

CHAPTER



Rational Number Operations

Lesson 2.1 Adding Integers

Evaluate each sum using a number line.

1. $-7 + 9$

2. $4 + (-7)$

3. $8 + (-8)$

4. $-2 + (-5)$

5. $5 + (-8)$

6. $-10 + 10$

Evaluate each sum using absolute values.

7. $18 + (-39)$

8. $62 + (-18)$

9. $-25 + 14$

10. $-43 + 72$

11. $-19 + (-32)$

12. $-57 + (-21)$

Evaluate each sum.

13. $-7 + 12 + 9$

14. $-88 + 35 + 27$

15. $14 + (-20) + (-6)$

16. $-31 + (-5) + 12$

17. $-45 + (-27) + (-41)$

18. $16 + (-54) + 23$

Name: _____

Date: _____

Solve. Show your work.

19. A submarine was cruising at a depth of 340 feet below sea level. Find the depth of the submarine after it ascends 76 feet.
20. The boiling point of nitrogen gas is -320°F and the boiling point of oxygen gas is 23°F greater than that of nitrogen. What is the boiling point of oxygen gas?
21. Daryl played a game that has four stages. The final score is the sum of the scores at each stage. Daryl scored 50, -85 , -12 , and 93 points at each of the four stages. Find Daryl's final score.
22. Jack bought a stock for \$26 a share. The daily changes in the stock price for the next four days were -5 , -2 , $+1$, and -6 . How much was the stock worth at the end of the four days?
23. The temperature recorded at 6 a.m. was -3°F . Six hours later the temperature had increased by 18°F . Find the temperature at noon.

Name: _____

Date: _____

Lesson 2.2 Subtracting Integers

Evaluate each expression.

1. $9 - 11$

2. $46 - 87$

3. $30 - 40$

4. $28 - (-15)$

5. $-14 - (-12)$

6. $-113 - (-58)$

7. $-5 - 17 - 23$

8. $-3 - (-6) - 10$

9. $-8 - (-12) - 31$

10. $-47 - (-20) - (-67)$

11. $-93 - (-17) - (-53)$

12. $-16 - (-9) - (-16)$

Find the distance between each pair of integers.

13. 8 and 32

14. 15 and 64

15. -27 and 18

16. -9 and 35

17. -24 and -11

18. -35 and -7

Solve. Show your work.

19. At 2:00 A.M., the temperature was -6°C . An hour later, the temperature had decreased by 8°C . What is the new temperature?

20. A diver was swimming at a depth of 28 feet below sea level. He then dove 35 feet further. What is his new depth relative to sea level?

Name: _____

Date: _____

- 21.** In the United States, the largest recorded temperature change over a 24-hour period occurred on January 15, 1972 in Loma, Montana. The temperature increased from -54°F to 49°F . Find the temperature difference.
- 22.** The highest elevation of the continent of North America is at Mt. McKinley, at 20,320 feet above sea level. The lowest elevation is at Death Valley, at 282 feet below sea level. What is the difference in the elevations of these two locations?
- 23.** The highest temperature ever recorded on Earth was 134°F at Death Valley, California in 1913. The lowest temperature ever recorded was -129°F at Vostok Station, Antarctica in 1983. Calculate the difference between these temperatures.
- 24.** The record low temperature in Oklahoma was -31°F . The record low temperature in South Dakota is 27°F lower than -31°F . What is the record low in South Dakota?
- 25.** Steve and Simon participated in a gaming competition. Steve's final score was 480 points. Simon's final score was 570 points less than Steve's final score. What was Simon's final score?

Name: _____

Date: _____

Lesson 2.3 Multiplying and Dividing Integers

Evaluate each product.

1. $7 \cdot (-9)$

2. $12 \cdot (-8)$

3. $-3 \cdot 11$

4. $-5 \cdot 6$

5. $-6 \cdot (-8)$

6. $-7 \cdot (-15)$

7. $-30 \cdot (0)$

8. $0 \cdot (-19)$

9. $4 \cdot (-6) \cdot (10)$

10. $7 \cdot 8 \cdot (-9)$

11. $-11(5)(-4)$

12. $-2(-21)(3)$

13. $6(-14)(-17)$

14. $-4(-28)(-9)$

15. $-3(-12)(-10)$

16. $-8(0)(-27)$

17. $-50(-6)(0)$

18. $-9(-8)(2)(3)$

19. $-5(7)(-4)(-5)$

20. $-10(-3)(-6)(-2)$

Name: _____

Date: _____

Evaluate each quotient.

21. $357 \div (-7)$

22. $560 \div (-16)$

23. $-720 \div 12$

24. $-550 \div 11$

25. $-189 \div (-9)$

26. $-112 \div (-4)$

27. $0 \div (-20)$

28. $0 \div (-5)$

Solve. Show your work.

29. A hot air balloon descended 2,250 feet in 15 minutes. Find the change in altitude per minute.

30. A diver descends at a rate of 2 feet per minute. How far is he below sea level after 40 minutes?

31. Over 3 months, the average change in a company's sales income was \$9 million. Determine the average change in sales income per month.

