



EOT2 coverage

GRADE 5

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1 (a+b) Use place-value patterns to divide a decimal by a power of 10 (1-10) Page :5

On my own

What are the quotients? Use a pattern to solve and explain your thinking.

1. $64.2 \div 100 = 0.642$
 $64.2 \div 10 = 6.42$
 $64.2 \div 1 = 64.2$
 $64.2 \div 0.1 = 642$
 $64.2 \div 0.01 = 6420$

2. $7.5 \div 100 = 0.075$
 $7.5 \div 10 = 0.75$
 $7.5 \div 1 = 7.5$
 $7.5 \div 0.1 = 75$
 $7.5 \div 0.01 = 750$

1 (a+b) Use place-value patterns to divide a decimal by a power of 10 (1-10) Page :5

What is the quotient?

3. $91.4 \div 0.1 =$ 914

4. $55.8 \div 0.01 =$ 5580

5. $50.5 \div 0.01 =$ 5050

6. $33.2 \div 0.1 =$ 332

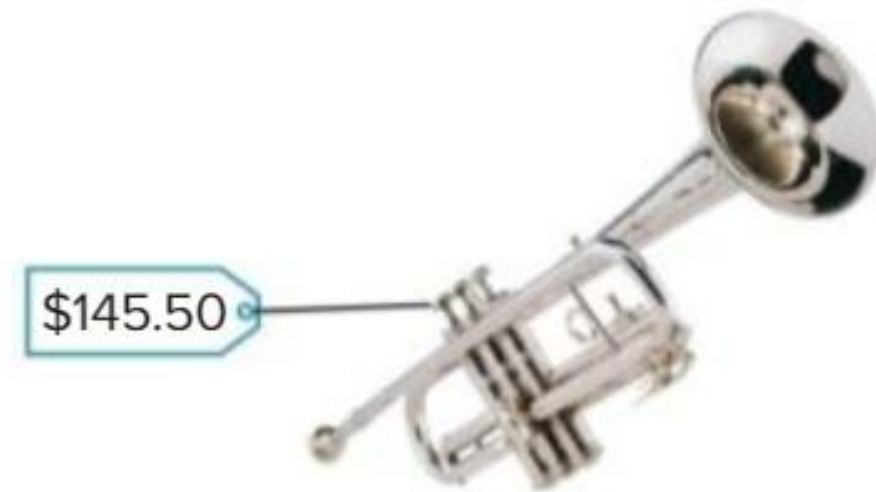
7. $16.4 \div 10 =$ 1.64

8. $444.8 \div 100 =$ 4.448

1 (a+b) Use place-value patterns to divide a decimal by a power of 10 (1-10) Page :5

9. Elisha is buying a trumpet. She will make 10 equal payments to pay for the trumpet. How much will each payment be?

$$145.50 \div 10 = 14.550$$



10. Danny walked 567.3 miles in 100 days. Michelle walked 567.3 miles by walking 0.1 mile each day. Who walked for more days? Who walked farther each day? Explain.

$$\text{Danny } 567.3 \div 100 = 5.673$$

$$5.673$$

<

Michelle

$$\text{Michelle } 567.3 \div 0.1 = 5673$$

$$5673$$

6. Use a pattern to find the quotients. (Lesson 8-1)

$$32.8 \div 100 = \underline{0.3280}$$

$$32.8 \div 10 = \underline{3.28}$$

$$32.8 \div 1 = \underline{32.8}$$

$$32.8 \div 0.1 = \underline{328}$$

$$32.8 \div 0.01 = \underline{3280}$$

Learn

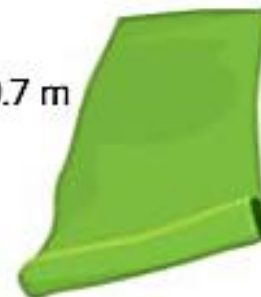
A theater teacher is making costumes for the spring musical.

Each costume uses 0.5 meter of this fabric.

About how many costumes can the teacher make using all the fabric?

The equation $29.7 \div 0.5 = c$ can represent the problem.

29.7 m



You can use compatible numbers to estimate the quotient.

$$29.7 \div 0.5$$

$\times 10$

$\times 10$

Multiply by a power of 10 to make whole numbers.

$$297 \div 5$$

$$297 \div 5$$

\downarrow

$$300 \div 5 = 60$$

Use 300 and 5 to estimate the quotient.

The quotient of $29.7 \div 0.5$ is about 60.

The teacher can make about 60 costumes.

Math is... Quantities

How can you determine if an estimate is less than or greater than the actual quotient?

Group Work




Work Together

A car wash uses 247.5 liters of soap on a weekday. 5.7 liters of soap are used per car. About how many cars go to the car wash each weekday?

$$247.5 \div 5.7$$

$$2475 \div 57$$

$$2475 \div 60$$

$$2400 \div 60 = 40$$

6
12
18
24
30
36
42
48

Estimate the quotient.

1. $4.42 \div 0.81 = x$

$$4.42 \div 0.81$$

$$442 \div 81$$

$$442 \div 80$$

$$400 \div 80 = 5$$

8

16

24

32

40

48

56

64

72

2. $36.8 \div 5.7 = d$

$$36.8 \div 5.7$$

$$368 \div 57$$

$$368 \div 60$$

$$360 \div 60 = 6$$

6

12

18

24

30

36

42

48

54

Estimate the quotient.

3. $19.73 \div 3.21 = c$

$$1973 \div 321$$

$$1800 \div 300$$

$$1800 \div 300$$

=

6

3

6

9

12

15

18

21

24

27

4. $5.4 \div 0.25 = m$

$$540 \div 25$$

$$600 \div 30$$

$$600 \div 30 = 20$$

3

6

9

12

15

18

21

24

27

Learn

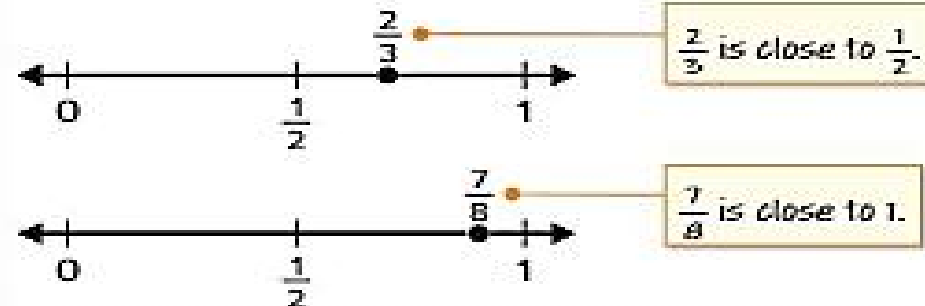
Ravi estimates that he needs $1\frac{1}{2}$ gallons of paint. He has two cans of paint with the amount of paint shown.



Does Ravi have enough paint?

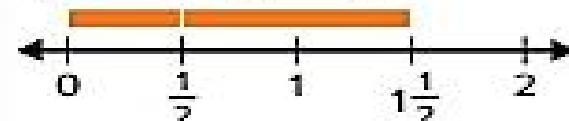
You can use a number line to help you estimate.

Use benchmark numbers to estimate each fraction.



Estimate the sum using benchmark numbers.

$\frac{2}{3}$ is close to $\frac{1}{2}$ and $\frac{7}{8}$ is close to 1.



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

Ravi should have enough paint. He has about $1\frac{1}{2}$ gallons of paint.

Math is Connections

What benchmarks do you use when estimating whole number sums?

You can use **benchmark numbers** to estimate sums and differences of fractions. You can use estimation to check the reasonableness of a calculated solution.

Is the sum or difference reasonable? Use estimation to check.

5. $\frac{1}{4} + \frac{5}{6} = \frac{3}{4}$

$$0 + 1 = 1$$

no, the sum should be greater than 1

7. $\frac{3}{4} - \frac{3}{8} = \frac{2}{3}$

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

yes, the difference should be close to $\frac{1}{2}$

6. $\frac{2}{5} + \frac{1}{2} = \frac{9}{10}$

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

yes, the sum should be close to 1 but less than 1

8. $\frac{7}{10} - \frac{2}{5} = \frac{1}{2}$

$$\frac{1}{2} - \frac{1}{2} = 0$$

no, the difference should be less than $\frac{1}{2}$

On my own

9. Dan waters his plants with $\frac{2}{3}$ cup of water on Monday and $\frac{2}{3}$ cup of water on Friday. Does Dan use more than 1 cup of water in all? Explain why or why not.

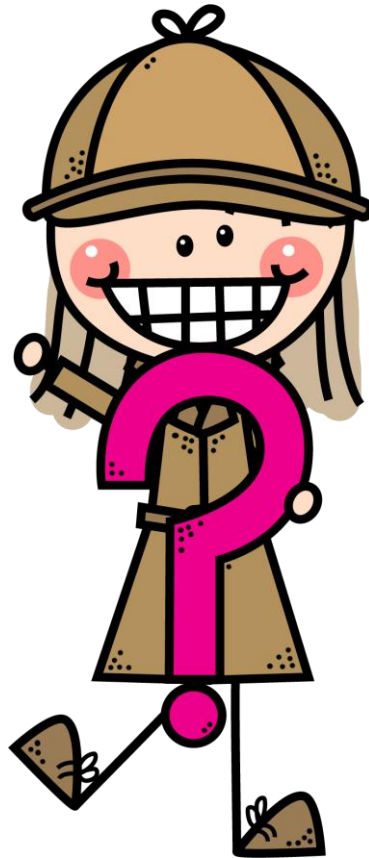
Yes, $\frac{2}{3}$ is greater than $\frac{1}{2}$, so the sum would be greater than 1.

10. There is $\frac{7}{8}$ gallon of milk in Zelda's refrigerator. Zelda and her brother drink $\frac{1}{3}$ gallon of milk. About how much milk is left? Explain your answer.

