

Hello Students, Parents, and Guardians!

If you are reading this letter then we have an extended break in the school year due to COVID-19. In order to keep learning consistent, I have put together worksheets for students to complete while they are not in school. They are labeled for each day (Day 1, Day 2, etc). Please complete one each day. There is also one "Bonus" worksheet if students are feeling up for a challenge. Each worksheet has a mini lesson on the top explaining the concept and practice problems underneath it. If a student is struggling with them, please do not stress over it. I only ask that they take their time and try their best and put forth effort.

I hope everyone stays safe and healthy during this time. If there are any questions, please do not hesitate to email me (jfackenthal@longbranch.k12.nj.us). I will be checking it frequently over this break to answer any questions.

Sincerely,
Mr. Joe Fackenthal

¡Hola estudiantes, padres y tutores!

Si está leyendo esta carta, tenemos un receso extendido en el año escolar debido a COVID-19. Para mantener el aprendizaje constante, he reunido hojas de trabajo para que los estudiantes completen mientras no están en la escuela. Están etiquetados para cada día (Día 1, Día 2, etc.). Por favor complete uno cada día. También hay una hoja de trabajo de "Bonificación" si los estudiantes se sienten preparados para un desafío. Cada hoja de trabajo tiene una mini lección en la parte superior que explica el concepto y los problemas de práctica que se encuentran debajo. Si un estudiante está luchando con ellos, no se preocupe por eso. Solo les pido que se tomen su tiempo y hagan todo lo posible y se esfuercen.

Espero que todos se mantengan seguros y saludables durante este tiempo. Si tiene alguna pregunta, no dude en enviarme un correo electrónico (jfackenthal@longbranch.k12.nj.us). Lo revisaré con frecuencia durante este descanso para responder cualquier pregunta.

Sinceramente,
Sr. Joe Fackenthal

Olá alunos, pais e responsáveis!

Se você está lendo esta carta, temos uma pausa prolongada no ano letivo devido ao COVID-19. Para manter o aprendizado consistente, reuni planilhas para os alunos completarem enquanto não estão na escola. Eles são rotulados para cada dia (dia 1, dia 2, etc.). Por favor, preencha um por dia. Há também uma planilha "Bônus", se os alunos estiverem se preparando para um desafio. Cada planilha possui uma mini lição no topo, explicando o conceito e praticando os problemas subjacentes. Se um aluno está lutando com eles, não se estresse. Só peço que eles tomem o seu tempo, façam o melhor e se esforcem.

Espero que todos fiquem seguros e saudáveis durante esse período. Se houver alguma dúvida, não hesite em me enviar um email (jfackenthal@longbranch.k12.nj.us). Vou verificá-lo frequentemente durante esta pausa para responder a quaisquer perguntas.

Atenciosamente,
Mr. Joe Fackenthal

DAY 1

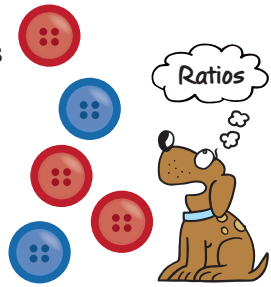
REVIEW: Ratios

Name _____

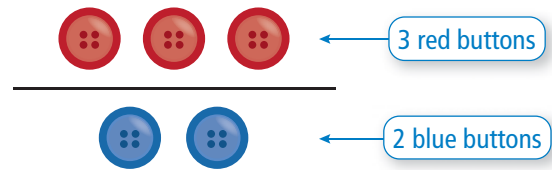
Key Concept and Vocabulary

The ratio of 3 red buttons to 2 blue buttons can be written in three ways:

$\frac{3}{2}$, 3 to 2, or 3:2



Visual Model



Skill Examples

- Ratio of blue buttons to red buttons: $\frac{2}{3}$
- Ratio of blue buttons to all buttons: $\frac{2}{5}$
- Ratio of red buttons to all buttons: $\frac{3}{5}$

Text

Application Example

- Write the ratio of basketballs to soccer balls in three ways.

There are 4 basketballs.
There are 5 soccer balls.



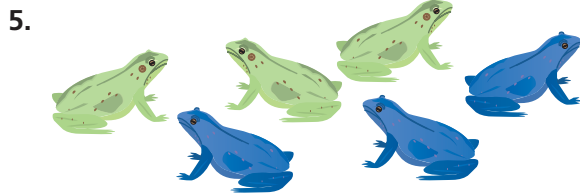
$\frac{4}{5}$, 4 to 5, and 4:5

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Check your answers at BigIdeasMath.com.

