5.1 Decimal fractions: Reviewing addition strategies (without composing)

In this lesson, students review strategies to add tenths to tenths, hundredths to hundredths, and tenths to hundredths. At this stage, the examples do not require regrouping.

Step 1 Preparing the lesson

Each group of students will need:

- 1 table from Blackline Master 5.8

Each pair of students will need:

- 2 hundredths squares from Blackline Master 5.9
- crayons or markers

Each student will need:

- 1 hundredths square from Blackline Master 5.9
- Student Journal 5.1

Step 2 Starting the lesson

Write 0.5 + 0.31 on the board and distribute a hundredths square to each student. Invite a volunteer to calculate the total and use a hundredths square to model and explain their addition strategy (**SMP4**). Review that five-tenths is equivalent to fifty-hundredths. Organize students into pairs and distribute the hundredths squares. Have students repeat the above activity to calculate 0.06 + 0.3, then 0.19 + 0.8. Afterward, invite pairs to model and explain their strategy and answers to the class.

Step 3 Teaching the lesson

Organize students into groups and distribute the table from Blackline Master 5.9. Have the students identify the types of fats they know. Refer to the table of nutritional information, then discuss the points below:

How do you say the amount of each type of fat?

How could you calculate the sum of saturated fat and polyunsaturated fat?

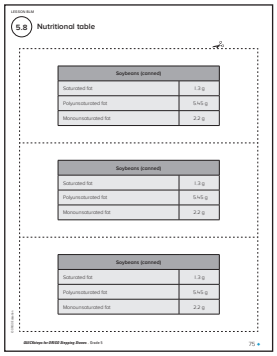
How could you break each number into parts to make it easier to add?

How could you calculate the total on a number line?

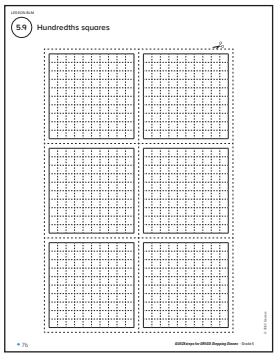
Guide the students to explain strategies, such as adding the total value of the tenths to the total value of the ones (place-value strategy), starting with the greater addend and counting on the lesser addend, or working with common fractions (for example, $1\frac{30}{100} + 5\frac{45}{100}$).

Draw an empty number line on the board. Invite volunteers who used a number line to model their thinking and demonstrate their strategy on the number line. Students who used a place-value strategy or who worked with common fractions should also demonstrate their steps. Refer to the three methods on the board. Ask students to compare and contrast the models and describe the appropriateness of each (**SMP4**). Repeat the discussion by asking the students to calculate the sum of polyunsaturated and monounsaturated fats. Again, have the students model their strategy on the board. Look for students who convert the 2 tenths to 20 hundredths to think 5.45 + 2.20. This can be a useful strategy as it allows students to work with an equal number of decimal places (**SMP7**).