About $\frac{1}{2}$ gallon of milk is left; $\frac{7}{8}$ is close to 1 but not quite and $\frac{1}{3}$ is close to $\frac{1}{2}$.

11. STEM Connection Poppy is helping clean up a park. Her group is cleaning up $\frac{2}{5}$ of the park. Another group is cleaning up $\frac{1}{4}$ of the park. About how much of the park should a third group clean up so that they cover the entire park?

about $\frac{1}{4}$ of the park





Extend your thinking

12. Extend Your Thinking How can you apply estimating the sums and differences of fractions that are less than 1 to fractions that are greater than 1?

Sample answer: Use benchmark fractions and whole numbers that are greater than 1 such as $1\frac{1}{2}$, 2, etc.

9. Emily drinks $\frac{2}{5}$ liter of water during the first quarter of her basketball game. She drinks $\frac{1}{2}$ liter during the second quarter. How many liters of water does Emily drink during the first two quarters? $\frac{9}{10}$ liter

10. Matias has $\frac{1}{8}$ cup of almonds for a bag of trail mix. He adds $\frac{3}{4}$ cup of cashews. Is there more or less than 1 cup of nuts in the trail mix? Explain your thinking. **less than 1 cup; Sample answer: $\frac{1}{8}$ is less than $\frac{1}{4}$ so $\frac{3}{4} + \frac{1}{8}$ is less than 1.**

13. **Extend Your Thinking** Marnie and Amber walk together for $\frac{1}{4}$ mile. Marnie then walks $\frac{3}{8}$ mile to her house, and Amber walks $\frac{1}{3}$ mile to her house. How far did Marnie walk? How far did Amber walk? **Marnie walked $\frac{5}{8}$ mile. Amber walked $\frac{7}{12}$ mile.**

1. Jonah walks $2\frac{7}{8}$ miles on Monday. On Tuesday, he walks $1\frac{2}{3}$ miles. How many miles does Jonah walk on Monday and Tuesday?

A. $3\frac{9}{24}$ mi
B. $3\frac{13}{24}$ mi
C. $4\frac{13}{24}$ mi
D. $4\frac{15}{24}$ mi

2. Kai has $4\frac{2}{5}$ ounces of juice in his cup. Martha pours $5\frac{7}{10}$ more ounces into his cup. How many ounces of juice are in Kai's cup?

A. $9\frac{1}{10}$ oz
B. $9\frac{9}{10}$ oz
C. $10\frac{1}{10}$ oz
D. $10\frac{9}{10}$ oz

3. Aiyana buys $4\frac{3}{10}$ pounds of potatoes. She uses $2\frac{3}{4}$ pounds in a recipe. How many pounds does she have left?

$1\frac{11}{20}$ pounds

4. Mark has a sheet of wrapping paper that is $1\frac{1}{3}$ yards long. He uses $\frac{3}{5}$ yard of the wrapping paper. How much of the sheet does Mark have left?

$\frac{11}{15}$ yard

7. At the beginning of summer, Rick was $54\frac{5}{6}$ inches tall. He grew $1\frac{1}{4}$ inches over the summer. How tall is he now?

$56\frac{1}{12}$ inches

8. Andy walks his dog for $2\frac{2}{3}$ miles on Saturday. On Sunday, he walks his dog for $3\frac{1}{2}$ miles. How many miles does he walk his dog on Saturday and Sunday?

$6\frac{1}{6}$ miles

9. **STEM Connection** Poppy is helping to clean up a park. The trash bag she is using can hold up to 15 pounds. There are $10\frac{5}{8}$ pounds in the bag now. How many more pounds of trash can Poppy collect with the same bag? $4\frac{3}{8}$ pounds



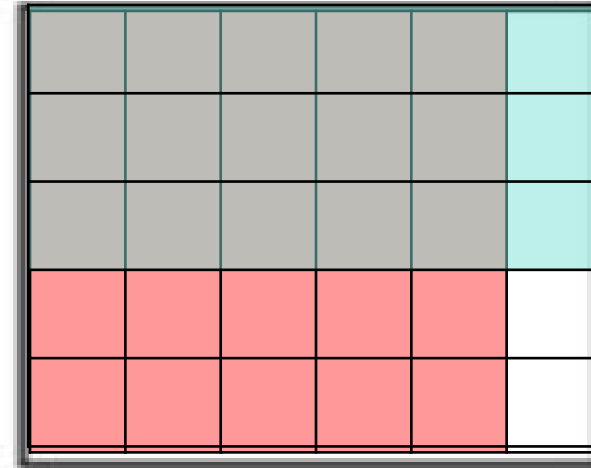
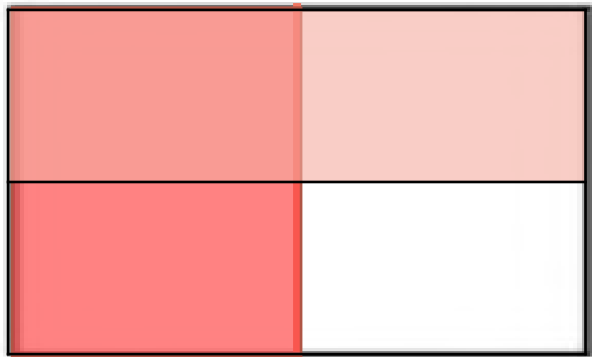
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My **objective** is Use a representation to multiply a fraction by a fraction.



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

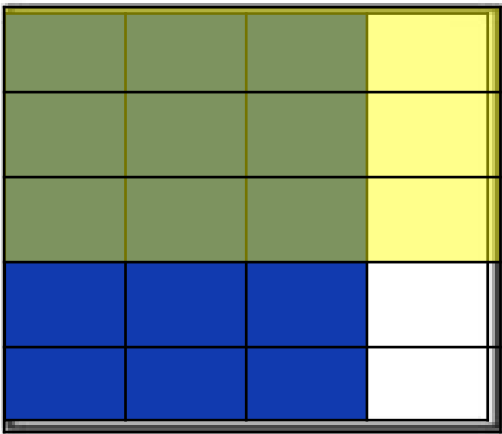
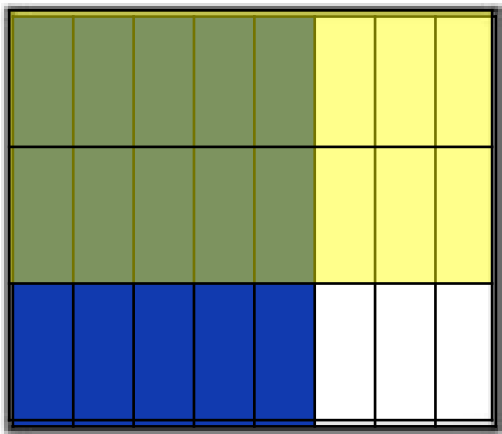
2. $\frac{5}{6} \times \frac{3}{5} = \frac{5 \times 3}{6 \times 5} = \frac{15 \div 5}{30 \div 5} = \frac{3 \div 3}{6 \div 3} = \frac{1}{2}$



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My **objective** is Use a representation to multiply a fraction by a fraction.

What is the product? Use a representation to solve.



3. $\frac{5}{8} \times \frac{2}{3} = \frac{5 \times 2}{8 \times 3} = \frac{10}{24}$

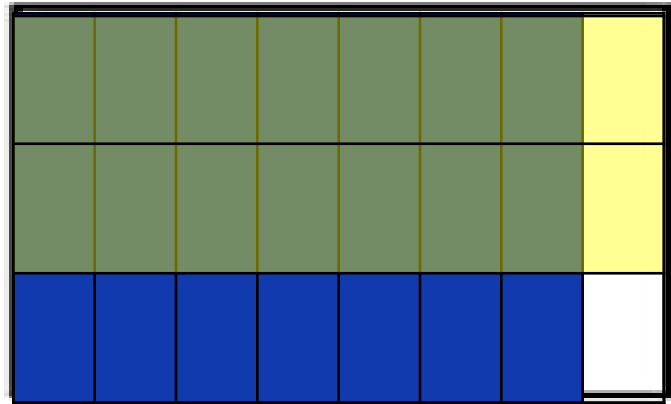
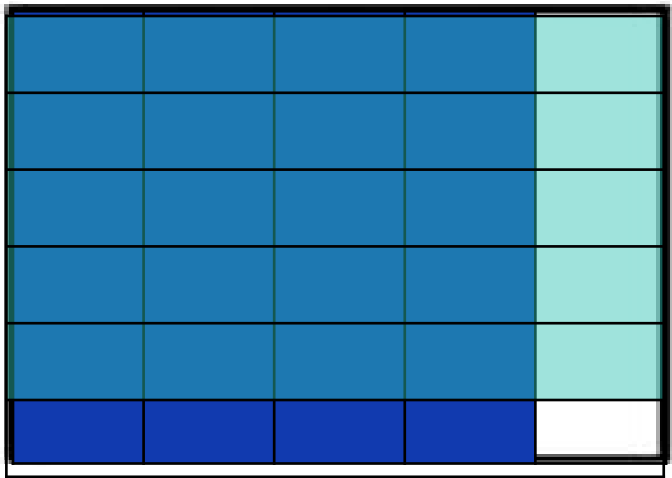
$= \frac{10 \div 2}{24 \div 2} = \frac{5}{12}$

4. $\frac{3}{4} \times \frac{3}{5} = \frac{3 \times 3}{4 \times 5} = \frac{9}{20}$

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My **objective** is Use a representation to multiply a fraction by a fraction.

What is the product? Use a representation to solve.