Write the *simplified* ratio of green objects to blue objects in three ways.









Write the *simplified* ratio of blue objects to *all* objects in three ways.

9. Frogs in Exercise 5

10. Balloons in Exercise 6

11. Cars in Exercise 7

12. Flowers in Exercise 8

13. **CLASS RATIO** The ratio of boys to girls in a class is 5 to 4. There are 12 girls in the class. How many boys are in the class? _____

DAY 2

REVIEW: Percents and Fractions

Name _____

Key Concept and Vocabulary

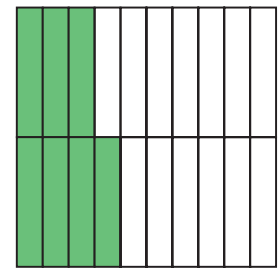
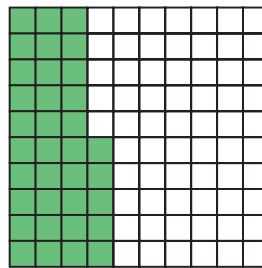
$$35\% = \frac{35}{100} = \frac{\cancel{5} \cdot 7}{\cancel{5} \cdot 20} = \frac{7}{20}$$

Write percent as a fraction in simplest form.



Visual Model

$$35\% = \frac{7}{20}$$



Skill Examples

- $40\% = \frac{40}{100} = \frac{\cancel{20} \cdot 2}{\cancel{20} \cdot 5} = \frac{2}{5}$
- $50\% = \frac{50}{100} = \frac{\cancel{50} \cdot 1}{\cancel{50} \cdot 2} = \frac{1}{2}$
- $25\% = \frac{25}{100} = \frac{\cancel{25} \cdot 1}{\cancel{25} \cdot 4} = \frac{1}{4}$
- $5\% = \frac{5}{100} = \frac{\cancel{5} \cdot 1}{\cancel{5} \cdot 20} = \frac{1}{20}$

Application Example

- Your school's softball team won 30% of its games. Did the team win more than one-fourth of its games?

$$30\% = \frac{3}{10} \quad \frac{3}{10} > \frac{1}{4}$$

- Yes, the team won more than one-fourth of its games.

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Check your answers at BigIdeasMath.com.

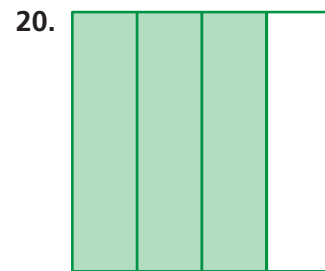
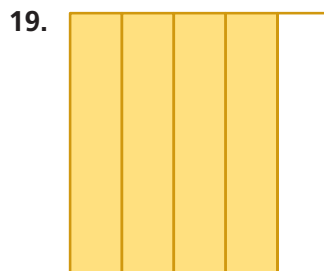
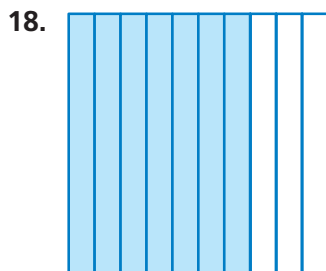
Write the percent as a fraction in simplest form.

- $20\% = \underline{\hspace{2cm}}$
- $45\% = \underline{\hspace{2cm}}$
- $7\% = \underline{\hspace{2cm}}$
- $32.5\% = \underline{\hspace{2cm}}$
- $15\% = \underline{\hspace{2cm}}$
- $1\% = \underline{\hspace{2cm}}$
- $150\% = \underline{\hspace{2cm}}$
- $33\frac{1}{3}\% = \underline{\hspace{2cm}}$

Write the fraction as a percent.

- $\frac{3}{20} = \underline{\hspace{2cm}}$
- $\frac{6}{5} = \underline{\hspace{2cm}}$
- $\frac{5}{8} = \underline{\hspace{2cm}}$
- $\frac{3}{5} = \underline{\hspace{2cm}}$

Write the fraction represented by the model as a percent.