Blackline Master 5.8



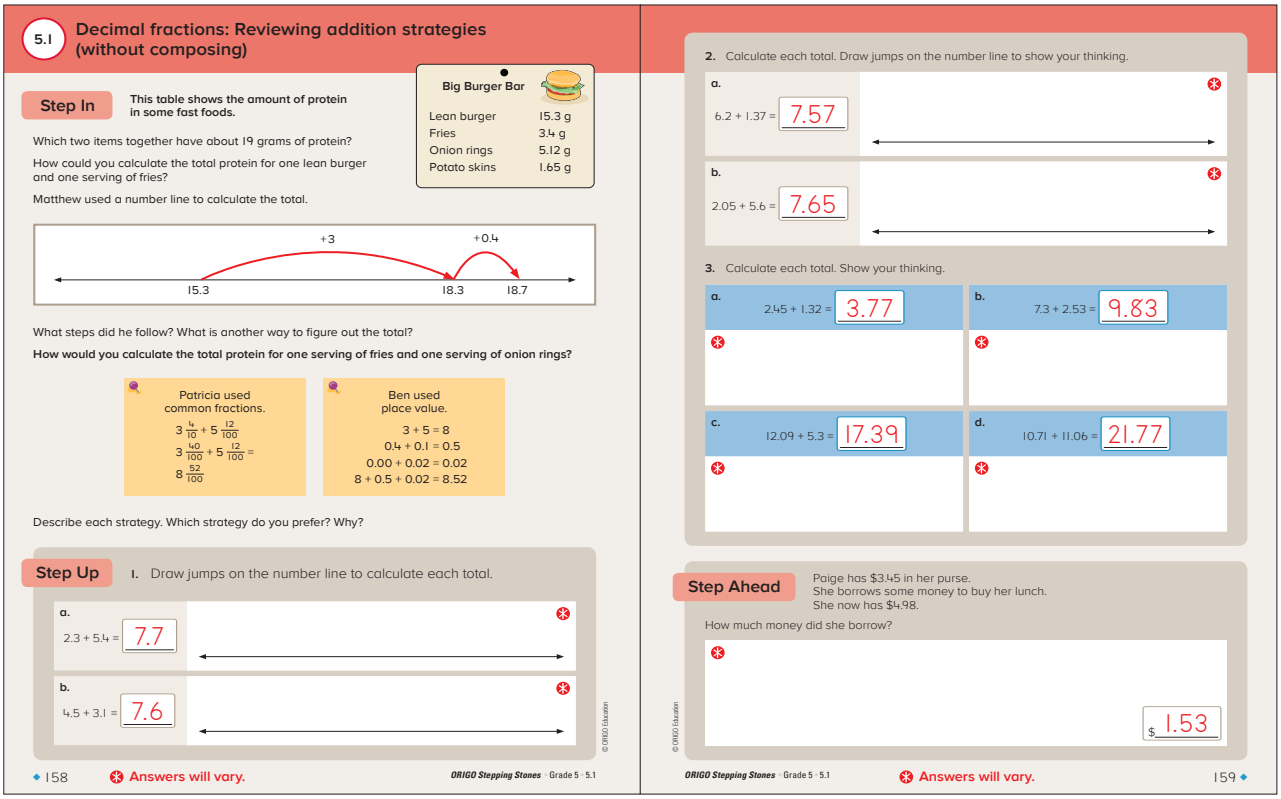
Blackline Master 5.9



ELL

Describe the meaning of nutritional information for students to understand the context.

Student Journal 5.1, pp. 158–159



5.1 Decimal fractions: Reviewing addition strategies (without composing)

Step In This table shows the amount of protein in some fast foods.

Big Burger Bar	
Lean burger	15.3 g
Fries	3.4 g
Onion rings	5.12 g
Potato skins	1.65 g

Which two items together have about 19 grams of protein?

How could you calculate the total protein for one lean burger and one serving of fries?

Matthew used a number line to calculate the total.

What steps did he follow? What is another way to figure out the total?

How would you calculate the total protein for one serving of fries and one serving of onion rings?

Patricia used common fractions.

$3\frac{4}{10} + 5\frac{12}{100}$

$3\frac{40}{100} + 5\frac{12}{100} =$

$8\frac{52}{100}$

Ben used place value.

3 + 5 = 8
0.4 + 0.1 = 0.5
0.00 + 0.02 = 0.02
8 + 0.5 + 0.02 = 8.52

Describe each strategy. Which strategy do you prefer? Why?

Step Up 1. Draw jumps on the number line to calculate each total.

a. 2.3 + 5.4 = 7.7

b. 4.5 + 3.1 = 7.6

2. Calculate each total. Draw jumps on the number line to show your thinking.

a. 6.2 + 1.37 = 7.57

b. 2.05 + 5.6 = 7.65

3. Calculate each total. Show your thinking.

a. 2.45 + 1.32 = 3.77

b. 7.3 + 2.53 = 9.83

c. 12.09 + 5.3 = 17.39

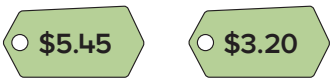
d. 10.71 + 11.06 = 21.77

Step Ahead Paige has $3.45 in her purse. She borrows some money to buy her lunch. She now has $4.98.