5. $\frac{4}{5} \times \frac{5}{6} = \frac{4 \times 5}{5 \times 6} = \frac{20}{30}$

$= \frac{20 \div 10}{30 \div 10} = \frac{2}{3}$

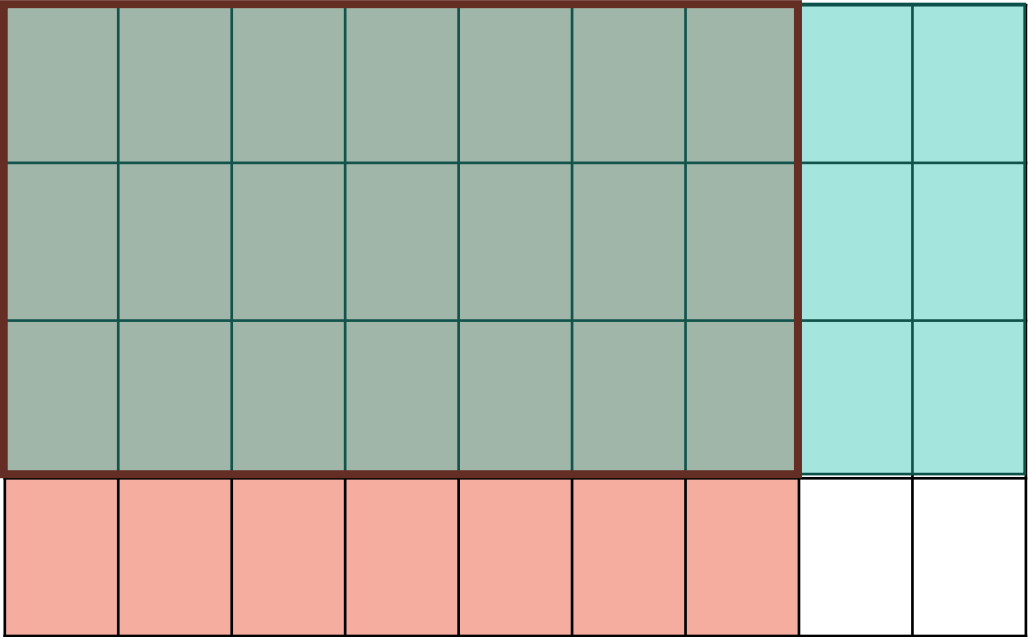
6. $\frac{7}{8} \times \frac{1}{3} = \frac{7 \times 1}{8 \times 3} = \frac{7}{24}$

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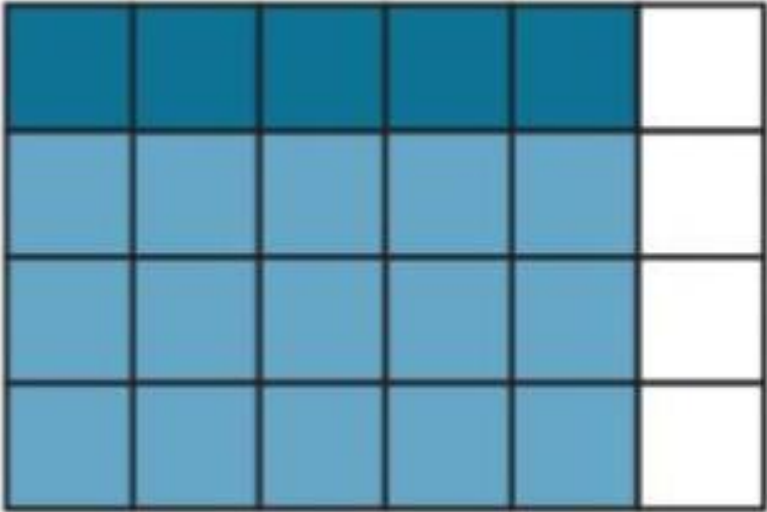
My objective is Use Solve word problems involving fractions.

12. Solve by drawing an area model. (Lesson 10-3)

$\frac{7}{9} \times \frac{3}{4} = \frac{21}{36} = \frac{7}{12}$



14. The area model represents what product? (Lesson 10-3)



1/4

- A. $\frac{1}{4} \times \frac{3}{5}$
- B. $\frac{1}{6} \times \frac{3}{4}$
- C. $\frac{1}{4} \times \frac{5}{6}$
- D. $\frac{4}{5} \times \frac{5}{6}$

5/6

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My objective is Multiply a fraction by a fraction..

5. On Sunday, Aisha used $\frac{3}{4}$ of a bag of oranges to make fresh orange juice. On Monday, she used $\frac{4}{5}$ as many oranges as on Sunday. How many bags of oranges did she use on Monday?

$$\frac{3}{4} \times \frac{4}{5} = \frac{12}{20} = \frac{3}{5}$$

6. Tabitha and Ally are putting together a puzzle. They have $\frac{3}{5}$ of the puzzle completed. If Tabitha put $\frac{1}{2}$ of the partly-finished puzzle together, what fraction of the puzzle did she put together?

$$\frac{3}{5} \times \frac{1}{2} = \frac{3}{10}$$



individual work



7. Christina and her friends shared $\frac{2}{3}$ of a bag of snacks. Her friends ate $\frac{4}{5}$ of what was shared. How much of the bag of snacks did they eat?

$$\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}; \frac{8}{15} \text{ of the bag}$$

8. **Error Analysis** Joelle thinks that the product of $\frac{7}{8} \times \frac{3}{10}$ is greater than the product of $\frac{3}{8} \times \frac{7}{10}$. How do you respond to Joelle's thinking?

$$\frac{7}{8} \times \frac{3}{10} = \frac{21}{80}; \frac{3}{8} \times \frac{7}{10} = \frac{21}{80}; \text{The product of each pair of fractions is equal.}$$

9. Complete the equation.

$$\frac{1}{\boxed{8}} \times \frac{1}{3} = \frac{1}{24}$$

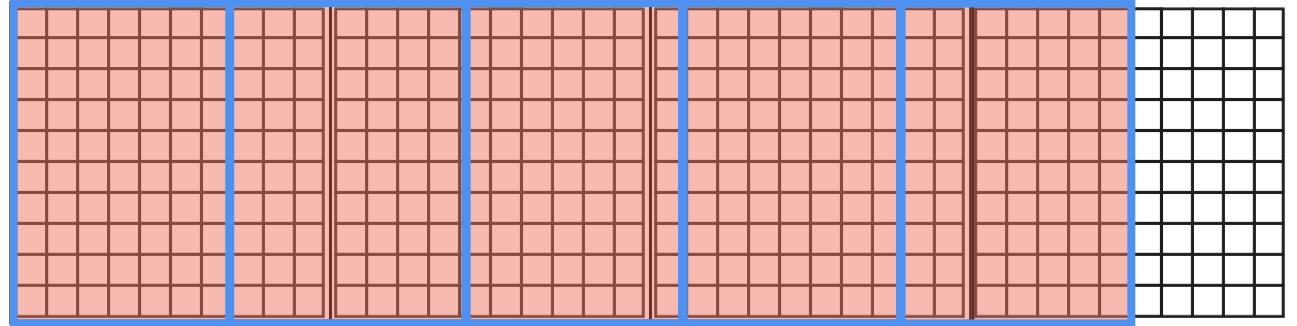
10. **STEM Connection** Saffron is baking a sweet potato pie. Her recipe calls for $\frac{2}{3}$ cup of sugar. If she wants to make $\frac{1}{2}$ of the recipe, how much sugar will she need?

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

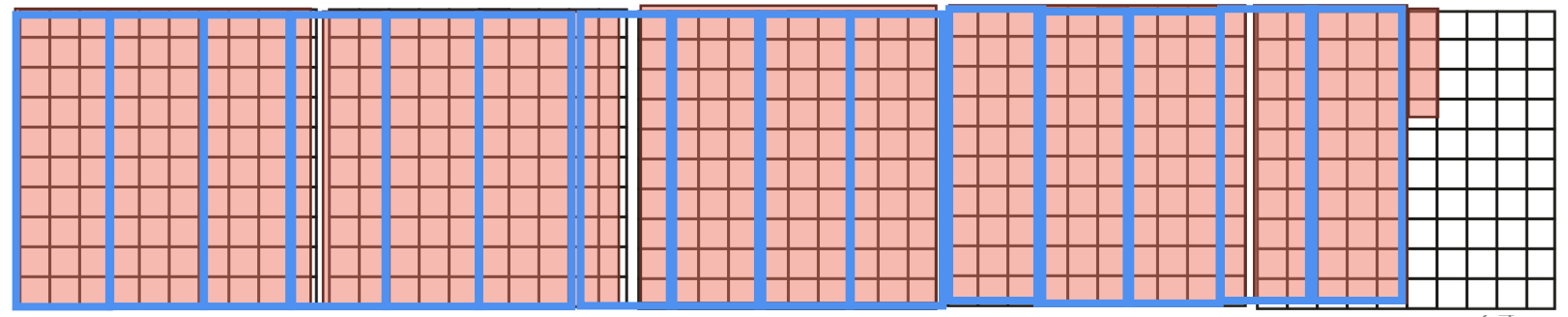


What is the quotient? Use decimal grids to solve.

1. $3.5 \div 7 =$ 0.5

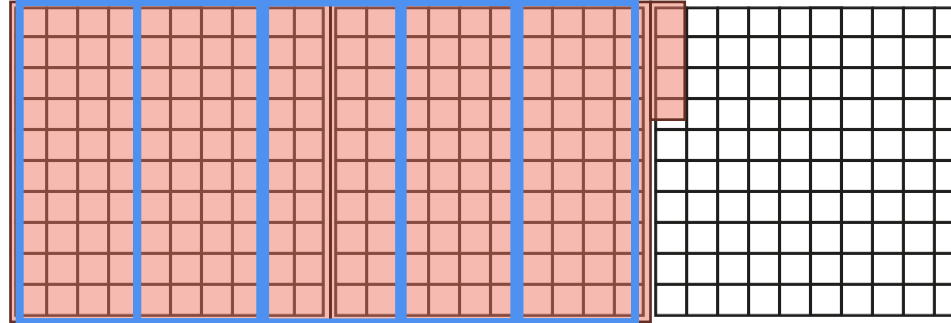


2. $4.53 \div 3 =$ 1.51

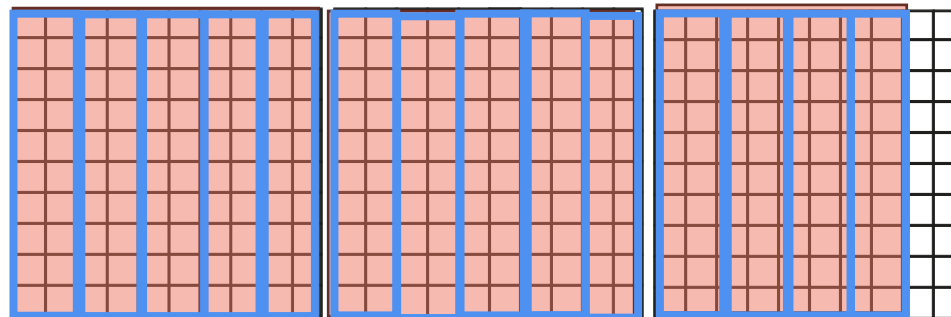


What is the quotient? Use decimal grids to solve.