32. A share of stock decreased \$2 in value each day for 7 days. Find the total change in the stock's value.

Name: _____

Date: _____

Lesson 2.4 Operations with Integers

Evaluate each expression.

1. $-5 \cdot 8 + 12$

2. $20 - 4 \cdot (-6)$

3. $3 \cdot (-9) + (-2) \cdot (7)$

4. $150 \div (-5) + (-38)$

5. $-48 \div 4 \cdot (-5) - 17$

6. $-35 - 490 \div 7 + 12$

7. $82 - (9 - 13) \cdot 9$

8. $-27 - (4 + 4) \cdot 3$

9. $90 \div (-6 - 3) + 45$

10. $(16 + 2)(3) - 5(-5 + 3)$

11. $-30 + 5(3 + 8) - 45$

12. $25 \div [-4 + (-1)] - 9(3)$

13. $36 \div 6 - (-25 + 15)(4)$

14. $-42 + 70 \div (-2 - 3) + 84 \div (4 + 2)$

15. $-200 + 32(-3 + 7) - 45(15 - 20)$

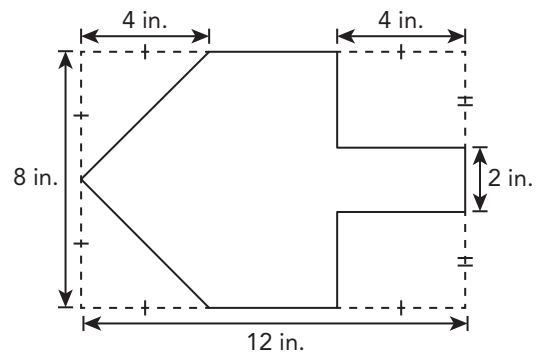
16. $480 \div (6 + 14) - 7(4) + 8(3 + 4)$

Name: _____

Date: _____

Solve. Show your work.

17. Cecilia has an 8-inch by 12-inch sheet of rectangular paper. She cuts out identical 4-inch by 3-inch rectangles from two corners of the paper. She then cuts out identical right triangles from the other two corners of the paper. Using the diagram shown, find the area of the remaining paper.



18. Today, a tank contains 6,600 gallons of water. For the past 3 days, 210 gallons of water was pumped out of the tank each day. What was the volume of water in the tank 3 days ago?

Name: _____

Date: _____

Lesson 2.5 Operations with Rational Numbers

Evaluate each expression. Give your answer in simplest form.

1. $-\frac{8}{3} + \frac{1}{4}$

2. $\frac{4}{15} + \left(-\frac{7}{9}\right)$

3. $-\frac{7}{15} + \frac{4}{5}$

4. $\frac{-5}{8} + \left(-\frac{1}{3}\right)$

5. $\frac{2}{3} - \left(-\frac{5}{9}\right)$

6. $\frac{1}{6} - \left(\frac{-2}{3}\right)$

7. $-\frac{1}{5} - \frac{2}{15}$

8. $\frac{-1}{7} - \frac{3}{14}$

9. $\frac{-3}{4} - \left(-\frac{1}{2}\right)$

10. $-\frac{2}{5} - \left(\frac{-3}{4}\right) - \frac{5}{8}$

11. $\frac{1}{3} - \left(-\frac{2}{5}\right) - \frac{3}{4}$

12. $\frac{-2}{9} - \left(\frac{-1}{3}\right) - \left(\frac{-3}{5}\right)$

13. $-\frac{5}{6} + \left(\frac{-3}{4}\right) + \frac{5}{8}$

14. $\frac{-4}{9} + \left(\frac{-5}{6}\right) + \left(\frac{-1}{3}\right)$

Name: _____

Date: _____

Evaluate each product. Give your answer in simplest form.

15. $-\frac{3}{4} \cdot \frac{5}{12}$

16. $-2\frac{1}{4} \cdot \frac{8}{27}$

17. $-\frac{14}{25} \cdot \left(-1\frac{3}{7}\right)$

18. $1\frac{8}{27} \cdot \left(-2\frac{2}{5}\right)$

19. $-2\frac{2}{3} \cdot \left(-3\frac{3}{4}\right)$

20. $\frac{2}{15} \cdot \left(-1\frac{2}{3}\right)$

Evaluate each quotient. Give your answer in simplest form.

21. $-\frac{1}{4} \div \frac{3}{8}$

22. $\frac{2}{5} \div \left(-\frac{4}{35}\right)$

23. $-\frac{1}{6} \div \left(-\frac{5}{18}\right)$

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

25. $-2\frac{3}{4} \div \left(-1\frac{3}{8}\right)$

26. $\frac{-10}{\left(\frac{5}{13}\right)}$

27. $\frac{\left(\frac{2}{3}\right)}{-16}$

28. $\frac{\left(\frac{7}{8}\right)}{\left(-\frac{3}{4}\right)}$

29. $\frac{\left(-\frac{4}{5}\right)}{\left(-\frac{7}{20}\right)}$

30. $\frac{\left(-2\frac{2}{5}\right)}{\left(1\frac{1}{5}\right)}$

Name: _____

Date: _____

Solve. Show your work.