How much money did she borrow?

$ 1.53

Relate the addition of decimal fractions to money. Then draw the price tags, as shown, on the board. Ask, *When might you add prices like these? What is the total cost?* Students can then share other amounts of money that they may add on a daily basis. Write the expressions 5.4 + 3.2, 2.36 + 4.21, 3.25 + 6.1, and 4.07 + 3.9 on the board. Students can then work independently or with another student to calculate each sum. Afterward, select a few students to share their strategies and answers with the class.



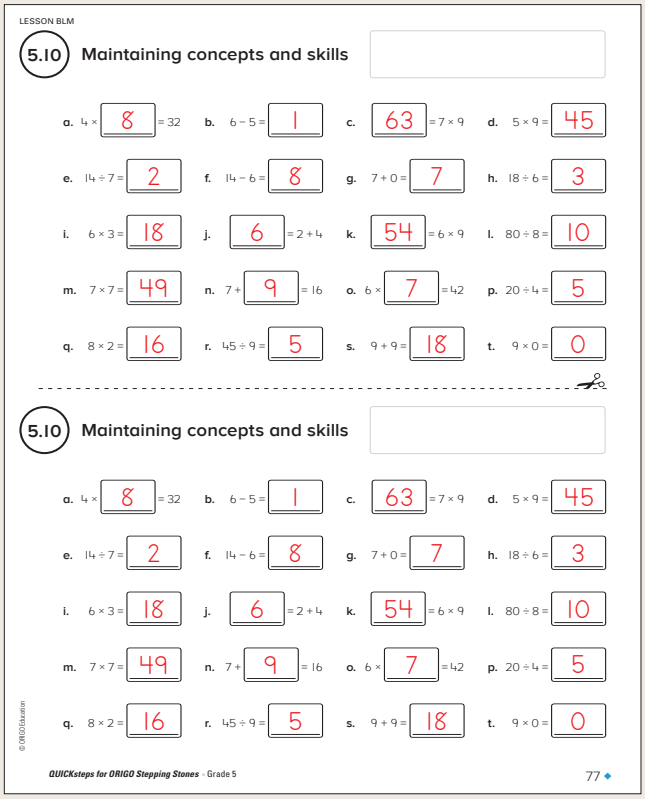
Work through the Step In discussion (Student Journal 5.1) with the whole class. Read the Step Up and Step Ahead instructions with the students. Make sure they know what to do, then have them work independently to complete the tasks.

Step 4 Reflecting on the work

Discuss the students' answers to Student Journal 5.1. Lead a class debate about the strategies they found most useful. Make sure they provide examples and non-examples to support their arguments. Remind students to listen without interrupting and provide polite feedback to their peers. Be careful to allot time for critique fairly to foster safety and inclusion in the classroom community. Then refer to the Step Ahead and have the students explain how they determined the amount of money that was borrowed. Ask, *Who drew pictures of coins to calculate the amount that was borrowed? Who wrote equations?* Invite these students to share their strategies (**SMP3**).

Maintaining concepts and skills

Make copies of Blackline Master 5.10. Cut the page in half and give each student one strip to complete. Alternatively, write the equations on the board and have the students copy and complete them, or just write the answers.



LESSON BLM

5.10 Maintaining concepts and skills

a. 4 × 8 = 32 b. 6 − 5 = 1 c. 63 = 7 × 9 d. 5 × 9 = 45

e. 14 ÷ 7 = 2 f. 14 − 6 = 8 g. 7 + 0 = 7 h. 18 ÷ 6 = 3

i. 6 × 3 = 18 j. 6 = 2 + 4 k. 54 = 6 × 9 l. 80 ÷ 8 = 10

m. 7 × 7 = 49 n. 7 + 9 = 16 o. 6 × 7 = 42 p. 20 ÷ 4 = 5

q. 8 × 2 = 16 r. 45 ÷ 9 = 5 s. 9 + 9 = 18 t. 9 × 0 = 0

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q. 8 × 2 = 16 r. 45 ÷ 9 = 5 s. 9 + 9 = 18 t. 9 × 0 = 0