3. $2.04 \div 4 =$ 0.51



4. $2.8 \div 2 =$ 1.4



5. $3.9 \div 3 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 1.3 \\ 3 \overline{) 3.9} \end{array}$$

3
6
9
12
15
18
21
24
27

6. $6.9 \div 3 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 2.3 \\ 3 \overline{) 6.9} \end{array}$$

3
6
9
12
15
18
21
24
27

7. $0.72 \div 8 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 0.09 \\ 8 \overline{) 0.72} \end{array}$$

8

16

24

32

40

48

56

64

72

8. $2.4 \div 4 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 0.6 \\ 4 \overline{) 2.4} \end{array}$$

4

8

12

16

20

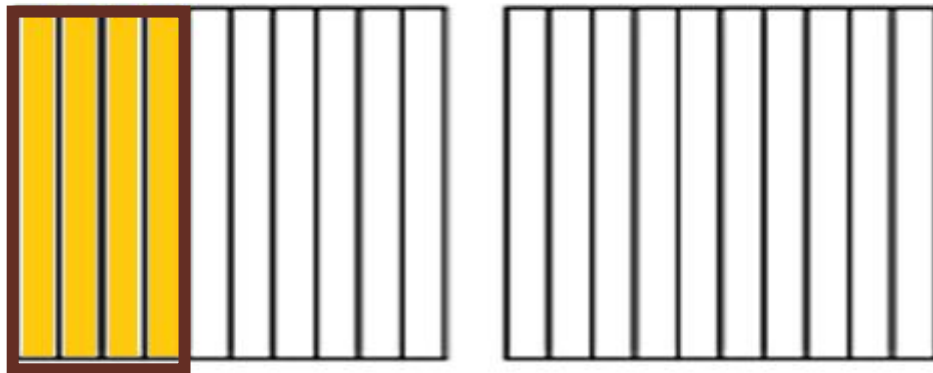
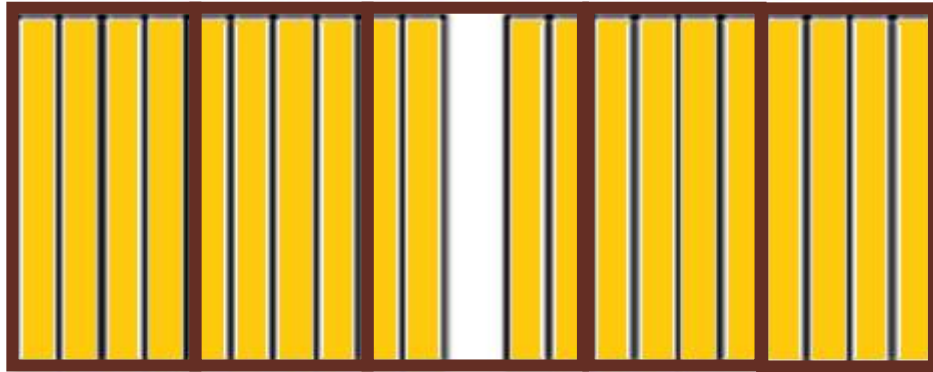
24

28

32

36

5. Use the decimal grids to solve $2.4 \div 6 = d$. (Lesson 8-3)



$$2.4 \div 6 = 0.4$$

$$\begin{array}{r} 0.4 \\ 6 \overline{) 2.4} \end{array}$$

6
12
18
24
30
36
42
48

On my own

What is the quotient?

3. $0.24 \div 8 = \underline{0.03}$

4. $0.63 \div 9 = \underline{0.07}$

5. $0.96 \div 6 = \underline{0.16}$

6. $0.84 \div 4 = \underline{0.21}$

7. $1.26 \div 7 = \underline{0.18}$

8. $2.25 \div 5 = \underline{0.45}$

9. $3.18 \div 3 = \underline{1.06}$

10. $4.52 \div 4 = \underline{1.13}$

$$\begin{array}{r} 1.06 \\ 3 \overline{) 3.18} \\ \underline{3} \\ 0 \end{array}$$

$$\begin{array}{r} 1.13 \\ 4 \overline{) 4.52} \\ \underline{4} \\ 0 \end{array}$$

$$\begin{array}{r} 0.16 \\ 6 \overline{) 0.96} \\ \underline{6} \\ 0 \end{array}$$

$$\begin{array}{r} 0.21 \\ 4 \overline{) 0.84} \\ \underline{8} \\ 0 \end{array}$$

$$\begin{array}{r} 0.18 \\ 7 \overline{) 1.26} \\ \underline{7} \\ 0 \end{array}$$

$$\begin{array}{r} 0.45 \\ 5 \overline{) 2.25} \\ \underline{2} \\ 0 \end{array}$$

Solve each problem. Then, explain your solution.

5. Darren has a cooler with 9 liters of lemonade. He pours 0.3 liter of lemonade into each glass. How many glasses of lemonade can Darren fill?

$$90 \div 3 = 30$$

$$\begin{array}{r} 90 \\ 90 \times 30 \\ \hline 00 \end{array}$$

6. Mr. Ramirez bought a watermelon that weighs 12 pounds for a picnic. He cuts it into pieces that each weigh 1.5 pounds. How many pieces of watermelon can Mr. Ramirez cut?

$$120 \div 15 = 8$$

$$\begin{array}{r} 120 \\ 120 \times 8 \\ \hline 000 \end{array}$$

15

30

45

60

75

90

10

5

12

7. A grocery store got a delivery of 24 pounds of almonds. They package the almonds into containers with 0.75 pound of almonds in each. How many containers can they fill with almonds?

$$2400 \div 75 = 32$$

$$\begin{array}{r} 2400 \\ 2250 \times 30 \\ \hline 150 \\ 150 \times 2 \\ \hline 000 \end{array}$$

$$\begin{array}{r} 75 \\ 15 \\ 0 \\ 22 \\ 5 \\ 30 \\ 0 \end{array}$$

8. Melissa has \$30 to spend on apples from a local apple orchard. How many pounds of apples can Melissa buy?

$$\begin{array}{r} 3000 \\ 250 \times 20 \\ \hline 500 \\ 500 \times 4 \\ \hline 000 \end{array}$$

$$\begin{array}{r} 12 \\ 5 \\ 25 \\ 0 \\ 37 \\ 5 \end{array}$$



$$3000 \div 125 =$$

24

- 9. Error Analysis** Mario says that $28 \div 0.7 = 0.4$. Do you agree or disagree? Explain how you know.

I disagree; Sample answer: $28 \div 0.7 = 40$; Multiply both 28 and 0.7 by 10, and then divide 280 by 7.

- 10.** A car drove 104 miles in 1.6 hours. If the speed of the car was the same for the entire trip, how fast did the car go? How do you know?

65 miles per hour; Sample answer: Multiply both 104 and 1.6 by 10 to get $1,040 \div 16 = 65$.

- 11.** Write a real-life problem that involves dividing a decimal by a whole number. Solve the problem using a representation.

Extend your thinking



12. Extend Your Thinking Is the quotient of $52 \div 1.04$ less than or greater than 52? How do you know? What is the quotient?

Less than; Sample answer: Because 1.04 is greater than 1, the quotient is less than 52. If the divisor was less than 1, the quotient would be greater than 52; 50.

Rewrite the equation using multiplication by powers of 10. Then, use partial quotients to solve.

1. $10.8 \div 1.2 = \underline{\hspace{2cm}}$

$108 \div 12 =$

12

9 108

12

24

36

48

60

72

84

96

10

8

2. $5.18 \div 0.74 = \underline{\hspace{2cm}}$

$518 \div 74 =$

74

7 518

74

14

8

22

2

29

6

37

0

44

Rewrite the equation using multiplication by powers of 10. Then, use partial quotients to solve.

3. $27.6 \div 4.6 = \underline{\hspace{2cm}}$

$276 \div 46 =$

9 $\overline{) 276}$

46

92

13

8

18

4

27

6

4. $11.2 \div 1.6 = \underline{\hspace{2cm}}$

$112 \div 16 =$

7 $\overline{) 112}$

16

32

48

64

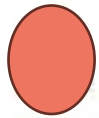
80

96

11

2

14. Which equivalent expression uses powers of 10 to help you solve $52.71 \div 0.21$? (Lesson 8-6)



A. $5,271 \div 21$

B. $5,271 \div 0.21$

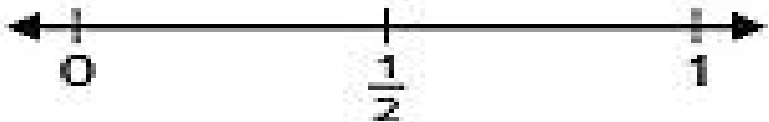
C. $52.71 \div 21$

D. $52.71 \div 2.1$

Will the sum be *greater than 1* or *less than 1*? Use the number line and explain how you can use benchmark numbers to justify.