- SURVEY** Eighteen out of twenty people in a survey said that vanilla ice cream is their favorite flavor of ice cream. What percent is this? _____
- SPANISH LANGUAGE** Twelve of the 40 students in your class can speak Spanish. What percent is this? _____

DAY 3

REVIEW: Distributive Property

Name _____

Key Concept and Vocabulary

Distributive Property

$$3(4 + 6) = 3 \cdot 4 + 3 \cdot 6$$

$$4(7 - 2) = 4 \cdot 7 - 4 \cdot 2$$



Visual Model

$$2(3 + 5) = 2 \cdot 3 + 2 \cdot 5$$

Skill Examples

- $3(9 + 4) = 3 \cdot 9 + 3 \cdot 4$
- $7(10 - 3) = 7 \cdot 10 - 7 \cdot 3$
- $6 \cdot 8 + 6 \cdot 7 = 6(8 + 7)$
- $12 \cdot 9 - 12 \cdot 2 = 12(9 - 2)$
- $5(2 + 5 + 3) = 5 \cdot 2 + 5 \cdot 5 + 5 \cdot 3$

Application Example

- You buy 3 hot dogs for \$1.25 each and 3 sodas for \$0.75 each. Find the total cost.

$$\begin{aligned} 3(1.25) + 3(0.75) &= 3(1.25 + 0.75) \\ &= 3(2.00) \\ &= 6 \end{aligned}$$



••• The total cost is \$6.00.

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Check your answers at BigIdeasMath.com.

Use the Distributive Property to rewrite the expression.

7. $3(4 + 5) =$ _____ 8. $5(8 - 3) =$ _____ 9. $9(11 + 7) =$ _____

10. $8(27 - 9) =$ _____ 11. $6(17 - 7) =$ _____ 12. $4(7 + 3 + 2) =$ _____

13. $5 \cdot 7 + 5 \cdot 3 =$ _____ 14. $2 \cdot 9 - 2 \cdot 6 =$ _____ 15. $7 \cdot 4 + 7 \cdot 8 =$ _____

16. = + _____

17. = + _____

- MENTAL MATH** You buy 5 hot dogs for \$1.29 each and 5 sodas for \$0.71 each. Show how you can use mental math to find the total cost.

- EXTENSION** Does the Distributive Property apply to a combination of addition *and* subtraction? Decide using the expression $3(7 + 5 - 4)$.

DAY 4

REVIEW: Adding and Subtracting Integers

Name _____

Key Concept and Vocabulary

terms sum

$$6 + (-2) = 4$$

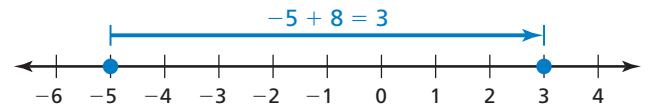
$$7 - (-3) = 10$$

terms difference



Visual Model

To add a positive number, move to the *right*.



To subtract a positive number, move to the *left*.

Skill Examples

1. $5 + (-3) = 5 - 3 = 2$

2. $5 - (-2) = 5 + 2 = 7$

3. $-2 + 4 = 2$

4. $-3 - (-2) = -3 + 2 = -1$

5. $8 - (-3) = 8 + 3 = 11$

To subtract, change the sign and add.

Application Example

6. The temperature is 8°F in the morning and drops to -5°F in the evening. What is the difference between these temperatures?

$$8 - (-5) = 8 + 5 = 13$$

∴ The difference is 13 degrees.

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Check your answers at BigIdeasMath.com.

Find the sum or difference.

7. $-2 + 3 =$ _____

8. $-4 - 5 =$ _____

9. $8 - 2 =$ _____

10. $8 - (-2) =$ _____

11. $-4 - (-1) =$ _____

12. $-5 + (-5) =$ _____

13. $4 - (-8) =$ _____

14. $4 - 8 =$ _____

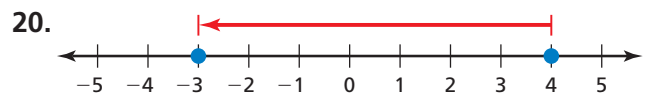
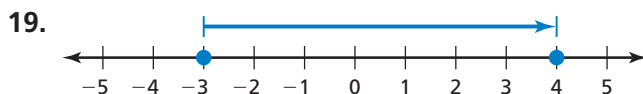
15. $-4 + (-6) =$ _____

16. $-4 - (-6) =$ _____

17. $10 - 13 =$ _____

18. $13 - (-10) =$ _____

Write the addition or subtraction shown by the number line.



21. **TEMPERATURE** The temperature is 16°F in the morning and drops to -15°F in the evening. What is the difference between these temperatures? _____

22. **SUBMARINE** A submarine is 450 feet below sea level. It descends 300 feet. What is its new position? Show your work.