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Small group differentiation

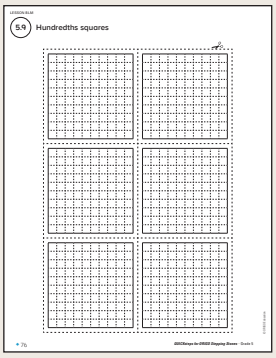
Extra help

Each pair of students will need:

- 1 copy of Blackline Master 5.9

Organize students into pairs and distribute the blackline master. Write the addition expressions, as shown, on the board and guide pairs to shade the hundredths square to help add the fractions. For the latter examples, bring out that each number of tenths is equal to an equivalent number of hundredths. For example, 0.4 = 0.40, and 0.2 = 0.20. This realization will help the students add decimal fractions that have an unequal number of decimal places.

Blackline Master 5.9



0.6 + 0.1

0.42 + 0.06

0.53 + 0.24

0.4 + 0.39

0.32 + 0.2

0.09 + 0.4

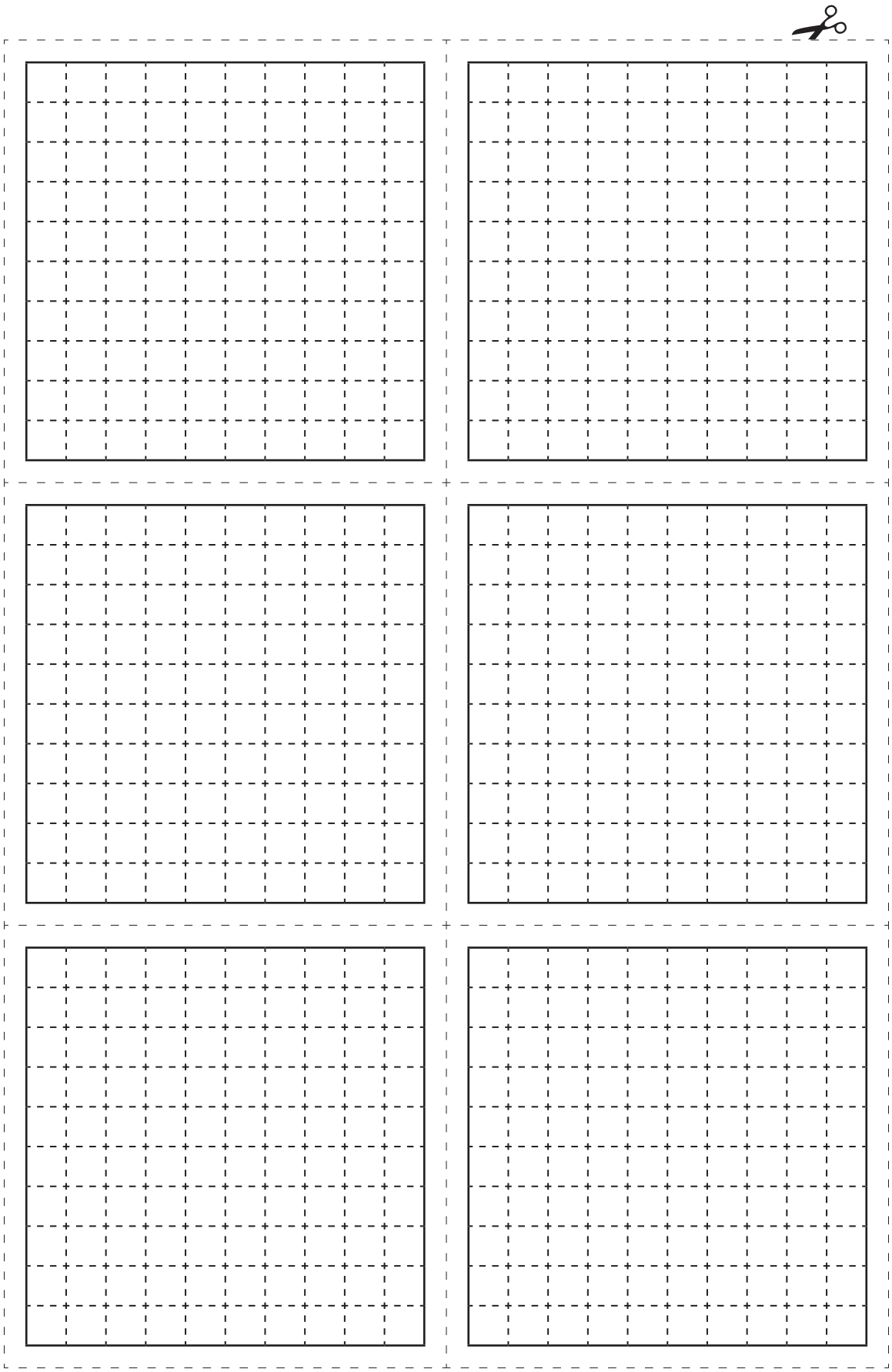
Extra practice

Each pair of students will need:

- 1 cube labeled: 0, 1, 2, 3, 4, 5

Organize students into pairs and distribute the cubes. Students take turns to roll the cube three times. They use the numbers they roll (in any order) to compose an expression in the form: __ . __ __ + __ . __ __. The objective of the game is to compose the total that is nearest to 10. For example, (Cole) rolls 