

1. Write the fraction as an equivalent fraction with the given denominator.

$$\frac{8}{7} = \frac{\quad}{35}$$

$$\frac{8}{7} = \frac{\boxed{\quad}}{35}$$

2. Multiply.

$$\frac{5}{9} \cdot \frac{8}{49} \cdot \frac{7}{10} \cdot \frac{3}{8}$$

$$\frac{5}{9} \cdot \frac{8}{49} \cdot \frac{7}{10} \cdot \frac{3}{8} = \boxed{\quad} \text{ (Type a simplified fraction.)}$$

3. Simplify.

$$\frac{0}{25}$$

Select the correct choice below and fill in any answer boxes within your choice.

A.  $\frac{0}{25} = \boxed{\quad}$

B. The quotient is undefined.

4. Subtract.

$$18\frac{5}{11} - 8\frac{16}{33}$$

$$18\frac{5}{11} - 8\frac{16}{33} = \boxed{\quad}$$

(Type an integer, fraction, or mixed number. Simplify your answer.)

5. Doug and Rebecca Rockwell recently drove  $201\frac{1}{4}$  miles on  $11\frac{1}{2}$  gallons of gas. Calculate how many miles per gallon they got in their vehicle.

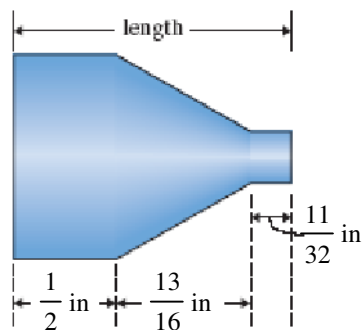
They got  miles per gallon.

6. In a certain city, it was recorded that  $15\frac{3}{5}$  inches of rain fell over a 24-hour period. How much rain fell per hour on average?

On average,  inches of rain fell per hour.  
(Type a whole number or a simplified fraction.)

7. Given the diagram on the right, find its total length.

The diagram is  inches in length.  
(Type an integer or simplified fraction.)



8. Change the following improper fraction to a mixed number or a whole number.

$$\frac{460}{23}$$

$$\frac{460}{23} = \text{$$

(Type a mixed number or a whole number. Simplify your answer.)

9. Find the reciprocal of the number.

25

The reciprocal of 25 is .

10. A recipe for chocolate chip cookies calls for  $3\frac{1}{2}$  cups of flour. If you are making  $2\frac{1}{4}$  recipes, how many cups of flour are needed?

The number of cups of flour needed to make  $2\frac{1}{4}$  recipes of chocolate chip cookies is  cups. (Type a simplified fraction, mixed number, or an integer.)

11. Insert < or > to form a true statement.

$$\frac{35}{48} \quad \frac{13}{16}$$

$$\frac{35}{48} \square \frac{13}{16}$$

12. Multiply and simplify.

$$3\frac{6}{7} \cdot 1\frac{1}{9}$$

$$3\frac{6}{7} \cdot 1\frac{1}{9} = \square \text{ (Type a simplified fraction.)}$$

13. Fill in the blank.

A natural number that has exactly two different factors, 1 and itself, is called a(n) \_\_\_ number.

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14. Use the order of operations to simplify the expression.

$$\left(\frac{4}{1}\right)^2 \div \left(\frac{4}{1} - \frac{1}{3}\right)$$

$$\left(\frac{4}{1}\right)^2 \div \left(\frac{4}{1} - \frac{1}{3}\right) = \square \text{ (Type an integer or a fraction. Simplify your answer.)}$$

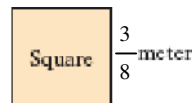
15. Give a true statement about the fraction  $\frac{7}{11}$ .

Choose the correct answer below.

- A. The denominator of the fraction is 7.
- B. The numerator of the fraction is 7.
- C. The numerator of the fraction is 11.
- D. The fraction is undefined.

16. List all the factors of 42.  
The factors of 42 are .  
(Use a comma to separate answers as needed.)

17. Find the area and perimeter of the figure.



The area of the figure is  square meters.

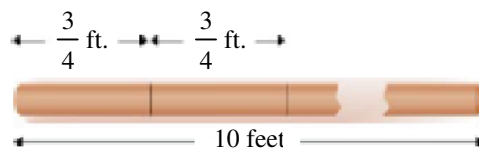
The perimeter of the figure is  meters.

18. Find the LCM of the list of numbers.

15, 4, 10

The LCM is .

19. William Arcenio is remodeling his home. In order to save money, he is upgrading the plumbing himself. He needs 16 pieces of copper tubing, each  $\frac{3}{4}$  of a foot long. If he has a 10-foot piece of tubing, will that be enough? How much more does he need or how much tubing will he have left over?



Will a 10-foot piece of tubing be enough?

- No  
 Yes

How much more does he need or how much tubing will he have left over?

feet (Type a simplified fraction, mixed number, or an integer.)

20. Determine whether the pair of fractions is equivalent.

$\frac{13}{19}$  and  $\frac{19}{20}$

Choose the correct answer below.