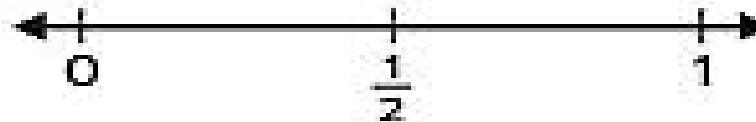
On my own

1. $\frac{3}{4} + \frac{2}{3}$



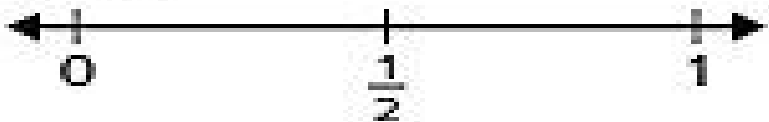
greater than 1; Sample
answer: $\frac{3}{4}$ and $\frac{2}{3}$ are both
close to 1

2. $\frac{3}{5} + \frac{1}{4}$



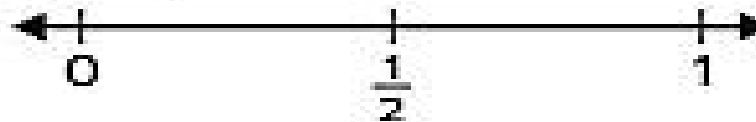
less than 1; Sample
answer: $\frac{3}{5}$ is close to $\frac{1}{2}$
and $\frac{1}{4}$ is close to 0

3. $\frac{1}{3} + \frac{5}{8}$



less than 1; Sample
answer: $\frac{5}{8}$ is close to $\frac{1}{2}$
and $\frac{1}{3}$ is close to 0

4. $\frac{3}{10} + \frac{4}{5}$



greater than 1; Sample
answer: $\frac{3}{10}$ is close to $\frac{1}{2}$
and $\frac{4}{5}$ is close to 1

On my own

Is the sum or difference reasonable? Use estimation to check.

5. $\frac{1}{4} + \frac{5}{6} = \frac{3}{4}$

$$0 + 1 = 1$$

no, the sum should be greater than 1

7. $\frac{3}{4} - \frac{3}{8} = \frac{2}{3}$

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

yes, the difference should be close to $\frac{1}{2}$

6. $\frac{2}{5} + \frac{1}{2} = \frac{9}{10}$

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

yes, the sum should be close to 1 but less than 1

8. $\frac{7}{10} - \frac{2}{5} = \frac{1}{2}$

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

no, the difference should be less than $\frac{1}{2}$

01:00

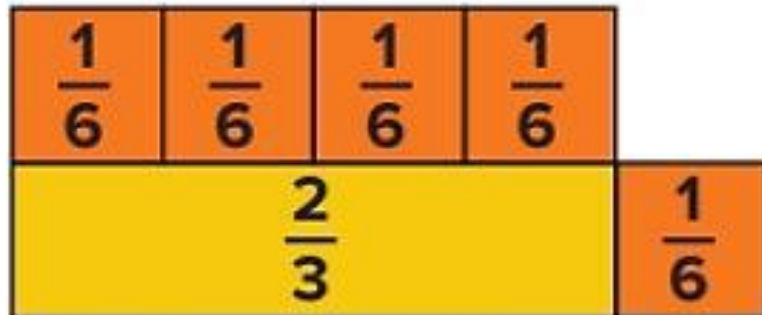
On my own

3. $\frac{5}{8} + \frac{1}{4} \overset{\times 2}{=} \frac{\boxed{5}}{\boxed{8}} + \frac{\boxed{4}}{\boxed{8}}$

4. $\frac{3}{4} + \frac{1}{6} \overset{\begin{smallmatrix} \times 3 \\ \times 2 \end{smallmatrix}}{=} \frac{\boxed{9}}{\boxed{12}} + \frac{\boxed{2}}{\boxed{12}}$



21. What equation do the fraction tiles represent? (Lesson 9-2)



$\frac{\boxed{}}{\boxed{}} + \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$

Learn

Binta needs two boards of equal length.

How much of the longer board will she cut off?



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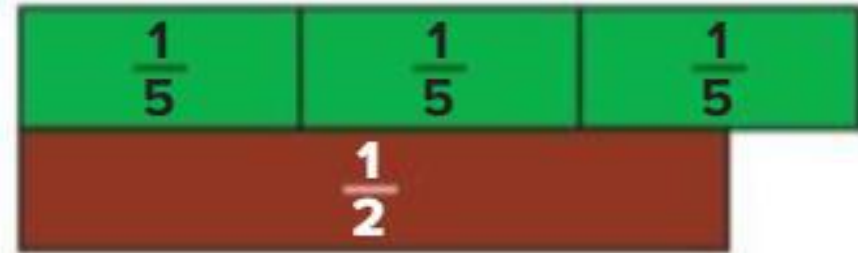
Group Work



Work Together

What is the difference?

$$\begin{array}{r} 2 \times 3 \\ 2 \times 5 \end{array} \frac{2}{5} - \frac{1 \times 5}{2 \times 5} = \frac{6}{10} - \frac{5}{10} = \frac{6-5}{10} = \frac{1}{10}$$



Multiple of 5 : 5, 10, 15, 20, 25, ...

Multiple of 2 : 2, 4, 6, 8, 10, 12, 14, ...

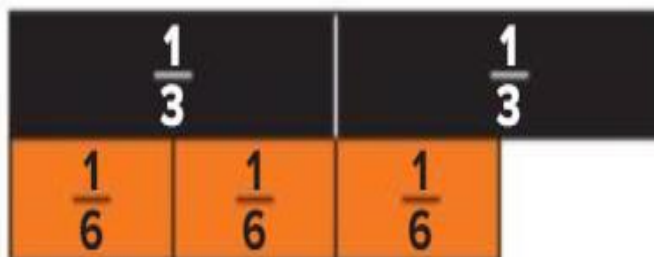
On my own

Complete the equation with equivalent fractions that have like denominators.

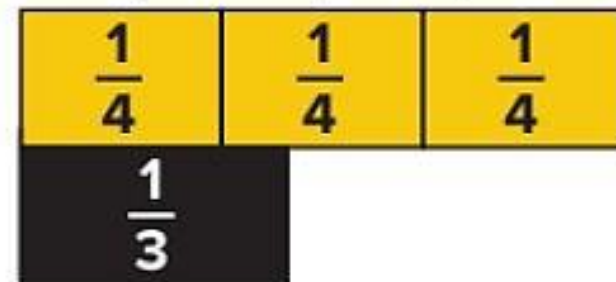
1. $\frac{5}{8} - \frac{1 \times 4}{2 \times 4} = \frac{\boxed{5}}{\boxed{8}} - \frac{\boxed{4}}{\boxed{8}}$



2. $\frac{2 \times 2}{2 \times 3} - \frac{3}{6} = \frac{\boxed{4}}{\boxed{6}} - \frac{\boxed{3}}{\boxed{6}}$



19. What equation do the fraction tiles represent? (Lesson 9-4)



$$\frac{\boxed{}}{\boxed{}} - \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

On my own

3. $\frac{3 \times 3}{3 \times 4} - \frac{2 \times 4}{3 \times 4} = \frac{9}{12} - \frac{8}{12} = \frac{1}{12}$



4: 4, 8, 12, 16, 20, 24, ...
 3: 3, 6, 9, 12, 15, 18, 21, 24

4. $\frac{2 \times 5}{2 \times 6} - \frac{1 \times 3}{4 \times 3} = \frac{10}{12} - \frac{3}{12} = \frac{7}{12}$

unlike



6: 6, 12, 18, 24, ...
 4: 4, 8, 12, 16, ...

Learn

Joana started with $\frac{3}{4}$ quart of orange juice. The amount shown is how much she has left.

How can you determine how much orange juice Joana used?

When subtracting fractions, the fractions must represent the same-size parts of a whole.



Step 1: Find a common multiple of both denominators.

$$\frac{3}{4} - \frac{1}{3} = j$$

Multiples of 4: 4, 8, **12**, 16, ...

Multiples of 3: 3, 6, 9, **12**, 15, ...

Step 2: Write an equivalent fraction with a denominator of 12 for each fraction.

$$\frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

$$\frac{1 \times 4}{3 \times 4} = \frac{4}{12}$$

Step 3: Subtract the fractions.

$$\frac{9}{12} - \frac{4}{12} = \frac{5}{12}$$

Luis used $\frac{5}{12}$ quart of orange juice.

Math is... **Quantities**

Is it possible to use a denominator other than 12 and get the same answer? Explain.

Which multiple can you use as a like denominator to subtract the fractions?

1. $\frac{7 \times 3}{8 \times 3} \frac{1 \times 8}{3 \times 8} = \frac{21}{24} + \frac{8}{24}$

A. 12

B. 16

C. 24

D. 30

8 3
16 6
24 9
12
15
18
21
24

2. $\frac{4 \times 4}{5 \times 4} \frac{1 \times 5}{4 \times 5} = \frac{16}{20} + \frac{5}{20}$

A. 10

B. 20

C. 24

D. 35

5 4
10 8
15 12
20 16
20

Complete the equation using fractions with like denominators.

3. $\frac{7 \times 2}{9 \times 2} \frac{1 \times 3}{6 \times 3} = \frac{14}{18} - \frac{3}{18}$

9 6
18 12
18
24

4. $\frac{9 \times 2}{10 \times 2} \frac{3 \times 5}{4 \times 5} = \frac{18}{20} - \frac{15}{20}$

10 4
20 8
12
16
20

What is the difference?

