Fifth Grade Answer Key Unit 5: Multiplying & Dividing Fractions

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Lesson 1

Find each sum.

$$\frac{1}{6} + \frac{1}{6} = \frac{\frac{2}{6}}{\frac{3}{6}}$$

$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{\frac{3}{6}}{\frac{4}{6}}$$

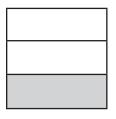
$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{\frac{4}{6}}{\frac{6}{6}}$$

$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{\frac{5}{6}}{\frac{6}{6}}$$

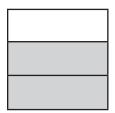
$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{\frac{6}{6}}{\frac{6}{6}}$$

Lesson 2

What fraction of each model is shaded?



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Lesson 3

Fisher needs to read a book that has 125 pages. It takes him 5 days to read the book, and he reads the same number of pages each day. How many pages does he read each day?

25 pages

Lesson 4

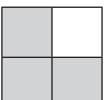
The school band is selling boxes of citrus fruit as a fundraiser. Each box contains 1 grapefruit and 3 oranges. How many grapefruits and how many oranges would be in 8 boxes of fruit?

8 grapefruits and 24 oranges

Lesson 5

How many fourths are shaded in the model shown?

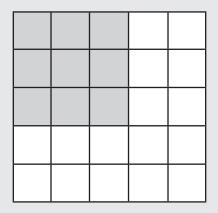




 $\frac{6}{4}$

Lesson 6

Name the shaded part of the model.



9 25

Lesson 7

Use an algorithm to find the product. 2.5×3.4

8.5

Lesson 8

Find the area of the rectangle.

34 ft.

21 ft.

714 sq. ft.

Lesson 9

Use the product $12 \times 15 = 180$ to estimate whether each of the products will be greater or less than 180. Write > or < next to each.

9 × 15 >	21 × 15 >
14 × 15 >	7 × 15 <
11 × 15 >	12.5 × 15 >

Lesson 10

One batch of chili uses 4 cups of beans. How many cups of beans would be in 2 batches of chili? How many cups of beans would be in half of a batch of chili?

2 batches: 8 cups half batch: 2 cups

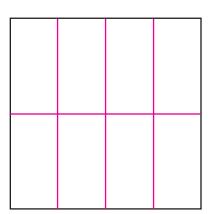
Lesson 11

Find the sum.

$$\frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \frac{\frac{9}{4}}{}$$

Lesson 12

Divide the square into 4 equal pieces.



Now, divide each equal piece into 2 equal pieces. How many equal pieces do you have in all?

8 pieces

Lesson 13

A tray of brownies is shared equally among 4 people. What part of the tray does each person receive?

<u>1</u>

A tray of brownies is shared equally among 6 people. What part of the tray does each person receive?

<u>1</u>6

Lesson 14

A roll of cord for making bracelets is 38 yards long. How many bracelets can be made from the cord if each bracelet requires 2 yards of cord?

19 bracelets

Lesson 15

Two walls have the same area. One wall is divided into 5 equal sections and one of the sections will be painted blue. The other wall is divided into 3 equal sections and one of the sections will be painted blue. Which wall will use more blue paint? Explain.

The wall with 3 sections will use more paint because the sections are larger than the wall with 5 sections.

Lesson 16

Raya earns \$8.00 for each hour that she babysits. How much would she earn in $1\frac{1}{2}$ hours?

\$12.00

Lesson 17

Each day Eric walks his neighbor's dog, he gets \$2.50. Eric walks his neighbor's dog for 5 days. How much money does he earn in all?

\$12.50

Lesson 18

Find the sum.

$$1\frac{1}{2} + 1\frac{1}{2} + 1\frac{1}{2} =$$

 $4\frac{1}{2}$

Lesson 19

Put the products in order from least to greatest.

$$2 \times 1$$

$$2 \times \frac{1}{2}$$

$$2 \times 2\frac{1}{2}$$

$$2 \times 2$$

Lesson 20

Draw models to illustrate the difference between $\frac{1}{3} \div 4$ and $4 \div \frac{1}{3}$.

Answers will vary.

Pre-Assessment

Multiply.

