

Chapter 5 Review

Learning Goals

Inquire and Explore: What is the relationship between multiplying and dividing fractions?
What is the relationship between adding and multiplying fractions?
What is the relationship between subtracting and dividing fractions?

After this section, I can

5.1	<ul style="list-style-type: none">■ model the multiplication of a fraction and a whole number■ solve problems involving the multiplication of fractions by whole numbers
5.2	<ul style="list-style-type: none">■ model the division of a fraction by a whole number■ solve problems involving the division of fractions by whole numbers
5.3	<ul style="list-style-type: none">■ model the multiplication of two proper fractions■ solve problems involving the multiplication of two proper fractions■ check that my answers are reasonable using mental mathematics and estimation
5.4	<ul style="list-style-type: none">■ model the multiplication of two improper fractions or mixed numbers■ solve problems involving the multiplication of improper fractions or mixed numbers■ check that my answers are reasonable using mental mathematics and estimation
5.5	<ul style="list-style-type: none">■ model the division of two fractions or mixed numbers■ solve problems involving the division of fractions or mixed numbers■ check that my answers are reasonable using mental mathematics and estimation
5.6	<ul style="list-style-type: none">■ decide when to add, subtract, multiply, and divide fractions when solving problems■ apply the order of operations to solve problems involving fractions

5.1 Multiplying a Fraction and a Whole Number, pages 132–137

1. Determine each product using manipulatives or diagrams.

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

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

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

2. The average mass of a chum salmon is about 9 kg. The average mass of a pink salmon is about $\frac{2}{5}$ of that. What is the average mass of a pink salmon?



3. The depth of Earth is approximately 6400 km. Of that, $\frac{1}{5}$ is the inner core. What is the approximate depth of the inner core?

5.2 Dividing a Fraction by a Whole Number, pages 138–143

4. Determine each quotient using manipulatives or diagrams.

a) $\frac{3}{4} \div 2$

b) $\frac{2}{3} \div 4$

5. A Polish recipe for making 6 servings of potato salad includes $\frac{1}{2}$ an onion. What fraction of an onion is in each serving?

6. In 1964, a tsunami wave that hit Port Alberni had a wave height of approximately 10 m. This wave was $\frac{1}{4}$ of the height of the tsunami that hit Japan in 2011. What was the approximate height of the wave that hit Japan?

5.3 Multiplying Proper Fractions, pages 144–149

7. Use a diagram to explain why the following expressions have the same value.

i) $\frac{1}{2}$ of $\frac{3}{4}$

ii) $\frac{3}{4}$ of $\frac{1}{2}$

8. Calculate each product. Check to make sure your answer is reasonable.

a) $\frac{3}{5} \times \frac{3}{5}$

b) $\frac{4}{5} \times \frac{5}{12}$

c) $\frac{1}{8} \times \frac{4}{7}$

9. 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?

5.4 Multiplying Improper Fractions and Mixed Numbers, pages 150–155

10. Calculate the following. Check to make sure your answer is reasonable.

a) $\frac{8}{3} \times \frac{6}{5}$

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

c) $4\frac{1}{2} \times 2\frac{1}{9}$

11. The driving distance from Kelowna to Kamloops is approximately 180 km. The driving distance from Kelowna to Prince George is $3\frac{3}{4}$ times the driving distance from Kelowna to Kamloops. What is the driving distance from Kelowna to Prince George?

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

13. You can approximate the value of pi as 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. What would be the approximate diameter of a circle with a circumference of 1 m?

5.5 Dividing Fractions and Mixed Numbers, pages 156–163

14. Chris calculates $\frac{2}{3} \div 3$ and gets an answer of 2.

a) Did Chris calculate the solution correctly? If not, explain where she made the error.

b) If she calculated the solution incorrectly, what is the correct solution?

15. Calculate the following. Check to make sure your answer is reasonable.

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

b) $3\frac{1}{2} \div 2\frac{1}{4}$

c) $9 \div 1\frac{1}{6}$

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

17. 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?

5.6 Order of Operations With Fractions, pages 164–169

18. Calculate the following. Check to make sure your answer is reasonable.

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

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

19. 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 for one guest uses $\frac{1}{4}$ of a package of pasta, does he have enough pasta? Solve the problem in two different ways.

20. The battery on a drone is $\frac{2}{3}$ charged. A survey of the forest canopy for a local university uses up $\frac{1}{4}$ of the charge. How much charge is remaining at the end of the survey?

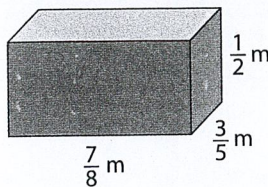


21. A piece of string is cut in half. One half is used to bundle newspapers for recycling. One third of the remaining string is cut off and used to tie a parcel. The leftover string is 2 m long. How long was the whole piece of string?

Connect the Concepts

22. In computer terminology, a bit is $\frac{1}{8}$ of a byte. A kilobyte (KB) is 1024 bytes. Meghan has a computer file that is 43 KB. How many bits is the computer file?
23. Theresa is saving to buy an external hard drive that costs $3\frac{1}{2}$ times what she is paid weekly to mow her neighbour's lawn. If she spends $\frac{3}{4}$ of her allowance on other things, how long will she take to save the money for the hard drive?

24. A rectangular prism has a width of $\frac{3}{5}$ m, a length of $\frac{7}{8}$ m, and a height of $\frac{1}{2}$ m. What are the volume and surface area of the prism?



25. Airports around the world have carousels for luggage. About $\frac{3}{10}$ of the carousels always turn clockwise. About $\frac{9}{20}$ of the carousels always turn counterclockwise. The rest of the carousels may turn either way.
- Of every 100 carousels, how many always turn counterclockwise?
 - Of every 100 carousels, how many may turn either way?
 - How many times the number of carousels that always turns clockwise is the number of carousels that always turn counterclockwise?
 - A random survey identifies 75 carousels that always turn clockwise. How many carousels do you think were included in the survey? Explain.

