Chapter 2 Review

For #1 to #4, use the clues to unscramble the letters.

1. S T I S P O P O E

two numbers represented by points that are the same distance in opposite directions from zero on a number line

2. T A L I N A R O B R U N M E

the quotient of two integers, where the divisor is not zero (2 words)

3. C R E F P E T Q U E S A R

the product of two equal rational factors (2 words)

4. F R E N C E N T O P A Q U E R S

a rational number that cannot be expressed as the product of two equal rational factors (2 words, 1 hyphenated)

2.1 Comparing and Ordering Rational Numbers, pages 46–54

5. Which of the following rational numbers cannot be expressed as an integer?

$\frac{24}{3}$ $\frac{3}{24}$ $\frac{-8}{2}$ $\frac{-10}{-6}$ $-\frac{6}{4}$

$-\left(\frac{-21}{-7}\right)$ $\frac{82}{-12}$ $-\left(\frac{-225}{15}\right)$

6. Replace each ■ with $>$, $<$, or $=$ to make each statement true.

a) $\frac{-9}{6}$ ■ $\frac{3}{-2}$

b) -0.86 ■ -0.84

c) $-\frac{3}{5}$ ■ $-0.\overline{6}$

d) $-1\frac{3}{10}$ ■ $-\left(\frac{-13}{-10}\right)$

e) $-\frac{8}{12}$ ■ $-\frac{11}{15}$

f) $-2\frac{5}{6}$ ■ $-2\frac{7}{8}$

7. Axel, Bree, and Caitlin were comparing $-1\frac{1}{2}$ and $-1\frac{1}{4}$.

a) Axel first wrote the two mixed numbers as improper fractions. Describe the rest of his method.

b) Bree first wrote each mixed number as a decimal. Describe the rest of her method.

c) Caitlin first ignored the integers and wrote $-\frac{1}{2}$ and $-\frac{1}{4}$ with a common denominator. Describe the rest of her method.

d) Which method do you prefer? Explain.

8. Write two fractions in lowest terms between 0 and -1 with 5 as the numerator.

2.2 Problem Solving With Rational Numbers in Decimal Form, pages 55–62

9. Calculate.

a) $-5.68 + 4.73$

b) $-0.85 - (-2.34)$

c) $1.8(-4.5)$

d) $-3.77 \div (-2.9)$

10. Evaluate. Express your answer to the nearest tenth, if necessary.

a) $5.3 \div (-8.4)$

b) $-0.25 \div (-0.031)$

c) $-5.3 + 2.4[7.8 + (-8.3)]$

d) $4.2 - 5.6 \div (-2.8) - 0.9$

11. One evening in Dauphin, Manitoba, the temperature decreased from 2.4 °C to -3.2 °C in 3.5 h. What was the average rate of change in the temperature?

12. Over a four-year period, a company lost an average of \$1.2 million per year. The company's total losses by the end of five years were \$3.5 million. What was the company's profit or loss in the fifth year?

2.3 Problem Solving With Rational Numbers in Fraction Form, pages 63–71

13. Add or subtract.

a) $\frac{2}{3} - \frac{4}{5}$ **b)** $-\frac{3}{8} + \left(-\frac{3}{4}\right)$

c) $-3\frac{3}{5} + 1\frac{7}{10}$ **d)** $2\frac{1}{3} - \left(-2\frac{1}{4}\right)$

14. Multiply or divide.

a) $-\frac{1}{2}\left(-\frac{8}{9}\right)$ **b)** $-\frac{5}{6} \div \frac{7}{8}$

c) $2\frac{3}{4} \times \left(-4\frac{2}{3}\right)$ **d)** $-4\frac{7}{8} \div \left(-2\frac{3}{4}\right)$

15. Without doing any calculations, state how the values of the following two quotients compare. Explain your reasoning.

$96\frac{7}{8} \div 7\frac{3}{4}$ $-96\frac{7}{8} \div \left(-7\frac{3}{4}\right)$

16. How many hours are there in $2\frac{1}{2}$ weeks?

17. The area of Manitoba is about $1\frac{1}{5}$ times the total area of the four Atlantic provinces. The area of Yukon Territory is about $\frac{3}{4}$ the area of Manitoba. Express the area of Yukon Territory as a fraction of the total area of the Atlantic provinces.

2.4 Determining Square Roots of Rational Numbers, pages 72–81

18. Determine whether each rational number is a perfect square. Explain your reasoning.

a) $\frac{64}{121}$ **b)** $\frac{7}{4}$ **c)** 0.49 **d)** 1.6

19. Estimate $\sqrt{220}$ to one decimal place. Describe your method.

20. Determine the number with a square root of 0.15.

21. Determine.

a) $\sqrt{12.96}$

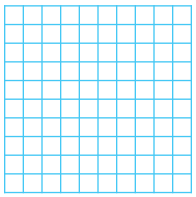
b) $\sqrt{0.05}$, to the nearest thousandth

22. In what situation is each of the following statements true? Provide an example to support each answer.

a) The square root of a number is less than the number.

b) The square root of a number is greater than the number.

23. A hundred grid has an area of 225 cm^2.



a) What is the side length of each small square on the grid? Solve this problem in two ways.

b) What is the length of the diagonal of the whole grid? Express your answer to the nearest tenth of a centimetre.

24. Suppose a 1-L can of paint covers 11 m^2.

a) How many cans of paint would you need to paint a ceiling that is 5.2 m by 5.2 m? Show your work.

b) Determine the maximum dimensions of a square ceiling you could paint with 4 L of paint. Express your answer to the nearest tenth of a metre.

25. Close to the surface of the moon, the time a dropped object takes to reach the surface can be determined using the formula $t = \sqrt{\frac{h}{0.81}}$. The time, t, is in seconds, and the height, h, is in metres. If an object is dropped from a height of 200 m, how long does it take to reach the surface of the moon? Express your answer to the nearest tenth of a second.