1 9 ×
$$\frac{1}{4}$$
 2 $\frac{1}{4}$

2.
$$4 \times \frac{3}{8}$$
 $1\frac{4}{8}$

3.
$$\frac{6}{10} \times \frac{2}{3}$$
 $\frac{12}{30}$

4.
$$\frac{3}{5} \times \frac{10}{12}$$
 $\frac{30}{60}$

Divide. Show your work.

5.
$$4 \div \frac{1}{6}$$
 24

6.
$$\frac{1}{2} \div 8$$
 $\frac{1}{16}$

7.
$$3\frac{4}{5} \times 2\frac{5}{8}$$
 $\frac{152}{105}$

8.
$$2\frac{1}{8} \times 4\frac{1}{2}$$
 $\frac{17}{72}$

9. Samantha is making chocolate chip cookies. She needs $1\frac{1}{4}$ cups chocolate chips for one batch. How many cups of chocolate chips will Samantha need to make 6 batches of chocolate chip cookies?

$$7\frac{2}{4}$$

10. Evan bought 4 large pizzas for a party. Each person at the party received $\frac{1}{6}$ of a large pizza. How many guests were at the party?

24 people

Multiplying Fractions Quiz

Multiply. Draw a model.

1. $6 \times \frac{1}{4}$ 24 Models will vary.

2. $3 \times \frac{8}{10}$ $\frac{30}{8}$ Models will vary.

Multiply. Show or explain how you found your answer.

3.
$$\frac{1}{2} \times 12$$
 $\frac{12}{2}$

4.
$$\frac{3}{4} \times 6$$
 $\frac{18}{4}$

Multiply. Use an area model to show you found at least one answer.

5.
$$\frac{2}{3} \times \frac{1}{2}$$
 $\frac{2}{6}$

6.
$$\frac{3}{5} \times \frac{1}{6}$$
 $\frac{3}{30}$

7.
$$\frac{2}{3} \times \frac{4}{5}$$
 $\frac{8}{15}$

8.
$$\frac{3}{8} \times \frac{2}{3}$$
 $\frac{6}{24}$

9. James made 42 cupcakes for the school bake sale. Of the cupcakes he made, $\frac{1}{6}$ are vanilla and $\frac{5}{6}$ are chocolate. How many of each flavor cupcake did James make?

7 are vanilla and 35 are chocolate

10. A recipe for pumpkin muffins calls for $\frac{1}{2}$ cup of pumpkin. If you are making $\frac{1}{4}$ of the recipe, how many cups of pumpkin will you use?

 $\frac{1}{8}$ cup of pumpkin

20

Dividing Fractions Quiz

Divide. Draw a model.

1.
$$4 \div \frac{1}{10}$$
 40

Models will vary.

2.
$$6 \div \frac{1}{3}$$
 18

Models will vary.

3.
$$10 \div \frac{1}{5}$$
 50 Models will vary.

4.
$$2 \div \frac{1}{12}$$
 24

Models will vary.

Divide. Show or explain how you found your answer.

5.
$$\frac{1}{5} \div 10$$
 $\frac{1}{50}$

6.
$$\frac{1}{6} \div 12$$
 $\frac{1}{72}$

$$\frac{1}{72}$$

7.
$$\frac{1}{4} \div 4$$
 $\frac{1}{16}$

8.
$$\frac{1}{8} \div 16$$
 $\frac{1}{128}$

9. Makayla uses $\frac{1}{4}$ yard of fabric to make a pencil case. She has 20 yards of fabric. How many pencil cases can Makayla make?

80 pencil cases

10. Anthony has $\frac{1}{2}$ bag of potting soil. He splits the soil evenly into 4 pots. What part of a bag of soil does Anthony put in each pot?

 $\frac{1}{8}$ bag of soil

Multiplying Mixed Numbers Quiz

Multiply.

