer with a down payment of $510 and 8 monthly payments of $35.75. If he pays cash for the computer, the cost is $699.99. How much money will he save if he pays cash for the computer instead of paying for it in monthly payments?

4. Brandon mixed 6.83 lbs. of cashews with 3.57 lbs. of pistachios. After filling up 6 bags that were the same size with the mixture, he had 0.35 lbs. of nuts left. What was the weight of each bag? Use a tape diagram and show your calculations.

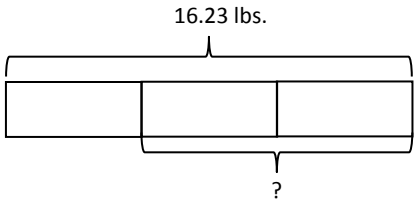
5. The bakery bought 4 bags of flour containing 3.5 kg each. 475 g of flour are needed to make a batch of muffins and 0.65 kg is needed to make a loaf of bread.
   a. If 4 batches of muffins and 5 loaves of bread are baked, how much flour will be left? Give your answer in kilograms.

   b. The remaining flour is stored in bins that hold 3 kg each. How many bins will be needed to store the flour? Explain your answer.

Name _____ Date _____

Write a word problem with two questions that matches the tape diagram below, then solve.

Weight of John's dog



Weight of Jim's dog ?

Name _____ Date _____

Solve using tape diagrams.

1. A gardener installed 42.6 meters of fencing in a week. He installed 13.45 meters on Monday and 9.5 meters on Tuesday. He installed the rest of the fence in equal lengths on Wednesday through Friday. How many meters of fencing did he install on each of the last three days?

2. Jenny charges $9.15 an hour to babysit toddlers and $7.45 an hour to babysit school-aged children.

   a. If Jenny babysat toddlers for 9 hours and school-aged children for 6 hours, how much money did she earn in all?

   b. Jenny wants to earn $1300 by the end of the summer. How much more will she need to earn to meet her goal?

3. A table and 8 chairs weigh 235.68 pounds together. If the table weighs 157.84 lbs., what is the weight of one chair in pounds?

4. Mrs. Cleaver mixes 1.24 liters of red paint with 3 times as much blue paint to make purple paint. She pours the paint equally into 5 containers. How much blue paint is in each cup? Give you answer in liters.