5. $\frac{7 \times 2}{12 \times 2} - \frac{3 \times 3}{8 \times 3} = \underline{\hspace{2cm}}$

$$\frac{14}{24} - \frac{9}{24} = \frac{5}{24}$$

7. $\frac{5 \times 2}{6 \times 2} - \frac{1 \times 3}{4 \times 3} = \underline{\hspace{2cm}}$

$$\frac{10}{12} - \frac{3}{12} = \frac{7}{12}$$

6. $\frac{6 \times 2}{7 \times 2} - \frac{1 \times 7}{2 \times 7} = \underline{\hspace{2cm}}$

$$\frac{12}{14} - \frac{7}{14} = \frac{5}{14}$$

8. $\frac{3 \times 3}{5 \times 3} - \frac{1 \times 5}{3 \times 5} = \underline{\hspace{2cm}}$

$$\frac{9}{15} - \frac{5}{15} = \frac{4}{15}$$

8 12
16 24
24 36

2 7
4 14
6
8
10
12
14

6 4
12 8
12
16

3 5
6 10
9 15
12
15

On my own

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What is the sum? Choose the correct answer.

1. $3\frac{3}{10} + 4\frac{2}{5} = ?$

$3\frac{3}{10} + 4\frac{4}{10} = 7\frac{7}{10}$

A. $7\frac{5}{10}$

B. $8\frac{7}{10}$

C. $8\frac{5}{10}$

D. $7\frac{7}{10}$

2. $1\frac{3}{4} + 5\frac{1}{6} = ?$

$1\frac{9}{12} + 5\frac{2}{12} = 6\frac{11}{12}$

A. $6\frac{4}{6}$

B. $7\frac{4}{12}$

C. $6\frac{11}{12}$

D. $6\frac{5}{6}$

25. What is the sum?

$3\frac{2}{5} + 2\frac{1}{3} =$ _____ (Lesson 9-6)

27. What is the sum?

$4\frac{2}{3} + 3\frac{3}{4} =$ _____ (Lesson 9-6)

What is the sum?

3. $2\frac{2}{3} + 3\frac{1}{4} =$ _____

$$2\frac{8}{12} + 3\frac{3}{12} = 5\frac{11}{12}$$

5. $6\frac{3}{8} + 2\frac{1}{6} =$ _____

$$6\frac{9}{24} + 2\frac{4}{24} = 8\frac{13}{24}$$

7. $2\frac{1}{5} + 3\frac{1}{2} =$ _____

$$2\frac{5}{10} + 3\frac{2}{10} = 5\frac{7}{10}$$

4. $4\frac{1}{2} + 5\frac{1}{3} =$ _____

$$4\frac{3}{6} + 5\frac{2}{6} = 9\frac{5}{6}$$

6. $3\frac{2}{9} + 1\frac{3}{4} =$ _____

$$3\frac{8}{36} + 1\frac{27}{36} = 4\frac{35}{36}$$

8. $5\frac{1}{3} + 4\frac{2}{5} =$ _____

$$5\frac{5}{15} + 4\frac{6}{15} = 9\frac{11}{15}$$

What is the difference? Choose the correct answer.

1. $3\frac{2}{3} - 1\frac{1}{5} =$ $3\frac{10}{15} - 1\frac{3}{15} = 2\frac{7}{15}$

A. $2\frac{7}{15}$

B. $2\frac{1}{5}$

C. $2\frac{1}{15}$

D. $2\frac{1}{3}$

2. $6\frac{7}{8} - 5\frac{5}{6} =$ $6\frac{21}{24} - 5\frac{20}{24} = 1\frac{1}{24}$

A. $1\frac{5}{24}$

B. $1\frac{1}{24}$

C. $1\frac{4}{24}$

D. $1\frac{2}{24}$

On my own

What is the difference?

3. $4\frac{3}{4} - 1\frac{1}{3} =$ _____

$$4\frac{9}{12} - 1\frac{4}{12} = 3\frac{5}{12}$$

5. $5\frac{5}{9} - 3\frac{1}{6} =$ _____

$$5\frac{10}{18} - 3\frac{3}{18} = 2\frac{7}{18}$$

7. $6\frac{1}{2} - 3\frac{1}{3} =$ _____

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

4. $2\frac{3}{5} - 1\frac{1}{2} =$ _____

$$2\frac{6}{10} - 1\frac{5}{10} = 1\frac{1}{10}$$

6. $3\frac{7}{10} - 1\frac{3}{8} =$ _____

$$3\frac{28}{40} - 1\frac{15}{40} = 2\frac{13}{40}$$

8. $4\frac{5}{8} - 3\frac{1}{5} =$ _____

$$4\frac{25}{40} - 3\frac{8}{40} = 1\frac{17}{40}$$

What is the sum or difference? Choose the correct answer.

1. $5\frac{2}{5} - 3\frac{2}{3} =$

$$5\frac{6}{15} - 3\frac{10}{15} =$$

A. $2\frac{11}{15}$

$$4\frac{21}{15} - 3\frac{10}{15} = 1\frac{11}{15}$$

B. $1\frac{1}{5}$

C. $2\frac{3}{5}$

D. $1\frac{11}{15}$

2. $4\frac{5}{6} + 3\frac{3}{4} =$

$$4\frac{10}{12} + 3\frac{9}{12} = 7\frac{19}{12} = 8\frac{7}{12}$$

A. $7\frac{8}{12}$

B. $7\frac{7}{12}$

C. $8\frac{7}{12}$

D. $8\frac{8}{12}$

What is the sum or difference?

3. $6\frac{1}{8} - 4\frac{1}{3} =$ $6\frac{3}{24} - 4\frac{8}{24} =$

$$5\frac{27}{24} - 4\frac{8}{24} = 1\frac{19}{24}$$

5. $8\frac{1}{6} - 2\frac{2}{9} =$ $8\frac{3}{18} - 2\frac{4}{18} =$

$$7\frac{21}{18} - 2\frac{4}{18} = 5\frac{17}{18}$$

7. $3\frac{1}{5} - 2\frac{3}{4} =$ $3\frac{4}{20} - 2\frac{15}{20} =$

$$2\frac{24}{20} - 2\frac{15}{20} = \frac{9}{20}$$

What is the sum or difference?

4. $3\frac{3}{4} + 5\frac{2}{3} =$ $3\frac{9}{12} + 5\frac{8}{12} =$ $8\frac{17}{12}$ $9\frac{5}{12}$

6. $2\frac{7}{8} + 1\frac{1}{2} =$ $2\frac{7}{8} + 1\frac{4}{8} =$ $3\frac{11}{8}$ $4\frac{3}{8}$

8. $1\frac{7}{12} + 3\frac{5}{8} =$ $1\frac{14}{24} + 3\frac{15}{24} =$ $4\frac{29}{24} =$ $5\frac{5}{24} =$

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My **objective** is multiply whole number by a fraction.

Group Work

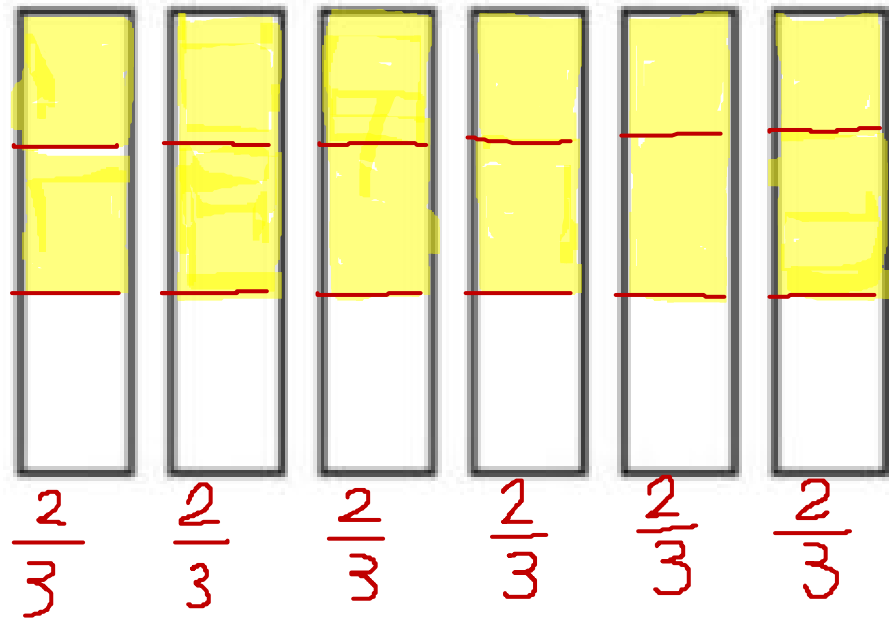


Work Together

What is the product? Use a representation to solve.

$$\frac{2}{3} \times 6 = \frac{12}{3} \div = 4 \text{ R } 0$$

$$\begin{array}{r} \boxed{4} \\ 3 \overline{)12} \\ \underline{-12} \\ \text{R } 0 \end{array} = \boxed{4}$$



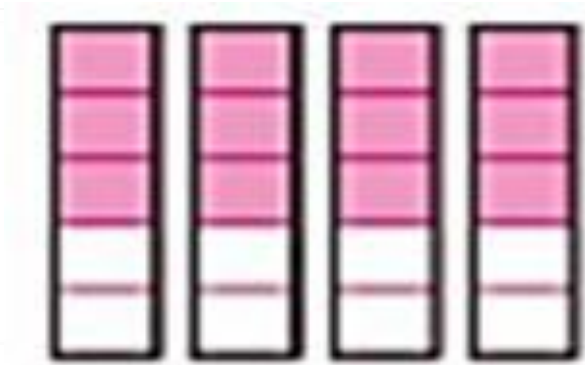
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My objective is multiply whole number by a fraction.

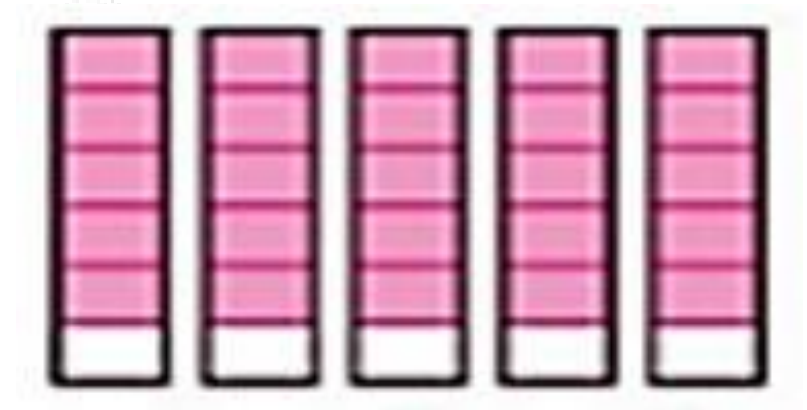
On my own

What is the product? Use a representation to solve.