1.
$$4 \times 2\frac{2}{4}$$
 $\frac{40}{4}$

2.
$$6\frac{1}{12} \times 4$$
 $\frac{292}{12}$

3.
$$2\frac{6}{10} \times 10 \frac{260}{10}$$

4.
$$3 \times 4\frac{5}{6}$$
 $\frac{87}{6}$

5.
$$1\frac{7}{8} \times 7\frac{1}{2}$$
 $\frac{30}{16}$

6.
$$6\frac{2}{3} \times 2\frac{3}{4}$$
 $\frac{31}{12}$

7.
$$3\frac{1}{3} \times 4\frac{1}{2}$$
 $\frac{19}{6}$

8.
$$8\frac{3}{4} \times 4\frac{1}{8}$$
 $\frac{62}{32}$

- 9. Ben builds a dragon and a tower from sand. He uses $2\frac{1}{2}$ pounds of sand to create the dragon. He uses $4\frac{1}{4}$ times more sand to make the tower than he did for the dragon. How many pounds of sand does he use to create the tower?
 - 14 8

10. Emmy estimates that she will drink $1\frac{2}{5}$ bottles of water for every mile that she runs. How many bottles of water would she expect to drink if she runs $2\frac{1}{2}$ miles?

35 10

Assessment

Multiply. Show or explain how you found your answers.

1.
$$6 \times \frac{1}{7}$$
 $\frac{6}{7}$

2.
$$8 \times \frac{3}{5}$$
 $\frac{24}{5}$

3.
$$\frac{1}{3} \times 9$$
 $\frac{9}{3}$

4.
$$\frac{11}{12} \times 2$$
 $\frac{22}{12}$

Multiply. Use an area model to show how to find the answer.

5.
$$\frac{1}{4} \times \frac{1}{2}$$
 $\frac{1}{8}$

6.
$$\frac{3}{4} \times \frac{2}{3}$$
 $\frac{6}{12}$

32

Multiply.

7.
$$\frac{2}{5} \times \frac{5}{8}$$
 $\frac{10}{40}$

8.
$$\frac{5}{6} \times \frac{7}{8}$$
 $\frac{35}{48}$

Find the area of each rectangle.

9.
$$\frac{3}{4}$$
 $\frac{3}{8}$

$$\frac{9}{32}$$
 sq. units

10.
$$\frac{2}{3}$$
 $\frac{1}{2}$ $\frac{2}{6}$ sq. units

Divide. Show or explain how you found your answer.

11.
$$2 \div \frac{1}{4}$$
 $\frac{8}{1}$

12.
$$10 \div \frac{1}{8}$$
 $\frac{80}{1}$

13.
$$\frac{1}{3} \div 5$$
 $\frac{1}{15}$

14.
$$\frac{1}{5} \div 4$$
 $\frac{1}{20}$

Multiply.

15.
$$10\frac{2}{3} \times 3\frac{3}{5}$$
 $\frac{50}{15}$

16.
$$5\frac{3}{4} \times 5\frac{1}{2}$$
 $\frac{34}{8}$

- 17. Peyton made a fruit salad for a party. She used $\frac{3}{4}$ cup of grapes and $\frac{2}{3}$ of the cups of green grapes did Peyton use
 - $\frac{1}{4}$ cup
 - used the same amount of clay to grapes were green grapes. How many make each of 4 small pots, using all his clay. How much clay did he use for for the fruit salad? each pot? $\frac{3}{4}$ pound of clay

- 19. A farmer has an 8-acre plot for planting vegetables. She uses $\frac{1}{3}$ acre for each kind of vegetable she plants. How many different kinds of vegetables does she plant?
 - 24 different kinds of vegetables
- 20. Sarah played a game on the computer. In her first round, she earned $2\frac{1}{2}$ points. In her second round, Sarah earned $3\frac{3}{4}$ times more points than in her first round. How many points did Sarah earn in her second round?

18. Thomas had 3 pounds of clay. He

 $\frac{75}{8}$ points

 $\frac{2}{3} \times 4$

<u>3</u>

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 $\frac{2}{3} \times 7$

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 $\frac{2}{3} \times 3$

<u>6</u>3

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 $\frac{9}{4}$

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1<u>5</u>

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$\frac{2}{5} \times 3$

<u>6</u> 5

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 $\frac{2}{5} \times 6$

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 $\frac{4}{5} \times 3$

1<u>2</u>

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 $\frac{4}{5} \times 4$

1<u>6</u> 5

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<u>0</u> 6

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 $\frac{5}{6} \times 4$

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 $\frac{3}{8} \times 4$

1<u>2</u> 8

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 $\frac{3}{8} \times 6$

<u>|8</u> |8

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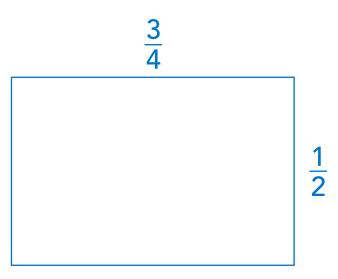


