

Key Words

For #1 to #3, match each example to the correct term.

1. $3\frac{1}{4}$ A improper fraction
 2. $\frac{8}{9}$ B mixed number
 3. $\frac{11}{3}$ C proper fraction
4. a) Unscramble the letters to make a key word.
 C I R C L O P E R A
 b) Define this key word.
5. Unscramble the letters to complete the following statement.
 The correct sequence of calculations for evaluating an expression is the .
 F R O A N O P O R E R T O S I D E

6.1 Multiplying a Fraction and a Whole Number, pages 198–203

6. Determine each product using manipulatives or diagrams.
- a) $5 \times \frac{1}{4}$ b) $4 \times \frac{2}{3}$ c) $2 \times \frac{5}{2}$
7. The average mass of a porcupine is about 12 kg. The average mass of a raccoon is about $\frac{3}{4}$ of that. What is the average mass of a raccoon?



8. The length of a rectangle is 6 cm. The width is $\frac{2}{3}$ of the length. What is the width?

6.2 Dividing a Fraction by a Whole Number, pages 204–209

9. Determine each quotient using manipulatives or diagrams.
- a) $\frac{3}{4} \div 2$ b) $\frac{2}{3} \div 4$
10. A Polish recipe for making six servings of potato salad includes $\frac{1}{2}$ an onion. What fraction of an onion is in each serving?
11. Regina has wet weather on about $\frac{3}{10}$ of the days in a year. It has wet weather on about four times as many days as it has fog. On what fraction of the days of the year does Regina have fog?

6.3 Multiplying Proper Fractions, pages 210–215

12. Use a diagram to explain why the following expressions have the same value.
- $\frac{1}{2}$ of $\frac{3}{4}$ $\frac{3}{4}$ of $\frac{1}{2}$
13. Estimate and calculate.
- a) $\frac{3}{5} \times \frac{3}{5}$ b) $\frac{4}{5} \times \frac{5}{12}$ c) $\frac{1}{8} \times \frac{4}{7}$
14. Three fifths of a school class is made up of girls. One third of the girls walk to school. What fraction of the class is made up of girls who walk to school?

6.4 Multiplying Improper Fractions and Mixed Numbers, pages 216–221

15. Estimate and calculate.

a) $\frac{8}{3} \times \frac{6}{5}$ b) $1\frac{3}{4} \times 2\frac{1}{3}$ c) $4\frac{1}{2} \times 2\frac{1}{9}$

16. The driving distance from Winnipeg to Regina is 570 km. The driving distance from Winnipeg to Calgary is $2\frac{1}{3}$ times the driving distance from Winnipeg to Regina. What is the driving distance from Winnipeg to Calgary?

17. Calculate the number of hours in $3\frac{1}{2}$ days.

18. The value of pi can be approximated by the fraction $\frac{22}{7}$. Use this value and the formula $C = \pi \times d$ to calculate the approximate circumference of a circle with a diameter of 14 cm.

6.5 Dividing Fractions and Mixed Numbers, pages 222–229

19. Chris calculated $\frac{2}{3} \div 3$ and got an answer of 2.

- a) What mistake did Chris make?
b) What is the correct answer?

20. Divide.

a) $\frac{2}{3} \div \frac{5}{6}$ b) $3\frac{1}{2} \div 2\frac{1}{4}$ c) $9 \div \frac{9}{10}$

21. A horse eats $\frac{1}{2}$ of a bale of hay per day. How long will 15 bales of hay last?

22. Marsha takes $\frac{3}{4}$ h to paint the first $\frac{1}{10}$ of a garden fence. How long will she take to paint the whole fence?

23. Vince usually takes $5\frac{1}{2}$ h to drive from Kamloops to Banff. Because of a snowfall, the drive took Vince $8\frac{1}{4}$ h one day. How many times as long as usual was the drive that day?



6.6 Applying Fraction Operations, pages 230–235

24. Calculate.

a) $\frac{1}{2} \times \frac{3}{4} + \frac{3}{2} \times \frac{1}{3}$

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

25. Ari works as a chef. He has to cook a pasta dinner for 16 guests. He has $3\frac{1}{2}$ packages of pasta. If a pasta dinner uses $\frac{1}{4}$ of a package of pasta, does he have enough pasta? Solve the problem in two different ways.

26. The gas tank of a car is $\frac{2}{3}$ full. A trip uses up $\frac{1}{4}$ of the gas in the tank. How full is the tank at the end of the trip?