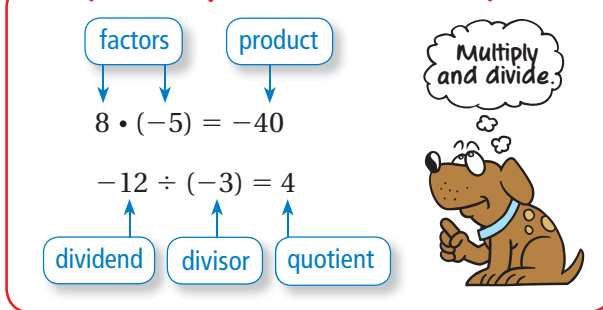


DAY 5

REVIEW: Multiplying and Dividing Integers

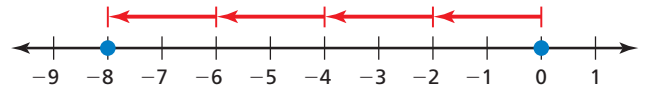
Name _____

Key Concept and Vocabulary



Visual Model

$$4 \cdot (-2) = (-2) + (-2) + (-2) + (-2)$$



Skill Examples

- $-3 \cdot (-4) = 12$ ← same sign, product and quotient positive
- $-36 \div (-6) = 6$ ← same sign, product and quotient positive
- $-7 \cdot 0 = 0$
- $-10 \div 5 = -2$ ← different signs, product and quotient negative
- $-5 \cdot 6 = -30$ ← different signs, product and quotient negative

Application Example

- Each of your six friends owes you \$5. Use integer multiplication to represent the total amount your friends owe you.

$$6 \cdot (-5) = -30$$

∴ The total amount owed is \$30.

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Check your answers at BigIdeasMath.com.

Find the product or quotient.

- $-3 \times (-5) = \underline{\quad}$
- $7(-3) = \underline{\quad}$
- $0 \cdot (-5) = \underline{\quad}$
- $(-5)(-7) = \underline{\quad}$
- $-8 \cdot 2 = \underline{\quad}$
- $(-5)^2 = \underline{\quad}$
- $(-3)^3 = \underline{\quad}$
- $4(-2)(-3) = \underline{\quad}$
- $-16 \div 4 = \underline{\quad}$
- $-20 \div (-5) = \underline{\quad}$
- $\frac{-9}{3} = \underline{\quad}$
- $\frac{-20}{-10} = \underline{\quad}$

Complete the multiplication or division equation.

- $-15 \div \underline{\quad} = -3$
- $45 \div \underline{\quad} = -5$
- $\underline{\quad} \div (-20) = 5$
- $8 \cdot \underline{\quad} = -64$
- $\underline{\quad} \cdot (-9) = 27$
- $-12 \cdot \underline{\quad} = -96$
- TOTAL OWED** Each of your eight friends owes you \$10. Use integer multiplication to represent the total amount your friends owe you. _____

- TEMPERATURE** The low temperatures for a week in Edmonton, Alberta are -15°C , -12°C , -10°C , -12°C , -18°C , -20°C , and -25°C . What is the mean low temperature for the week? Show your work.

DAY 6

REVIEW: Adding and Subtracting Fractions with Unlike Denominators

Name _____

Key Concept and Vocabulary

Find products.

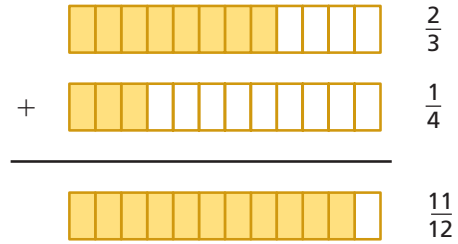
$$\frac{2}{3} \times \frac{1}{4} = \frac{2 \cdot 4 + 3 \cdot 1}{3 \cdot 4} = \frac{11}{12}$$

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

Unlike Denominators



Visual Model



Skill Examples

1. $\frac{1}{5} + \frac{2}{3} = \frac{1 \cdot 3 + 5 \cdot 2}{5 \cdot 3} = \frac{13}{15}$

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

3. $\frac{1}{3} - \frac{1}{4} = \frac{1 \cdot 4 - 3 \cdot 1}{3 \cdot 4} = \frac{1}{12}$

4. $\frac{3}{7} - \frac{2}{5} = \frac{3 \cdot 5 - 7 \cdot 2}{7 \cdot 5} = \frac{1}{35}$

Application Example

5. You ride your bike $\frac{3}{8}$ mile to the store. Then you ride $\frac{1}{6}$ mile to school. How far do you ride altogether?

$$\frac{3}{8} + \frac{1}{6} = \frac{3 \cdot 6 + 8 \cdot 1}{8 \cdot 6} = \frac{26}{48} = \frac{13}{24}$$



You ride $\frac{13}{24}$ mile.