2<u>5</u> 8

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 $\frac{7}{8} \times 3$

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 $\frac{3}{8}$ sq. units



 $\frac{1}{10}$ sq. units



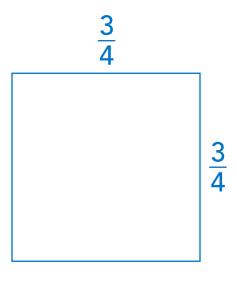
 $\frac{2}{12}$ sq. units



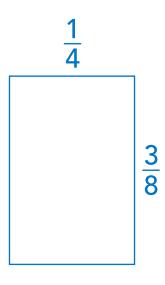
 $\frac{6}{15}$ sq. units



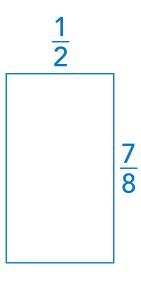
 $\frac{2}{24}$ sq. units



 $\frac{9}{16}$ sq. units



 $\frac{3}{32}$ sq. units



$$\frac{7}{16}$$
 sq. units

9 2

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9 2

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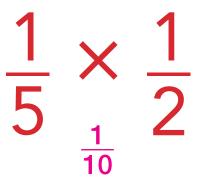
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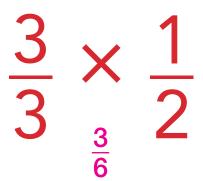
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 $\times \frac{1}{2}$ Sorting Expressions Cards

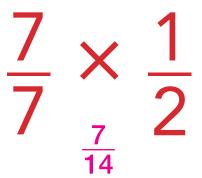


 $\times \frac{1}{2}$ Sorting Expressions Cards

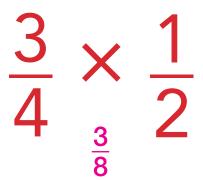
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 $\times \frac{1}{2}$ Sorting Expressions Cards



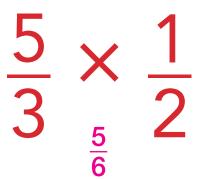
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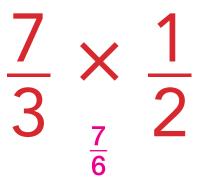


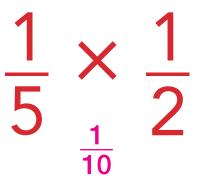
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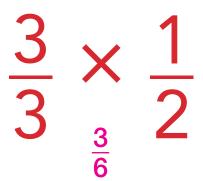
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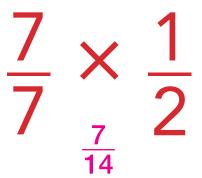


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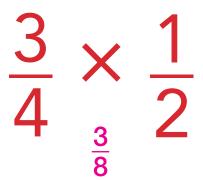


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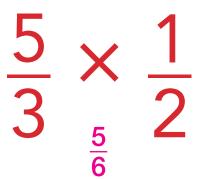
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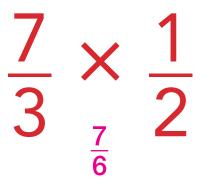


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16

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A dime is $\frac{1}{10}$ of a centimeter thick. What would be the height of a stack of 6 dimes?

 $\frac{6}{10}$ of a centimeter thick

Ryan collects 24 eggs from his chickens. He gives $\frac{2}{3}$ of the eggs to his friend. How many eggs does Ryan give to his friend?

16 eggs

There are 30 students in the school band. Of the 30 students, $\frac{3}{4}$ play wind instruments. How many students play wind instruments?

~22 students

The soccer coach has 15 water bottles for the players on her team. Each water bottle holds $\frac{1}{2}$ quart of water. How many quarts of water will the coach use to fill all 15 water bottles?

30 quarts of water

Each time the school principal orders a box of pencils, she keeps $\frac{1}{4}$ of the pencils to use in the office. If, over the course of a year, the principal orders 20 boxes of pencils, how many boxes of pencils does she keep to use in the office?