- Yes  
 No

21. Write the shaded area in the figure group as (a) a mixed number and (b) an improper fraction.



- a. Write the shaded area as a mixed number.

(Type a mixed number. Do not simplify.)

- b. Write the shaded area as an improper fraction.

(Type an improper fraction. Do not simplify.)

22. Use the order of operations to simplify each expression.

$$\left(\frac{4}{5} + \frac{1}{20}\right)^2 - \left(\frac{1}{10} + \frac{1}{20}\right)$$

$$\left(\frac{4}{5} + \frac{1}{20}\right)^2 - \left(\frac{1}{10} + \frac{1}{20}\right) = \text{} \text{ (Type an integer or a fraction. Simplify your answer.)}$$

23. If Tucson's average rainfall is  $12\frac{1}{4}$  inches and Yuma's is  $2\frac{3}{5}$  inches, how much more rain, on the average, does Tucson get than Yuma?

The amount of rainfall in Tucson is  inches more than the amount of rainfall in Yuma.  
(Simplify your answer. Type an integer, proper fraction, or mixed number.)

24. Add.

$$\begin{array}{r} 1\frac{2}{5} \\ + 5\frac{3}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 1\frac{2}{5} \\ + 5\frac{3}{5} \\ \hline \text{} \end{array}$$

(Simplify your answer.)

25. Divide. Write the answer in simplest form.

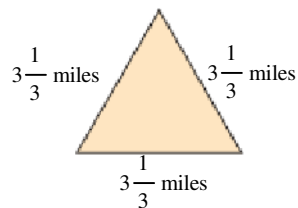
$$1\frac{8}{9} \div 3\frac{5}{6}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A.  $1\frac{8}{9} \div 3\frac{5}{6} = \square$  (Type a whole number or a simplified fraction.)

B. The answer is undefined.

26. Find the perimeter of the given figure.

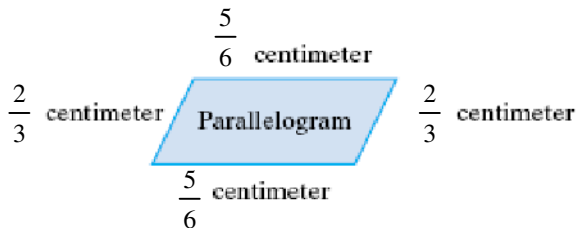


The perimeter of the given triangle is  miles.  
(Simplify your answer.)

27. There are 5280 feet in a mile. What fraction of a mile is represented by 1320 feet?

1320 feet =  mi

28. Find the perimeter of the geometric figure. (Hint: Recall that perimeter means distance around.) Note: figure not to scale.



The perimeter is  cm. (Type an integer or a fraction. Simplify your answer.)

29. Find the prime factorization of the following number. Write any repeated factors using exponents.

676

The prime factorization of 676 is .

30. A female lion had 4 cubs. They weighed  $4\frac{5}{12}$ ,  $2\frac{7}{12}$ ,  $3\frac{5}{6}$ , and  $2\frac{2}{3}$  pounds. What is the average cub weight?

The average weight of the four cubs is  pounds.  
(Type a simplified fraction, mixed number, or an integer.)

31. Multiply. Write the answer in simplest form.

$$1\frac{2}{5} \cdot 2\frac{3}{4} \cdot 1\frac{3}{17}$$

$$1\frac{2}{5} \cdot 2\frac{3}{4} \cdot 1\frac{3}{17} = \text{} \text{ (Type a whole number or a simplified fraction.)}$$

32. Which of the following is a definition of simplest form of a fraction?

- A. A fraction is written in simplest form when the numerator or the denominator is equal to 1.
- B. A fraction is written in simplest form when the numerator and denominator have no common factors other than 1.
- C. A fraction is written in simplest form when the numerator is smaller than the denominator.
- D. A fraction is written in simplest form when the numerator and the denominator are each written in prime factorization form.

33. Simplify.

$$\frac{1}{15} \cdot \left(14 - 10\frac{1}{4}\right)$$

$$\frac{1}{15} \cdot \left(14 - 10\frac{1}{4}\right) = \text{}$$

(Simplify your answer. Type a whole number or a fraction.)

1. 40

2.  $\frac{1}{42}$

3. A, 0

4.  $9\frac{32}{33}$

5.  $17\frac{1}{2}$

6.  $\frac{13}{20}$

7.  $\frac{53}{32}$

8. 20

9.  $\frac{1}{25}$

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

11. <

12.  $\frac{30}{7}$

13. prime

14.  $\frac{48}{11}$

15. B



16. 1,2,3,6,7,14,21,42

17.  $\frac{9}{64}$   
 $1\frac{1}{2}$

18. 60

19. the first choice  
2

20. the second choice

21.  $1\frac{3}{4}$   
 $\frac{7}{4}$

22.  $\frac{229}{400}$

23.  $9\frac{13}{20}$

24. 7

25. A,  $\frac{34}{69}$

26. 10

27.  $\frac{1}{4}$

28. 3

29.  $2^2 \cdot 13^2$

30.  $3\frac{3}{8}$

31.  $4\frac{9}{17}$

32. B

33.  $\frac{1}{4}$