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Check your answers at BigIdeasMath.com.

Find the sum or difference. Write your answer in simplified form.

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

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

8. $\frac{3}{10} + \frac{1}{4} =$ _____

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

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

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

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

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

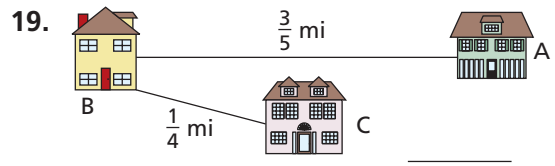
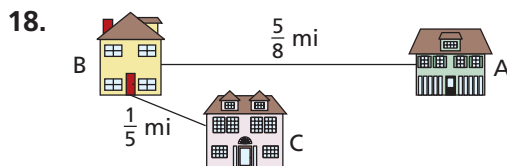
14. $\frac{5}{9} - \frac{2}{5} =$ _____

15. $\frac{7}{10} - \frac{1}{4} =$ _____

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

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

Find the total distance from House A to House B and then to House C.



20. **WEASEL LENGTH** Find the total length of the weasel. _____



21. **IMPROVING YOUR SPEED** You swam at a rate of $\frac{3}{8}$ mile per hour in March. You swam at a rate of $\frac{3}{7}$ mile per hour in April. How much faster did you swim in April? _____

DAY 7

REVIEW: Multiplying Fractions

Name _____

Key Concept and Vocabulary

Multiply numerators.

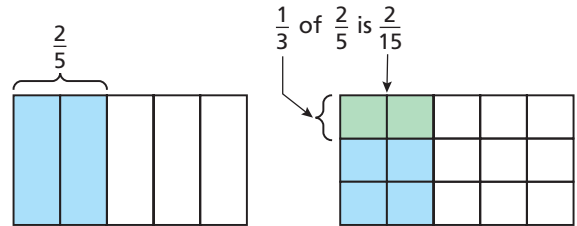
$$\frac{1}{3} \cdot \frac{2}{5} = \frac{1 \cdot 2}{3 \cdot 5} = \frac{2}{15}$$

Multiply denominators.

Multiply fractions.



Visual Model



Skill Examples

- $\frac{2}{3} \cdot \frac{1}{4} = \frac{2 \cdot 1}{3 \cdot 4} = \frac{2}{12} = \frac{1}{6}$
- $\frac{3}{8} \times \frac{2}{9} = \frac{3 \cdot 2}{8 \cdot 9} = \frac{6}{72} = \frac{1}{12}$
- $\left(\frac{2}{5}\right)\left(\frac{1}{4}\right) = \frac{2 \cdot 1}{5 \cdot 4} = \frac{2}{20} = \frac{1}{10}$
- $\frac{1}{7} \cdot \frac{3}{5} = \frac{1 \cdot 3}{7 \cdot 5} = \frac{3}{35}$

Application Example

- A recipe calls for three-fourths cup of flour. You want to make one-half of the recipe. How much flour should you use?

$$\frac{1}{2} \cdot \frac{3}{4} = \frac{1 \cdot 3}{2 \cdot 4} = \frac{3}{8}$$

- You should use $\frac{3}{8}$ cup flour.

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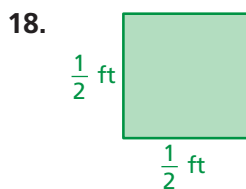


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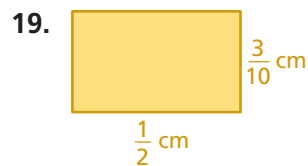
Find the product. Write your answer in simplified form.

