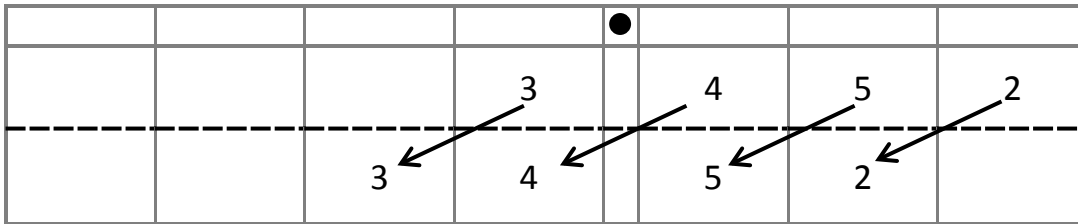


Name _____

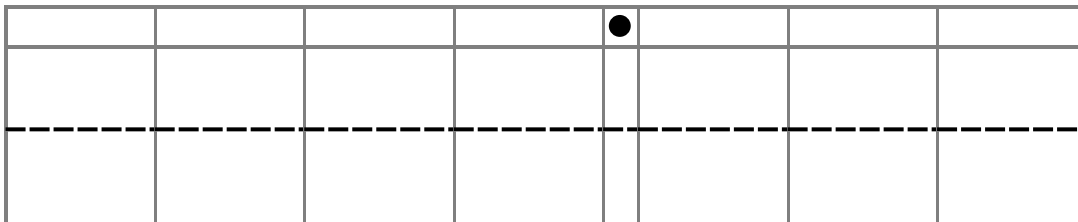
Date _____

1. Use the place value chart and arrows to show how the value of the each digit changes. The first one has been done for you.

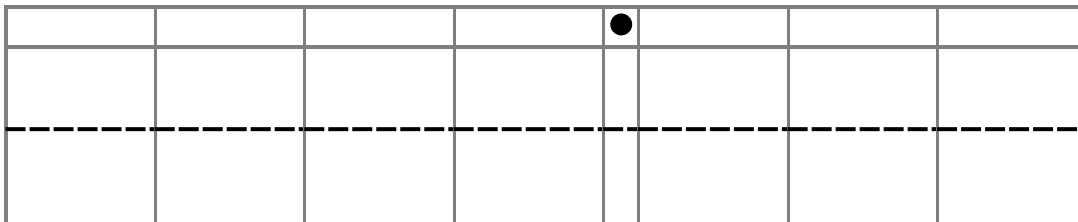
a. $3.452 \times 10 = \underline{34.52}$



b. $3.452 \times 100 = \underline{\hspace{2cm}}$



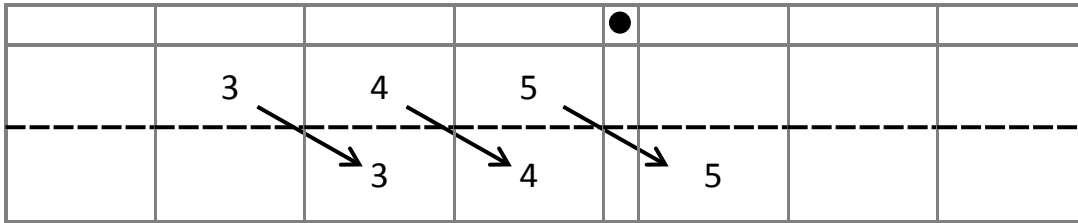
c. $3.452 \times 1,000 = \underline{\hspace{2cm}}$



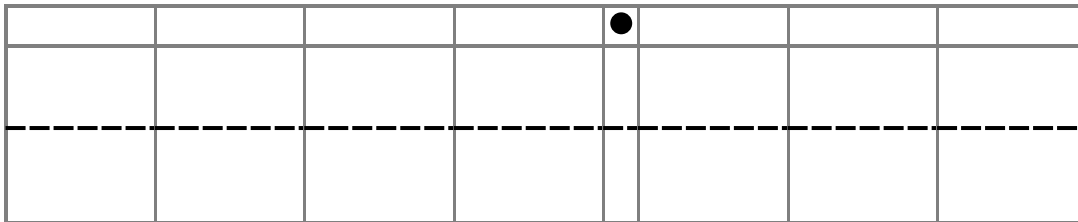
d. Explain how and why the value of the 5 changed in (a), (b), and (c).

2. Use the place value chart and arrows to show how the value of each digit changes. The first one has been done for you.

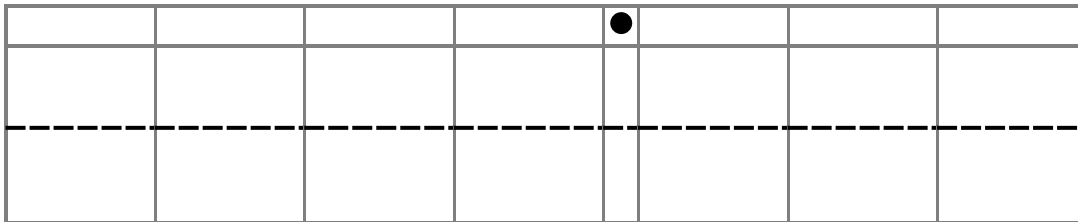
a. $345 \div 10 = \underline{34.5}$



b. $345 \div 100 = \underline{\hspace{2cm}}$



c. $345 \div 1,000 = \underline{\hspace{2cm}}$



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

- A manufacturer made 7,234 boxes of coffee stirrers. Each box contains 1,000 stirrers. How many stirrers did they make? Explain your thinking, and include a statement of the solution.