1. $\frac{3}{5} \times 4 = \frac{12}{5} = 2\frac{2}{5}$



2. $\frac{5}{6} \times 5 = \frac{25}{6} = 4\frac{1}{6}$



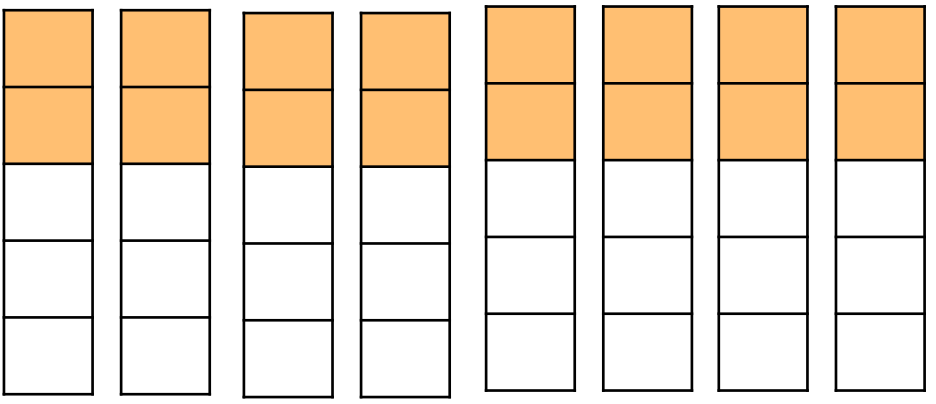
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My objective is multiply whole number by a fraction.

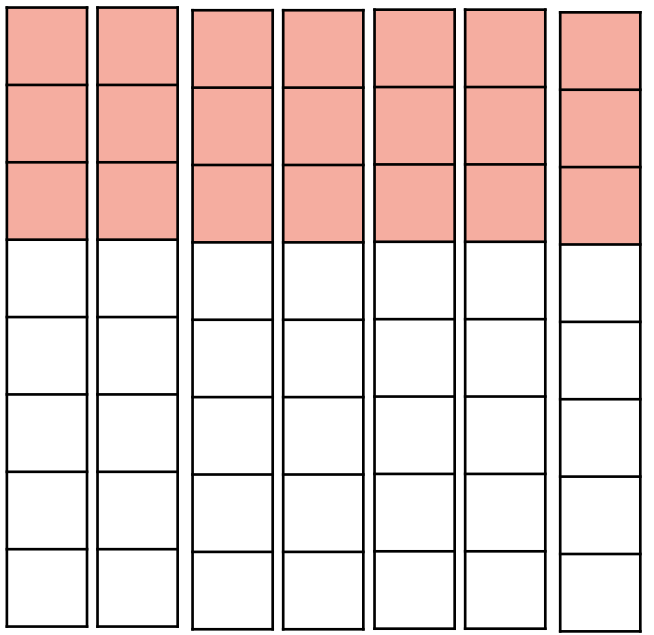
On my own

What is the product? Use a representation to solve.

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



4. $\frac{3}{8} \times 7 = \frac{21}{8} = 2\frac{5}{8}$



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My objective is Multiply a whole number by a fraction..

5. A bottle of water holds $\frac{2}{12}$ gallon. How much water is in this package of water bottles?

$$\frac{2}{12} \times 18 = \frac{36}{12} = 3$$



6. Arabella has a drone that she flies $\frac{3}{8}$ of a mile every day for 7 days. How far does she fly her drone?

$$\frac{3}{8} \times 7 = \frac{21}{8} = 2\frac{5}{8}$$

7. A male seal at the aquarium weighs 3 tons. A female seal weighs $\frac{3}{4}$ as much as the male seal. What is the weight of the female seal?

$$\frac{3}{4} \times 3 = \frac{9}{4} = 2\frac{1}{4}$$

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My **objective** is Multiply a whole number by a fraction..

8. Rafael plants vegetables in $\frac{4}{5}$ of his garden. The total area of his garden is 15 square meters. What is the area of his garden that will *not* be planted with vegetables?

$$\frac{4}{5} \times 15 = \frac{60}{5} = 12$$

9. Bea has this length of ribbon. She will use $\frac{5}{6}$ of it to wrap a present. How many inches of ribbon will she use?

$$\frac{5}{6} \times 14 = \frac{70}{6} = 11\frac{4}{6}$$



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My **objective** is Multiply a whole number by a fraction..

10. Timora goes to school for 7 hours each day. She spends $\frac{4}{5}$ of each day in class. How many hours does she spend in class each school day?

A. 4 hours

B. $\frac{28}{5} = 5\frac{3}{5}$ hours

C. $\frac{21}{5} = 4\frac{1}{5}$ hours

D. 7 hours

$\frac{4}{5} \times 7 =$
 $= \frac{28}{5}$
 $= 5\frac{3}{5}$

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My **objective** is finding the area of rectangles.

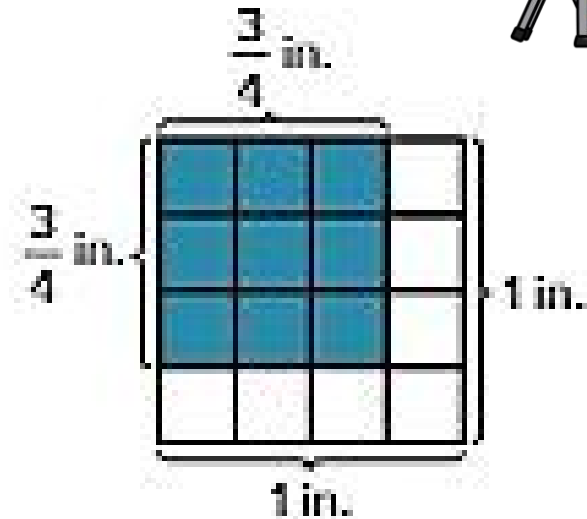
Group Work



Work Together

What is the area of the shaded square?

$$\frac{3}{4} \times \frac{3}{4} = \frac{9}{16}$$



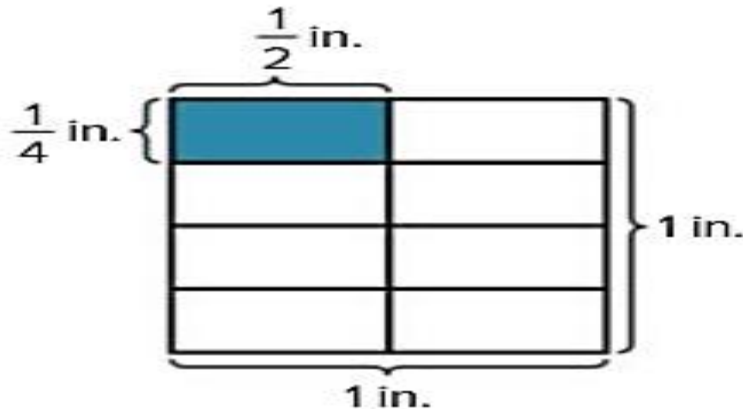
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My objective is finding the area of rectangles.

On my own

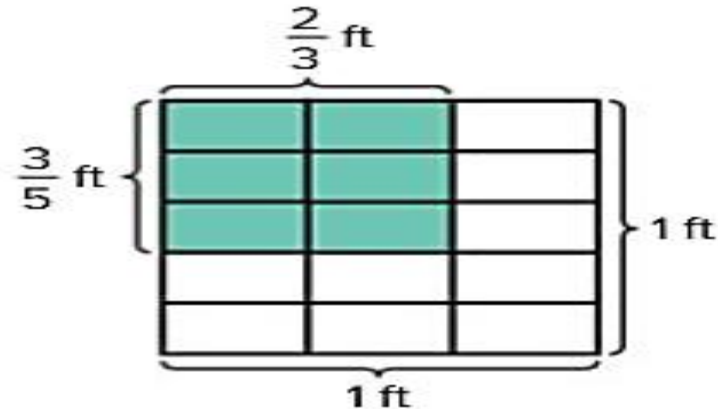
What is the area of the shaded rectangle?

1.



$$\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$$

2.



$$\frac{3}{5} \times \frac{2}{3} = \frac{6}{15}$$

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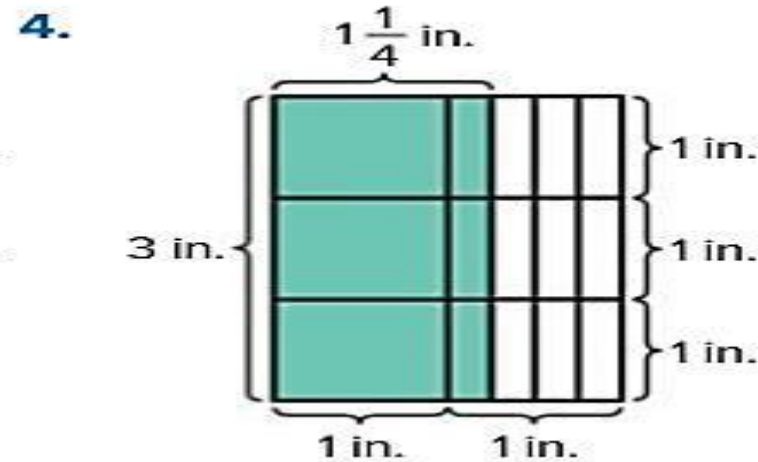
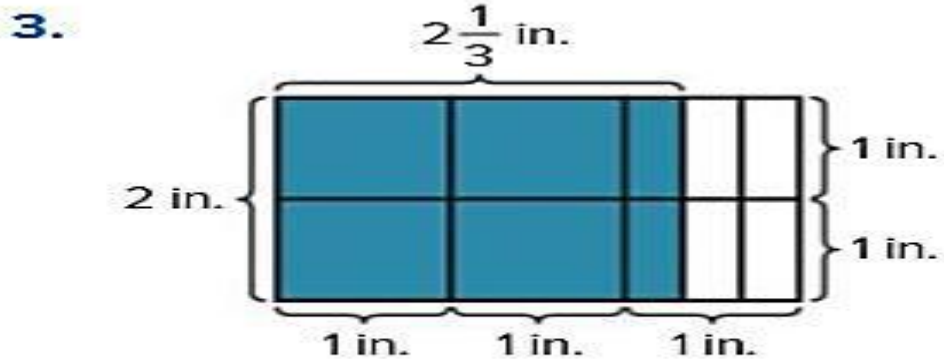
Alef game

Enrichment activity

Home work

My **objective** is finding the area of rectangles.