- $\frac{1}{3} \cdot \frac{2}{7} =$ _____
- $\frac{1}{2} \times \frac{1}{4} =$ _____
- $\frac{1}{10} \cdot \frac{3}{10} =$ _____
- $\frac{3}{2} \times \frac{2}{5} =$ _____
- $\frac{3}{8} \times \frac{1}{2} =$ _____
- $\left(\frac{1}{5}\right)\left(\frac{2}{5}\right) =$ _____
- $\left(\frac{2}{3}\right)^2 =$ _____
- $\frac{3}{2} \cdot \frac{2}{3} =$ _____
- $\left(\frac{3}{1}\right)\left(\frac{1}{3}\right) =$ _____
- $2 \cdot \frac{1}{4} =$ _____
- $3 \times \frac{3}{4} =$ _____
- $\frac{1}{3} \cdot \frac{3}{4} \cdot \frac{4}{5} =$ _____

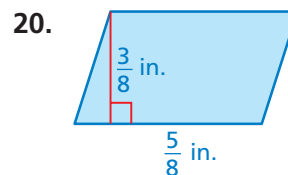
Find the area of the rectangle or parallelogram.



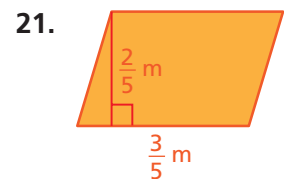
Area = _____



Area = _____



Area = _____



Area = _____

22. **OPEN-ENDED** Find three different pairs of fractions that have the same product.

$$\square \cdot \square = \square \quad \square \cdot \square = \square \quad \square \cdot \square = \square$$

DAY 8

REVIEW: Dividing Fractions

Name _____

Key Concept and Vocabulary

$$\frac{2}{3} \div \frac{1}{2} = \frac{2}{3} \cdot \frac{2}{1} = \frac{2 \cdot 2}{3 \cdot 1} = \frac{4}{3}$$

Invert and multiply.

Divide fractions.



Visual Model

There are 2 "one-thirds" in two-thirds.

$$\frac{2}{3} \div \frac{1}{3} = \frac{2}{3} \cdot \frac{3}{1} = 2$$



Skill Examples

- $\frac{2}{5} \div \frac{1}{5} = \frac{2}{5} \cdot \frac{5}{1} = \frac{2 \cdot 5}{5 \cdot 1} = 2$
- $\frac{2}{5} \div 5 = \frac{2}{5} \cdot \frac{1}{5} = \frac{2 \cdot 1}{5 \cdot 5} = \frac{2}{25}$
- $\frac{9}{4} \div \frac{3}{4} = \frac{9}{4} \cdot \frac{4}{3} = \frac{9 \cdot 4}{4 \cdot 3} = 3$
- $6 \div \frac{1}{2} = \frac{6}{1} \cdot \frac{2}{1} = \frac{6 \cdot 2}{1 \cdot 1} = 12$

Application Example

- You drive 25 miles in one-half hour. What is your average rate?

$$25 \div \frac{1}{2} = \frac{25}{1} \cdot \frac{2}{1} = 50 \text{ mi/h} \quad r = \frac{d}{t}$$

❖ Your average rate is 50 miles per hour.

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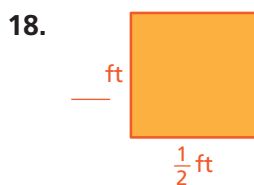


Check your answers at BigIdeasMath.com

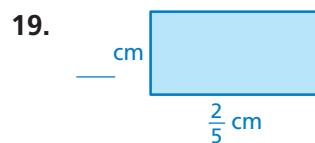
Find the quotient. Write your answer in simplified form.

- $\frac{3}{5} \div \frac{1}{5} = \underline{\hspace{2cm}}$
- $4 \div \frac{1}{2} = \underline{\hspace{2cm}}$
- $\frac{2}{3} \div \frac{1}{6} = \underline{\hspace{2cm}}$
- $\frac{1}{6} \div \frac{2}{3} = \underline{\hspace{2cm}}$
- $\frac{2}{3} \div 2 = \underline{\hspace{2cm}}$
- $\frac{3}{4} \div 4 = \underline{\hspace{2cm}}$
- $\frac{3}{7} \div \frac{3}{7} = \underline{\hspace{2cm}}$
- $\frac{3}{7} \div \frac{7}{3} = \underline{\hspace{2cm}}$
- $5 \div \frac{1}{2} = \underline{\hspace{2cm}}$
- $\frac{9}{4} \div \frac{1}{4} = \underline{\hspace{2cm}}$
- $\frac{1}{4} \div \frac{1}{2} = \underline{\hspace{2cm}}$
- $\frac{3}{11} \div 11 = \underline{\hspace{2cm}}$

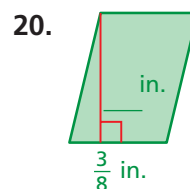
Find the height of the rectangle or parallelogram.