- 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 3,200.4. Draw a picture of what the place value chart looked like at first.

				●			

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

- 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. Solve.

a. $54,000 \times 10 =$ _____

e. $0.13 \times 100 =$ _____

b. $54,000 \div 10 =$ _____

f. $13 \div 1,000 =$ _____

c. $8.7 \times 10 =$ _____

g. $3.12 \times 1,000 =$ _____

d. $8.7 \div 10 =$ _____

h. $4,031.2 \div 100 =$ _____

2. Find the products.

a. $19,340 \times 10 =$ _____

b. $19,340 \times 100 =$ _____

c. $19,340 \times 1,000 =$ _____

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

3. Find the quotients.
- $152 \div 10 =$ _____
 - $152 \div 100 =$ _____
 - $152 \div 1,000 =$ _____
 - Explain how you decided where to place the decimal in the quotients for (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 $\frac{1}{10}$ 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 the answer.

Name _____

Date _____

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

a. $10,000 =$ _____

d. $100 \times 100 =$ _____

b. $1,000 =$ _____

e. $1,000,000 =$ _____

c. $10 \times 10 =$ _____

f. $1,000 \times 1,000 =$ _____

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

a. $9 \times 10^3 =$ _____

e. $4.025 \times 10^3 =$ _____

b. $39 \times 10^4 =$ _____

f. $40.25 \times 10^4 =$ _____

c. $7,200 \div 10^2 =$ _____

g. $72.5 \div 10^2 =$ _____

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

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 unknown 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 unknown 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, or 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, or pictures why his thinking is incorrect and what he needs to do to correct his answer.

Name _____

Date _____

1. Convert and write an equation with an exponent. Use your meter strip when it helps you.

a. 3 meters to centimeters $3 \text{ m} = 300 \text{ cm}$ $3 \times 10^2 = 300$

b. 105 centimeters to meters $105 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$ _____

c. 1.68 meters to centimeters $\underline{\hspace{2cm}} \text{ m} = \underline{\hspace{2cm}} \text{ cm}$ _____

d. 80 centimeters to meters $\underline{\hspace{2cm}} \text{ cm} = \underline{\hspace{2cm}} \text{ m}$ _____

e. 9.2 meters to centimeters $\underline{\hspace{2cm}} \text{ m} = \underline{\hspace{2cm}} \text{ cm}$ _____

f. 4 centimeters to meters $\underline{\hspace{2cm}} \text{ cm} = \underline{\hspace{2cm}} \text{ m}$ _____

g. In the space below, list the letters of the problems where larger units are converted to smaller units.

2. Convert using an equation with an exponent. Use your meter strip when it helps you.

a. 3 meters to millimeters $\underline{\hspace{2cm}} \text{ m} = \underline{\hspace{2cm}} \text{ mm}$ _____

b. 1.2 meters to millimeters $\underline{\hspace{2cm}} \text{ m} = \underline{\hspace{2cm}} \text{ mm}$ _____

c. 1,020 millimeters to meters $\underline{\hspace{2cm}} \text{ mm} = \underline{\hspace{2cm}} \text{ m}$ _____

d. 97 millimeters to meters $\underline{\hspace{2cm}} \text{ mm} = \underline{\hspace{2cm}} \text{ m}$ _____

e. 7.28 meters to millimeters $\underline{\hspace{2cm}} \text{ m} = \underline{\hspace{2cm}} \text{ mm}$ _____

f. 4 millimeters to meters $\underline{\hspace{2cm}} \text{ mm} = \underline{\hspace{2cm}} \text{ m}$ _____

g. In the space below, list the letters of the problems where smaller units are converted to larger units.

3. Read each aloud as you write the equivalent measures. Write an equation with an exponent you might use to convert.

- a. 3.512 m = _____ mm $3.512 \times 10^3 = 3,512$
- b. 8 cm = _____ m _____
- c. 42 mm = _____ m _____
- d. 0.05 m = _____ mm _____
- e. 0.002 m = _____ cm _____

4. The length of the bar for a high jump competition must always be 4.75 m. Express this measurement in millimeters. Explain your thinking. Include an equation with an exponent in your explanation.

5. A honey bee’s length measures 1 cm. Express this measurement in meters. Explain your thinking. Include an equation with an exponent in your explanation.

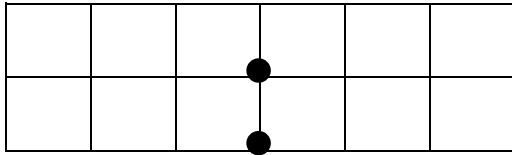
6. Explain why converting from meters to centimeters uses a different exponent than converting from meters to millimeters.