0, 5, 1, then 4, 1, 1. He arranges the numbers he rolls to form the expression 5.10 + 4.11. (Carina) must now compose a total that is closer to 10 than 9.21. The game is repeated as time allows.

5.9 Hundredths squares



5.10 Maintaining concepts and skills

a. $4 \times \_\_\_\_ = 32$ **b.** $6 - 5 = \_\_\_\_$ **c.** $\_\_\_\_ = 7 \times 9$ **d.** $5 \times 9 = \_\_\_\_$

e. $14 \div 7 = \_\_\_\_$ **f.** $14 - 6 = \_\_\_\_$ **g.** $7 + 0 = \_\_\_\_$ **h.** $18 \div 6 = \_\_\_\_$

i. $6 \times 3 = \_\_\_\_$ **j.** $\_\_\_\_ = 2 + 4$ **k.** $\_\_\_\_ = 6 \times 9$ **l.** $80 \div 8 = \_\_\_\_$

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Step In

This table shows the amount of protein in some fast foods.

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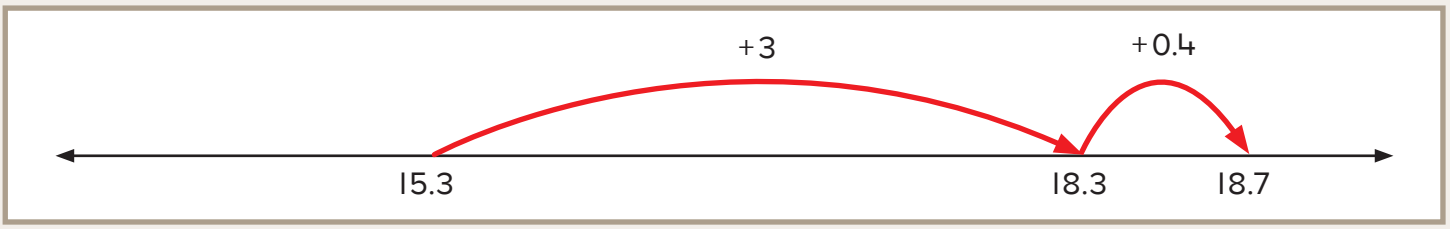
Which two items together have about 19 grams of protein?

How could you calculate the total protein for one lean burger and one serving of fries?

Matthew used a number line to calculate the total.



What steps did he follow? What is another way to figure out the total?

How would you calculate the total protein for one serving of fries and one serving of onion rings?