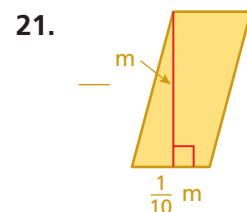
$$\text{Area} = \frac{1}{4} \text{ ft}^2$$



$$\text{Area} = \frac{2}{25} \text{ cm}^2$$



$$\text{Area} = \frac{3}{16} \text{ in.}^2$$



$$\text{Area} = \frac{1}{50} \text{ m}^2$$

- SPEED** You drive 15 miles in one-fourth hour. What is your average speed? _____
- MAGNETIC TAPE** A refrigerator magnet uses $\frac{5}{8}$ inch of magnetic tape. How many refrigerator magnets can you make with 10 inches of magnetic tape? Explain.

DAY 9

REVIEW: Rates

Name _____

Key Concept and Vocabulary

You pay \$12 for 4 hot dogs.



$$\text{Rate} = \frac{\$12}{4 \text{ hot dogs}}$$

$$\text{Unit Rate} = \frac{\$3}{1 \text{ hot dog}}$$



Visual Model



← 12 dollars



← per



← 4 hot dogs

Skill Examples

- You drive 100 miles in 2 hours.
Your unit rate is 50 miles per hour.
- You earn \$40 in 5 hours.
Your unit rate is \$8 per hour.
- You save \$240 in 6 months.
Your unit rate is \$40 per month.

Application Example

- Janice was 44 inches tall when she was 8 years old. She was 52 inches tall when she was 12 years old. What was her unit rate?

She grew 8 inches in 4 years: $\frac{8}{4} = \frac{2}{1}$.

••• Her unit rate is 2 inches per year.



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Check your answers at BigIdeasMath.com.

Write the unit rate in words and as a fraction for each situation.

5. You fly 2000 miles in 4 hours.

Words

Fraction

6. You pay 15 dollars for 3 pizzas.

Words

Fraction

7. You pay \$4 sales tax on a \$50 purchase.

Words

Fraction

8. You earn \$25 for mowing 5 lawns.

Words

Fraction

Circle the name of the person with the greater unit rate.

9. Maria saves \$50 in 4 months.
Ralph saves \$60 in 5 months.

10. John rides his bicycle 36 miles in 3 hours.
Randy rides his bicycle 30 miles in 2.5 hours.

11. Kim earns \$400 for working 40 hours.
Sam earns \$540 for working 45 hours.

12. Arlene scores 450 points on 5 tests.
Jolene scores 180 points on 2 tests.

Convert the unit rate.

13. $\frac{60 \text{ miles}}{1 \text{ hour}} = \frac{\boxed{} \text{ feet}}{1 \text{ second}}$

14. $\frac{2 \text{ gallons}}{1 \text{ hour}} = \frac{\boxed{} \text{ cups}}{1 \text{ minute}}$

DAY 10

REVIEW: Proportions

Name _____

Key Concept and Vocabulary

Proportion: "2 is to 3 as 4 is to 6."

$$\frac{2}{3} = \frac{4}{6}$$

$$2 \cdot 6 = 3 \cdot 4$$

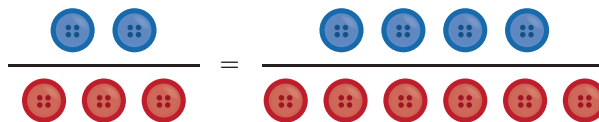
Cross products are equal.

Proportions



Visual Model

The ratio "2 to 3" is equal to the ratio "4 to 6."



Skill Examples

- $\frac{3}{5} = \frac{12}{20}$ is a proportion because the cross products are equal.
- $\frac{1}{7} = \frac{7}{48}$ is *not* a proportion because the cross products are not equal.
- $\frac{10}{2} = \frac{5}{1}$ is a proportion because the cross products are equal.

Application Example

- You spend \$5 for 3 tennis balls. Your friend spends \$6.25 for 4 tennis balls. Are the two rates proportional?

$$\frac{\$5}{3 \text{ balls}} \stackrel{?}{=} \frac{\$6.25}{4 \text{ balls}} \quad 5(4) \neq 3(6.25)$$

∴ The rates are *not* proportional.

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Decide whether the statement is a proportion.