5 boxes

Malik is making a tomato garden. The garden is $\frac{4}{5}$ meter long and $\frac{3}{8}$ meter wide. What is the area of the garden?

 $\frac{12}{40}$ sq. meters

Angel has a $\frac{1}{2}$ pound bag of flour. She uses $\frac{1}{3}$ of the bag of flour to make pizza dough. How many pounds of flour does Angel use to make the dough?

 $\frac{1}{6}$ pound of flour

After Thanksgiving dinner, $\frac{2}{3}$ of a pumpkin pie remained. Austin ate $\frac{1}{6}$ of the remaining pie the next day. What part of the whole pie did Austin eat the next day?

 $\frac{1}{6}$ of the pie

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A garden center sells $4\frac{1}{2}$ -pound bags of rocks for fish tanks. Amira uses $2\frac{1}{2}$ bags of rocks in her fish tank. How many pounds of rocks does Amira use?

 $10\frac{1}{4}$ bags of rocks

Marcello buys $1\frac{1}{4}$ pounds of cherries at the Farmers' Market. He buys $3\frac{1}{2}$ times as many pounds of peaches as cherries. How many pounds of peaches does Marcello buy?

 $4\frac{3}{8}$ pounds of peaches

John has a lemonade stand. He pours $8\frac{1}{2}$ ounces of lemonade into each glass. He discovers that he can fill $5\frac{1}{4}$ glasses with each pitcher of lemonade. How many ounces are in each pitcher of lemonade?

 $44\frac{5}{8}$

Ali catches a fish that weighs $2\frac{1}{3}$ pounds. Breanna catches a fish that weighs $1\frac{3}{4}$ times as much as the fish that Ali caught. What is the weight of the fish that Breanna caught?

 $4\frac{1}{12}$ pounds

Each serving of yogurt is $5\frac{3}{4}$ ounces. How many ounces are in $2\frac{1}{2}$ servings?

 $14\frac{3}{8}$

Each large cooler holds $4\frac{3}{4}$ gallons of water. How much water would be needed to fill $3\frac{1}{3}$ coolers?

 $15\frac{10}{12}$

Grace makes 5 quarts of soup. She puts the same amount of soup into each of 3 containers. How many quarts of soup is in each container?

 $8\frac{7}{8}$ quarts

Draw a model to show how to find the product.

$$\frac{1}{4} \times 3$$

 $\frac{3}{4}$

Models will vary.

Draw a model to show how to find the product.

$$4 \times \frac{2}{3}$$

 $\frac{8}{3}$

Models will vary.

Draw an area model to show how to find the product.

$$\frac{3}{4} \times \frac{1}{2}$$

3 8

Models will vary.

Without multiplying, explain whether each product would be less than 5, equal to 5, or greater than 5.

$$\frac{3}{4} \times 5$$

Sample answer: Less than 5 because you are multiply by a number less than one whole.

$$\frac{3}{2} \times 5$$

Sample answer: More than 5 because you are multiply by a number more than one whole.

$$\frac{2}{2} \times 5$$

Sample answer: Less than 5 because you are multiply by a number less than one whole.

$$\frac{1}{5} \times 5$$

Sample answer: Less than 5 because you are multiply by a number less than one whole.

How many $\frac{1}{4}$ -yard pieces of wood could be cut from a 3-yard board?

12 pieces of wood

Divide. Show or explain how you found your answer.

$$\frac{1}{3} \div 4$$

Find the product any way you choose. Show or explain how you found your answer.

$$\frac{7}{8} \times \frac{5}{6}$$

Mrs. Chan bought 6 pints of ice cream for a party. At the end of the party, $\frac{1}{3}$ of the ice cream was left. How many pints of ice cream were left after the party?

2 pints of ice cream

Find the product any way you choose. Show or explain how you found your answer.

$$2\frac{2}{3} \times 3\frac{1}{4}$$

Each serving of cereal is $\frac{3}{4}$ cup. A box of cereal contains $8\frac{1}{2}$ servings. How many cups of cereal are in the box?

 $11\frac{2}{6}$ cups

Divide. Show or explain how you found your answer.

$$3 \div \frac{1}{8}$$

24