Patricia used common fractions.

$3\frac{4}{10} + 5\frac{12}{100}$

$3\frac{40}{100} + 5\frac{12}{100} =$

$8\frac{52}{100}$

Ben used place value.

$3 + 5 = 8$

$0.4 + 0.1 = 0.5$

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$8 + 0.5 + 0.02 = 8.52$

Describe each strategy. Which strategy do you prefer? Why?

Step Up

1. Draw jumps on the number line to calculate each total.

a.

$2.3 + 5.4 =$ _____

b.

$4.5 + 3.1 =$ _____

2. Calculate each total. Draw jumps on the number line to show your thinking.

a.

6.2 + 1.37 = _____

b.

2.05 + 5.6 = _____

3. Calculate each total. Show your thinking.

a. 2.45 + 1.32 = _____

b. 7.3 + 2.53 = _____

c. 12.09 + 5.3 = _____

d. 10.71 + 11.06 = _____

Step Ahead

Paige has $3.45 in her purse.
She borrows some money to buy her lunch.
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How much money did she borrow?

$_____

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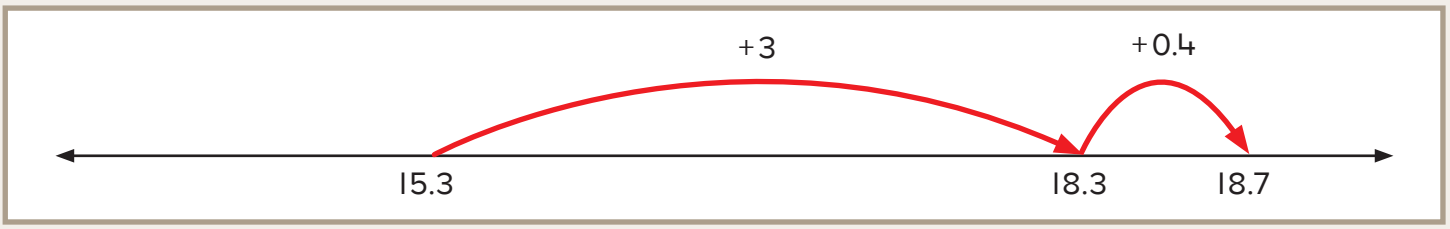

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Answers will vary.

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3. Calculate each total. Show your thinking.

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Step Ahead

Paige has $3.45 in her purse.
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She now has $4.98.

How much money did she borrow?

$ 1.53

Answers will vary.

I Menu orders

Breakfast	
Item	Price
Total Price	

Lunch	
Item	Price
Total Price	

Dinner	
Item	Price
Total Price	

Total cost of all meals for the day	$

5.8 Nutritional table

Soybeans (canned)	
Saturated fat	1.3 g
Polyunsaturated fat	5.45 g
Monounsaturated fat	2.2 g

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5.1 Fracciones decimales: Repasando las estrategias de suma (sin composición)

Conoce

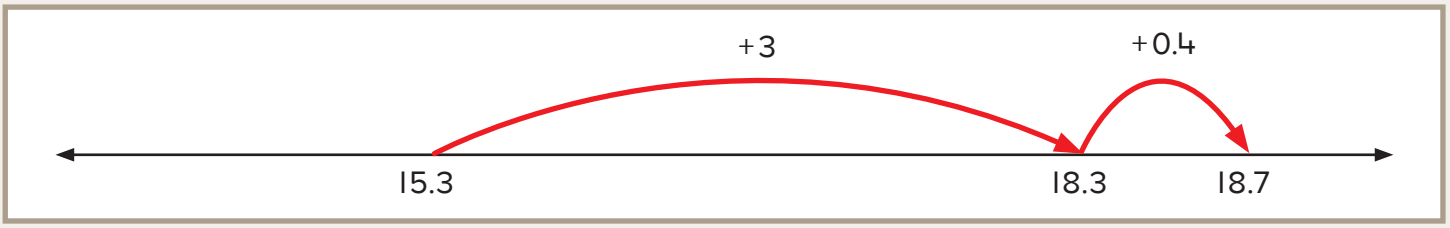
Esta tabla indica la cantidad de proteína en algunas comidas rápidas.