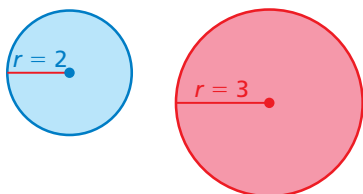
- $\frac{3}{7} = \frac{6}{14}$ _____
- $\frac{1}{4} = \frac{4}{1}$ _____
- $\frac{3}{2} = \frac{9}{4}$ _____
- $\frac{1.25}{3} = \frac{5}{12}$ _____
- $\frac{6}{18} = \frac{120}{360}$ _____
- $\frac{4}{5} = \frac{4+4}{5+5}$ _____

Complete the proportion.

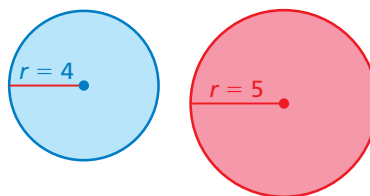
- $\frac{2}{5} = \frac{\square}{10}$
- $\frac{1}{6} = \frac{4}{\square}$
- $\frac{3}{\square} = \frac{9}{24}$

Write the proportion that compares the circumference to the radii of the two circles.

14.



15.



- COMPARING RATES** You spend \$20 for 5 T-shirts. Your friend spends \$15 for 3 T-shirts. Are the two rates proportional? _____

Bonus

REVIEW: Simplifying Complex Fractions

Name _____

Key Concept and Vocabulary

A complex fraction is a fraction that contains a fraction in its numerator, denominator, or both. To simplify a complex fraction, divide its numerator by its denominator.



Algebra: $\frac{\frac{a}{b}}{\frac{c}{d}} = \frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c}$, where $b, c, d \neq 0$

Numbers: $\frac{\frac{2}{3}}{\frac{5}{6}} = \frac{2}{3} \div \frac{5}{6} = \frac{2}{3} \cdot \frac{6}{5} = \frac{4}{5}$

Skill Examples

1. $\frac{\frac{5}{8}}{4} = \frac{5}{8} \div 4 = \frac{5}{8} \cdot \frac{1}{4} = \frac{5}{32}$

2. $\frac{15}{\frac{9}{10}} = 15 \div \frac{9}{10} = \frac{15}{1} \cdot \frac{10}{9} = \frac{50}{3}$

3. $\frac{\frac{1}{3}}{\frac{5}{7}} = \frac{1}{3} \div \frac{5}{7} = \frac{1}{3} \cdot \frac{7}{5} = \frac{7}{15}$

4. $\frac{\frac{9}{16}}{\frac{3}{8}} = \frac{9}{16} \div \frac{3}{8} = \frac{9}{16} \cdot \frac{8}{3} = \frac{3}{2}$



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Simplify the complex fraction.

5. $\frac{\frac{3}{2}}{6} = \underline{\hspace{2cm}}$

6. $\frac{20}{\frac{4}{5}} = \underline{\hspace{2cm}}$

7. $\frac{\frac{9}{2}}{\frac{12}{7}} = \underline{\hspace{2cm}}$

8. $\frac{\frac{7}{10}}{\frac{9}{20}} = \underline{\hspace{2cm}}$

9. $\frac{\frac{2}{3}}{\frac{16}{27}} = \underline{\hspace{2cm}}$

10. $\frac{5}{\frac{7}{10}} = \underline{\hspace{2cm}}$

11. $\frac{\frac{12}{17}}{8} = \underline{\hspace{2cm}}$

12. $\frac{\frac{3}{14}}{\frac{13}{49}} = \underline{\hspace{2cm}}$

13. $\frac{\frac{27}{32}}{\frac{7}{8}} = \underline{\hspace{2cm}}$

14. $\frac{\frac{9}{10}}{3} = \underline{\hspace{2cm}}$

15. $\frac{6}{\frac{1}{6}} = \underline{\hspace{2cm}}$

16. $\frac{\frac{4}{5}}{\frac{22}{25}} = \underline{\hspace{2cm}}$

17. $\frac{24}{\frac{18}{7}} = \underline{\hspace{2cm}}$

18. $\frac{\frac{1}{4}}{\frac{1}{10}} = \underline{\hspace{2cm}}$

19. $\frac{\frac{3}{5}}{16} = \underline{\hspace{2cm}}$

20. $\frac{\frac{16}{21}}{\frac{8}{9}} = \underline{\hspace{2cm}}$