What is the area of the shaded rectangle?



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

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

$$4 + \frac{2}{3} = 4\frac{2}{3}$$

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

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

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

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My **objective** is multiplying Mixed Numbers

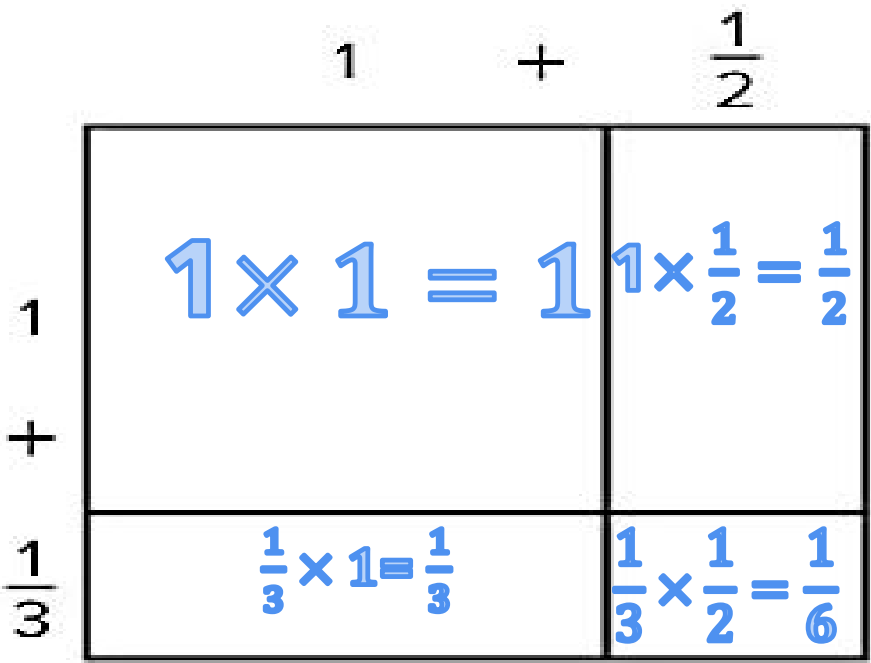
Complete the area model. What is the product?

1. $1\frac{1}{3} \times 1\frac{1}{2} =$ _____

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

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

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



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My objective is multiplying Mixed Numbers

Complete the area model. What is the product?

2. $1\frac{3}{4} \times 4 = \underline{\hspace{2cm}}$

$4 + 3 = 7$

4

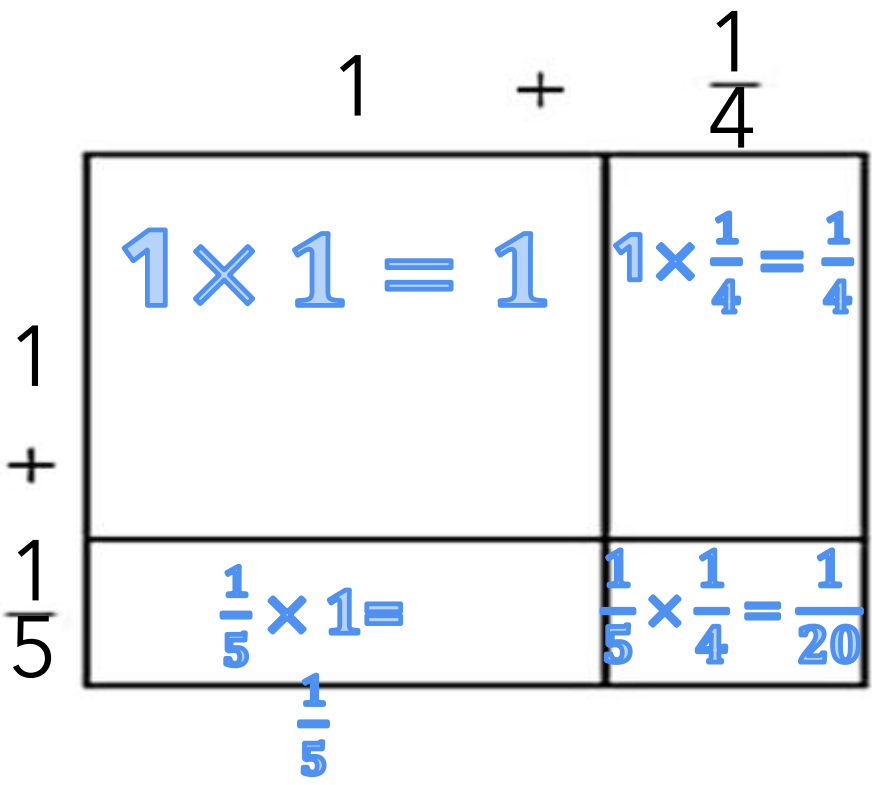
1	$1 \times 4 = 4$
+	
$\frac{3}{4}$	$\frac{3}{4} \times 4 = \frac{12}{4} = 3$
4	

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My objective is multiplying Mixed Numbers

What is the product? Use an area model to solve.

3. $1\frac{1}{4} \times 1\frac{1}{5} = \underline{\hspace{2cm}}$



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My objective is multiplying Mixed Numbers

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What is the product? Use an area model to solve.

4. $\frac{3}{5} \times 4\frac{1}{2} =$ _____

$\frac{12}{5} \times \frac{5}{10} = \frac{12}{10} = 1\frac{2 \div 2}{10 \div 2} = 1\frac{1}{5}$

$\frac{3}{5} \times 4 + \frac{1}{2}$

$\frac{3}{5} \times 4 = \frac{12}{5}$	$\frac{3}{5} \times \frac{1}{2} = \frac{3}{10}$
---------------------------------------	---

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My objective is multiplying Mixed Numbers

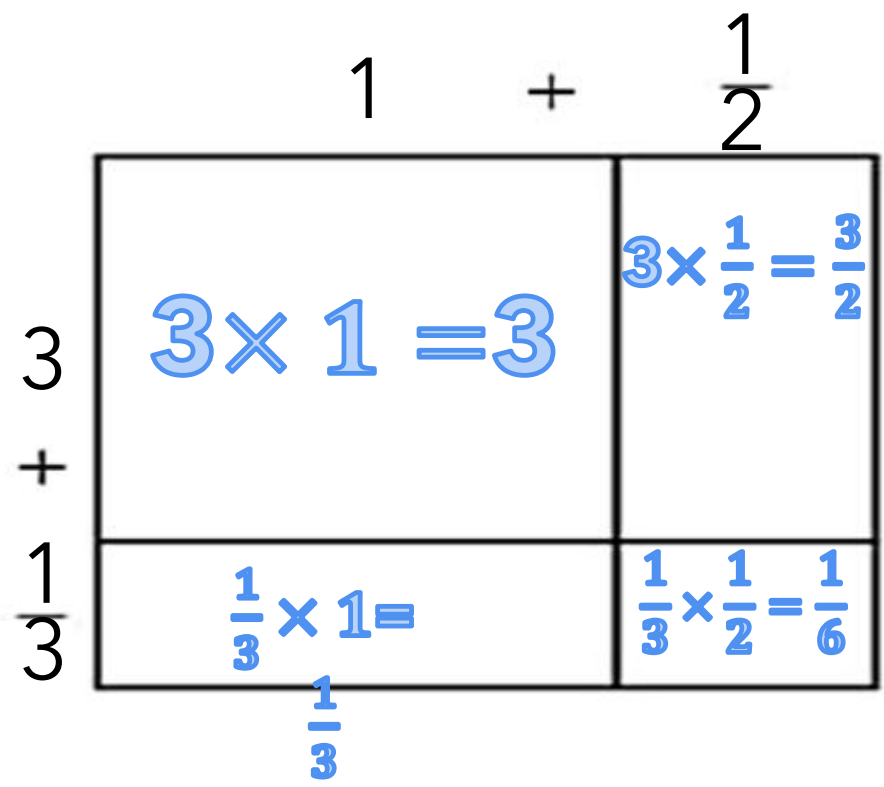
What is the product? Use an area model to solve.

5. $3\frac{1}{3} \times 1\frac{1}{2} = \underline{\hspace{2cm}}$

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

$$1 + \frac{9}{6} + \frac{2}{6} + \frac{1}{6} =$$

$$1 + \frac{12}{6} = 1 + 2 = 3$$



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My **objective** is multiplying Mixed Numbers

What is the product? Use an area model to solve.

6. $2\frac{1}{4} \times 2\frac{2}{3} = \underline{\hspace{2cm}}$

$$4 + \frac{1}{4} \times 3 + \frac{4}{3} \times 4 + \frac{2}{12} =$$

$$4 + \frac{3}{12} + \frac{16}{12} + \frac{2}{12}$$

$$1 + \frac{21}{12} = 1 + 1\frac{9}{12} =$$

$$2\frac{9 \div 3}{12 \div 3} = 2\frac{3}{4}$$