Name _____

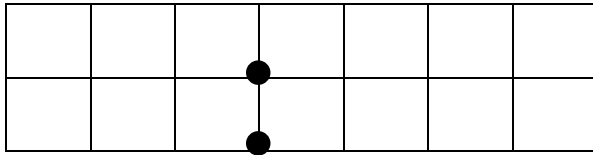
Date _____

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

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 three decimal places and yours only has one.” 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?

Name _____

Date _____

Fill in the table, and 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	Ones	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



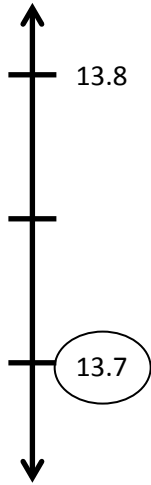
d. Tens



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. 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 were both right. Explain how that could be true. Use number lines and words to explain your reasoning.

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. Solve, and then write the sum in standard form. Use a place value chart 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. $62.573 + 4.328 = \underline{\hspace{2cm}}$

f. $85.703 + 12.197 = \underline{\hspace{2cm}}$

3. Van Cortlandt Park's walking trail is 1.02 km longer than Marine Park's. 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	$\underline{\hspace{1cm}}$ km
Marine Park	1.28 km
Van Cortlandt Park	$\underline{\hspace{1cm}}$ km

b. If a tourist walked all 3 trails in a day, how many kilometers would he or she 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. 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. 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	7×3 ones	7×1 tenth	7×2 hundredths
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_____ + _____ + 0.14 = _____

b. 6×4.25

- c. 3 copies of 4.65
- d. 4 times as much as 20.075
3. Miles incorrectly gave the product of 7×2.6 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?

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, or pictures.

Name _____

Date _____

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

a. 4 groups of _____ tenths is 1.6. $1.6 \div 4 =$ _____

b. 8 groups of _____ hundredths is 0.32. $0.32 \div 8 =$ _____

c. 7 groups of _____ thousandths is 0.084. $0.084 \div 7 =$ _____

d. 5 groups of _____ tenths is 2.0. $2.0 \div 5 =$ _____

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

a. $4.2 \div 7 =$ _____ tenths $\div 7 =$ _____ tenths $=$ _____

b. $2.64 \div 2 =$ _____ ones $\div 2 +$ _____ hundredths $\div 2$

$=$ _____ ones $+$ _____ hundredths

$=$ _____

c. $12.64 \div 2 =$ _____ ones $\div 2 +$ _____ hundredths $\div 2$

$=$ _____ ones $+$ _____ hundredths

$=$ _____

d. $4.26 \div 6 =$ _____ tenths $\div 6 +$ _____ hundredths $\div 6$

$=$ _____

$=$ _____

e. $4.236 \div 6 =$ _____
= _____
= _____

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

a. $32 \div 8 =$ _____ $3.2 \div 8 =$ _____

b. $81 \div 9 =$ _____ $0.081 \div 9 =$ _____

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

a. $5.6 \div 7 = 8$

b. $56 \div 7 = 0.8$

c. $0.56 \div 7 = 0.08$

5. 12.48 milliliters of medicine were separated into doses of 4 mL each. How many doses were made?
6. The price of milk in 2013 was around \$3.28 a gallon. This was eight times as much as you would have probably paid for a gallon of milk in the 1950s. What was the cost for a gallon of milk during the 1950s? Use a tape diagram, and show your calculations.

Name _____

Date _____

1. Draw place value disks on the place value chart to solve. Show each step using the standard algorithm.

a. $4.236 \div 3 = \underline{\hspace{2cm}}$

Ones	Tenths	Hundredths	Thousandths

$$3 \overline{) 4.236}$$

b. $1.324 \div 2 = \underline{\hspace{2cm}}$

Ones	Tenths	Hundredths	Thousandths

$$2 \overline{) 1.324}$$

2. Solve using the standard algorithm.

a. $0.78 \div 3 = \underline{\hspace{2cm}}$	b. $7.28 \div 4 = \underline{\hspace{2cm}}$	c. $17.45 \div 5 = \underline{\hspace{2cm}}$
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3. Grayson wrote $1.47 \div 7 = 2.1$ in her math journal.

Use words, numbers, or 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 place value disks on the place value chart to solve. Show each step in the standard algorithm.

a. $0.5 \div 2 =$ _____

Ones	•	Tenths	Hundredths	Thousandths

$$2 \overline{) 0.5}$$

b. $5.7 \div 4 =$ _____

Ones	•	Tenths	Hundredths	Thousandths

$$4 \overline{) 5.7}$$

2. Solve using the standard algorithm.

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

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

4. Mrs. Henderson makes punch by mixing 10.9 liters of apple juice, 0.6 liters 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 _____

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 lb of cashews with 3.57 lb of pistachios. After filling up 6 bags that were the same size with the mixture, he had 0.35 lb 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. 0.475 kg of flour is 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.