31. A restaurant used $8\frac{5}{6}$ pounds of rice on Monday and $5\frac{1}{6}$ pounds of rice on Tuesday. How many more pounds of rice was used on Monday than on Tuesday?
32. Janet has $9\frac{2}{3}$ feet of cloth. She needs to cut it into lengths of $\frac{1}{3}$ feet. How many complete lengths can she cut?
33. A recipe calls for $2\frac{1}{2}$ cups of walnuts. Only $\frac{5}{6}$ cup of walnuts are on hand. How many more cups of walnuts does a chef need for the recipe?
34. The sum of two rational numbers is $-8\frac{1}{4}$. If one of the numbers is $-5\frac{2}{3}$, find the other number.
35. Parcel P weighs $4\frac{1}{2}$ pounds, Parcel Q weighs $3\frac{2}{5}$ pounds and Parcel R weighs $6\frac{4}{5}$ pounds. Find the average weight of the three parcels.

Name: _____

Date: _____

Lesson 2.6 Operations with Decimals

Evaluate each sum or difference.

1. $-3.15 + 7.9$

2. $0.072 + (-5.3)$

3. $-41.36 + (-8.2)$

4. $8.22 - (-0.355)$

5. $-17.203 - 0.86$

6. $-29.5 - (-9.34)$

Evaluate each product.

7. $0.4 \cdot (-5.7)$

8. $-2.7 \cdot 3.1$

9. $-4.36 \cdot (-1.8)$

10. $3.04 \cdot (-6.3)$

Evaluate each quotient.

11. $-36.9 \div 4.5$

12. $159.12 \div (-3.4)$

13. $-49.14 \div (-6.3)$

14. $12.376 \div 0.52$

Evaluate each expression.

15. $-0.48 + (-0.1) + (-2.3)$

16. $-3.59 + 16.7 + (-150.06)$

17. $49.03 + (-7.8) - (-21.05)$

18. $601.03 - 467.9 + (-8.12)$

19. $21.4 - 6.2 + 4.2 \cdot 0.3 - 2.6$

20. $(39.3 + 6) \div 3 + 0.8 \cdot 4$

Name: _____

Date: _____

Solve. Show your work.

21. On Sunday, the balance in Christina’s savings account was \$315.12. On Monday, she makes withdrawals of \$78.95 and \$143.80. On Tuesday, she deposits \$63.79. What is her balance after she makes the deposit?
22. The table shows the activity in George’s savings account.

Date	Deposit	Withdrawal	Balance
January 31	–	–	\$148.20
February 5	\$35.65	\$182.30	\$1.55
February 18	\$120.83	\$78.32	?

What is the balance in George’s account on February 18?

23. The highest temperature recorded was 118.4°F in Athens in 1977. The lowest temperature recorded in Ust Shchugor was 191°F lower than that of the highest temperature recorded. What is the lowest temperature recorded?
24. In 2010, a company reported a net income loss of \$23,800,000. In 2011, the company reported a net income gain of \$10,400,000. How much more did the company earn in 2011 than in 2010?
25. Fiona has only \$10 to pay the fees for three art projects. The fees of the projects are \$2.50, \$6.75, and \$2.80. How much more money does she need?
26. In Fairbanks, Alaska, the average temperature in January is -9.7°F . The average temperature in July is 62.4°F . On average, how many degrees colder is Fairbanks in January than in July?

Name: _____

Date: _____

27. A buyer purchased 6 baseball hats for \$76.50. The hats will be sold in his retail store for a profit. If he plans to price each hat to make a 40% profit, what should be the selling price of each hat?

28. What is the discount price of a skateboard that costs \$155.80 if it is on sale for 20% off?

29. The table shows the temperatures for the first 5 days of January in Lansing, Michigan. Find the average temperature for these 5 days.

January	1	2	3	4	5
Temperature (°C)	-5.2	-6.7	-9.1	-10.3	-8.6

30. Wendy has \$50. She wants to buy a book that costs \$26.50 and a bag that costs \$19.50. The sales tax in her state is 6%. Does Wendy have enough money to buy the book and the bag? If so, how much money does she have left? If not, how much more money does she need?

CHAPTER

The logo features a large number '2' inside a circle with radiating lines, followed by the text 'Brain @ Work' in a bold, sans-serif font.

1. If you start with an integer, and subtract -85 , add -57 , subtract 68 , add -77 , add 55 , and subtract -73 , the result is 0 . Find the integer that you start with.

2. For each of the following equations, insert brackets so that the each equation is a true statement.

a) $-20 + 4 \cdot 2 + 7 - 35 = -19$

b) $-15 - 30 \div 10 - 15 = -9$

c) $-(-5) + 4 \cdot 2 - 7 = -45$

d) $9 - 15 \cdot 2 - 4 = 12$

3. A multiplication magic square is a square in which the product of the numbers in each horizontal, vertical, and diagonal line is a constant. Complete the magic square by finding the missing numbers.

-24	36	2
1		144
	4	