27. A piece of string is cut in half, so that one half can be used to bundle newspapers for recycling. One third of the remaining string is cut off and used to tie a parcel. The leftover string is 2 m long. How long was the whole piece of string?

1) $3\frac{1}{4}$: Mixed #

2) $\frac{8}{9}$: Proper fraction

3) $\frac{11}{3}$: Improper fraction

6) a) $\frac{5}{1} \times \frac{1}{4} = \frac{5}{4} = 1\frac{1}{4}$

b) $\frac{4}{1} \times \frac{2}{3} = \frac{8}{3} = 2\frac{2}{3}$

c) $\frac{2}{1} \times \frac{5}{2} = \frac{10}{2} = 2$

7. $\frac{12}{1} \times \frac{3}{4} = \frac{36}{4} = 9 \text{ KG}$

9. a) $\frac{3}{4} \div \frac{2}{1} = \frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$

b) $\frac{2}{3} \div \frac{4}{1} = \frac{2}{3} \times \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$

10. $\frac{1}{2} \div 6 = \frac{1}{2} \div \frac{6}{1} = \frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$

"Each serving needs $\frac{1}{12}$ th of an onion".

$$13. \text{ a) } \frac{3}{5} \times \frac{3}{5} = \frac{9}{25}$$

$$\text{b) } \frac{4}{5} \times \frac{5}{12} = \frac{20}{60} = \frac{1}{3}$$

$$\text{c) } \frac{1}{8} \times \frac{4}{7} = \frac{4}{56} = \frac{1}{14}$$

$$15. \text{ a) } \frac{8}{3} \times \frac{6}{5} = \frac{48}{15} = 3\frac{3}{5}$$

$$\text{b) } 1\frac{3}{4} \times 2\frac{1}{3} = \frac{7}{4} \times \frac{7}{3} = \frac{49}{12} = 4\frac{1}{12}$$

$$\text{c) } 4\frac{1}{2} \times 2\frac{1}{9} = \frac{9}{2} \times \frac{19}{9} = \frac{171}{18} = 9\frac{1}{2}$$

$$20 \text{ a) } \frac{2}{3} \div \frac{5}{6} = \frac{2}{3} \times \frac{6}{5} = \frac{12}{15} = \frac{4}{5}$$

$$\text{b) } 3\frac{1}{2} \div 2\frac{1}{4} = \frac{7}{2} \div \frac{9}{4} = \frac{7}{2} \times \frac{4}{9} = \frac{28}{18} = 1\frac{10}{18} = 1\frac{5}{9}$$

$$\text{c) } \frac{9}{1} \div \frac{9}{6} = \frac{9}{1} \times \frac{6}{9} = \frac{90}{9} = 10$$

$$21. 15 \div \frac{1}{2} = \frac{15}{1} \div \frac{1}{2} = \frac{15}{1} \times \frac{2}{1} = \frac{30}{1}$$

"The hay will last 30 days"

$$23. 8\frac{1}{4} \div 5\frac{1}{2} = \frac{33}{4} \div \frac{11}{2} = \frac{33}{4} \times \frac{2}{11} = \frac{66}{44} = 1\frac{22}{44} = 1\frac{1}{2}$$

"The drive took $1\frac{1}{2}$ times as long."

$$24. \frac{1}{2} \times \frac{3}{4} + \frac{3}{2} \times \frac{1}{3}$$

a) $\frac{1}{8} + \frac{3}{2} \times \frac{1}{3}$

$$\frac{3}{8} + \frac{3}{6} \text{ reduce}$$

$$\frac{3}{8} + \frac{1 \times 4}{2 \times 4} \text{ "Common denom. is 8"}$$

$$\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$$

$$24b) 1\frac{1}{2} \div \left(1\frac{1}{2} - \frac{2}{3}\right)$$

$$\frac{3}{2} \div \left(\frac{3^{x3}}{2^{x3}} - \frac{2^{x2}}{3^{x2}}\right) \text{ Common denom is 6.}$$

$$\frac{3}{2} \div \left(\frac{9}{6} - \frac{4}{6}\right)$$

$$\frac{3}{2} \div \frac{5}{6}$$

$$\frac{3}{2} \times \frac{6}{5} = \frac{18}{10} = 1\frac{8}{10} = 1\frac{4}{5}$$

$$26) \frac{2^{x4}}{3^{x4}} - \frac{1^{x3}}{4^{x3}} =$$

$$= \frac{8}{12} - \frac{3}{12} = \frac{5}{12}$$

The gas tank is $\frac{5}{12}$ full, or approximately $\frac{1}{2}$ full