Gran barra de hamburgesas	
Hamburguesa	15.3 g
Papas fritas	3.4 g
Aros de cebolla	5.12 g
Papas rellenas	1.65 g

¿Cuáles dos alimentos juntos contienen alrededor de 19 gramos de proteína?

¿Cómo podrías calcular la proteína total de una hamburguesa y una porción de papas fritas?

Matthew utilizó una recta numérica para calcular el total.



¿Qué pasos siguió él? ¿De qué otra manera se puede calcular el total?

¿Cómo calcularías la proteína total de una porción de papas fritas y una porción de aros de cebolla?

Patricia utilizó fracciones comunes.

$3\frac{4}{10} + 5\frac{12}{100}$

$3\frac{40}{100} + 5\frac{12}{100} =$

$8\frac{52}{100}$

Ben utilizó valor posicional.

$3 + 5 = 8$

$0.4 + 0.1 = 0.5$

$0.00 + 0.02 = 0.02$

$8 + 0.5 + 0.02 = 8.52$

Describe cada estrategia. ¿Cuál estrategia prefieres? ¿Por qué?

Intensifica

1. Dibuja saltos en la recta numérica para calcular cada total.

a.

$2.3 + 5.4 =$ _____

b.

$4.5 + 3.1 =$ _____

2. Calcula cada total. Dibuja saltos en la recta numérica para indicar tu razonamiento.

a.

6.2 + 1.37 = _____

b.

2.05 + 5.6 = _____

3. Calcula cada total. Indica tu razonamiento.

a. 2.45 + 1.32 = _____

b. 7.3 + 2.53 = _____

c. 12.09 + 5.3 = _____

d. 10.71 + 11.06 = _____

Avanza

Paige tiene $3.45 en su monedero.
Ella pide prestado algo de dinero para comprar su almuerzo.
Ella ahora tiene $4.98.

¿Cuánto dinero pidió prestado ella?

$_____

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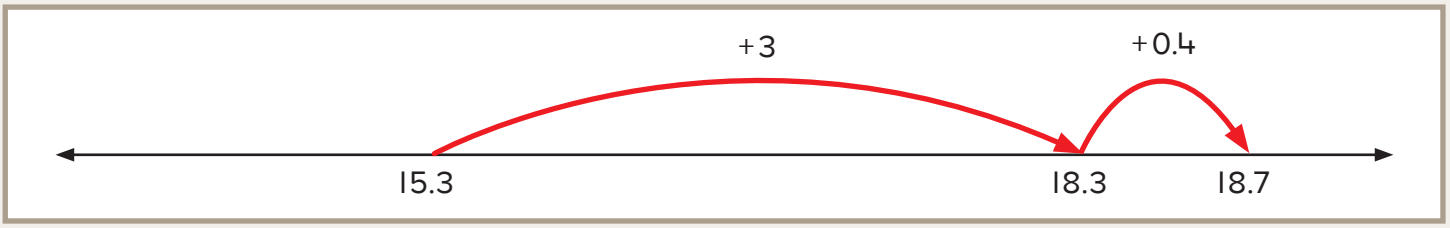

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Las respuestas pueden variar.

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Ella ahora tiene $4.98.

¿Cuánto dinero pidió prestado ella?

$ 1.53

Las respuestas pueden variar.

I Pedidos de platillos del menú

Desayuno	
Platillo	Precio
Precio total	

Almuerzo	
Platillo	Precio
Precio total	

Cena	
Platillo	Precio
Precio total	

Costo total de todas las comidas del día	$

5.8 Tabla nutricional

Frijoles de soya (enlatados)	
Grasas saturadas	1.3 g
Grasas poliinsaturadas	5.45 g
Grasas monoinsaturadas	2.2 g

Frijoles de soya (enlatados)	
Grasas saturadas	1.3 g
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