

1.1 | SECTION PRACTICE

Name _____ Date _____

Copy and complete the statement using $<$, $>$, or $=$.

1. $|-23|$ $\underline{\quad ? \quad}$ 23 2. $|-142|$ $\underline{\quad ? \quad}$ $|-157|$ 3. $-|-78|$ $\underline{\quad ? \quad}$ 52

4. You and your friend are swimming against the current. You move forward 15 feet. Your friend is not a strong swimmer, so he moves back 6 feet. Write each amount as an integer.

Order the values from least to greatest.

5. 14, $|-25|$, $-|-34|$, 28, $|0|$ 6. $|-16|$, 10, $|25|$, -16, $|-43|$

Simplify the expression.

7. $|-249|$ 8. $-|183|$ 9. $-|-153|$

10. The boiling point of a liquid is the temperature at which the vapor pressure of the liquid equals the environmental pressure surrounding the liquid.

Substance	Hydrogen	Oxygen	Iodine	Phosphorus
Boiling Point ($^{\circ}\text{C}$)	-253	-183	184	280

- a. Which substance in the table has the highest boiling point?
- b. Is the boiling point of oxygen or iodine closer to 0°C ?
11. You are riding on a rollercoaster.
- a. Your velocity is 13 feet per second. Are you moving up or moving down?
- b. What is your speed in part (a)? Give the units.
- c. Your velocity is -17 feet per second. Are you moving up or moving down?
- d. What is your speed in part (c)? Give the units.
12. There is one integer for which there does not exist another integer with the same absolute value. What is that integer?

Determine whether the statement is *true* or *false*. Explain your reasoning.

13. The absolute value of 3 above par is the same as the absolute value of 3 below par.
14. If $x < 0$, then $|x| < x$.

1.2 | SECTION PRACTICE

Name _____ Date _____

Add.

1. $15 + 24$

2. $-13 + (-35)$

3. $29 + (-29)$

4. $31 + (-72)$

5. The elevation of your plot of land is 2 feet below sea level. You add 7 feet of dirt to your land. What is the new elevation of your land?

Tell how the Commutative and Associative Properties of Addition can help you find the sum mentally. Then find the sum.

6. $18 + (-25) + (-18)$

7. $-22 + 45 + (-8)$

8. $28 + (-12) + 4$

Add.

9. $17 + (-33) + (-12)$

10. $(-41) + 25 + 19$

11. $(-43) + (-27) + 43$

12. $71 + 27 + (-42)$

13. $(-63) + 81 + 0$

14. $(-39) + (-21) + (-19)$

15. $52 + (-38) + 23$

16. $101 + (-51) + (-36)$

17. $(-117) + 125 + (-67)$

Use mental math to solve the equation.

18. $n + (-20) = 5$

19. $c + (-71) = 0$

20. $-30 + k = -110$

21. Write three integers that do not all have the same sign that have a sum of -20 . Write three integers that do not all have the same sign that have a sum of 10 .
22. The temperature at 6 A.M. is -12°F . During the next twelve hours, the temperature increases 25°F . During the following 5 hours, the temperature decreases 23°F . What is the temperature at 11 P.M.?
23. Copy and complete the magic square so that each row and column has a magic sum of 0. Use integers from -9 to 9 , without repeating an integer.

9		-3
		2

1.3 | SECTION PRACTICE

Name _____ Date _____

Subtract.

1. $8 - 13$

2. $18 - (-11)$

3. $-14 - 35$

4. $-51 - (-36)$

5. $100 - (-91)$

6. $-82 - 64$

7. $35 - 47$

8. $-36 - (-54)$

9. A dolphin is at -28 feet. It swims up and jumps out of the water to a height of 8 feet. Write a subtraction expression for the vertical distance the dolphin travels.

Evaluate the expression.

10. $15 - 42 - (-36)$

11. $17 - (-22) - 22$

12. $0 - (-41) - 28$

13. $87 - (-34) + 13$

14. $-35 - 27 - (-14)$

15. $-51 - (-23) + (-16)$

16. $-14 - 63 - (-52)$

17. $-28 + 10 - (-121)$

18. $8 - (-103) - (-95)$

Use mental math to solve the equation.

19. $a - 24 = 47$

20. $26 - b = 9$

21. $c - (-15) = 38$

22. $-5 - k = -12$

23. $t - (-14) = -24$

24. $-25 - m = 28$

25. The table shows the record monthly high and low temperatures in International Falls, Minnesota.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High (°F)	48	58	76	93	95	99	98	95	95	88	73	57
Low (°F)	-46	-45	-38	-14	11	23	34	30	20	2	-32	-41

- Find the range of temperatures for each month.
 - What are the all-time high and all-time low temperatures?
 - What is the range of the temperatures in part (b)?
26. For what values of a and b is the statement $|a - b| = |a| - |b|$ false?

1.4 | SECTION PRACTICE

Name _____ Date _____

Multiply.

1. $(-8)(-12)$ 2. $10 \cdot (-14)$ 3. $-21 \cdot 4$ 4. $-15 \cdot (-8)$

5. The water in a pool evaporates at a rate of 16 gallons per week. What integer represents the change in the number of gallons of water in the pool after 24 weeks?

Multiply.

6. $5 \cdot (-11) \cdot (-4)$ 7. $-15(-3)(-6)$ 8. $-9 \cdot 0 \cdot (-3)$

9. $13 \cdot 2 \cdot (-6)$ 10. $-16 \cdot 2 \cdot (-3)$ 11. $-9(-9)(-9)$

Evaluate the expression.

12. $(-12)^2$ 13. -12^2 14. $(-7)^3$

15. $-(-2)^3$ 16. $(-2)^3 \cdot (-3)^2$ 17. $(-11)^2 \cdot 7$

18. $-|-3| \cdot (-6)$ 19. $11(-3) - (-2)(7)$ 20. $-5 \cdot 8 - (-4)^3$

21. The gym offers a discount when more than one member of the family joins. The first member ($n = 0$) pays \$550 per year. The second member to join ($n = 1$) gets a discount of \$75 per year. The third member ($n = 2$) gets an additional \$75 discount. The price for the n th member is given by $550 + (-75n)$.

- What is the price for the fourth member to join ($n = 3$)?
- For a large family, is it possible that a member would join for free? If so, which member would it be? Explain your reasoning.
- Other than \$0, what is the lowest amount that a member would pay to join? Which member would it be? Explain your reasoning.

22. Two integers, a and b , have a product of -48 .

- What is the greatest possible sum of a and b ?
- Is it possible for a and b to have a sum of 13? If so, what are the integers?
- What is the least possible difference of a and b ?

1.5 | SECTION PRACTICE

Name _____ Date _____

Divide, if possible.

1. $51 \div (-3)$

2. $\frac{-63}{21}$

3. $\frac{0}{25}$

4. $\frac{-144}{-9}$

5. $105 \div (-5)$

6. $-82 \div 0$

7. $-96 \div 8$

8. $-15 \div (-15)$

9. $\frac{99}{-9}$

10. $225 \div (-25)$

11. $\frac{-156}{3}$

12. $-48 \div (-3)$

13. Your team catches 42 Mahi Mahi over 2 weeks. What is the average daily Mahi Mahi catch?

Evaluate the expression.

14. $-10 + 16 \div (-2) + 7$

15. $(-68) \div (-4) + 5 \cdot (-3)$

16. $10 - 12^2 \div (-2)^3$

17. $-|-16| \div (-8) \cdot 5^2$

18. $\frac{3 + 7 \cdot (-3^2)}{-5}$

19. PI-Squared and Euler Circles are in a math competition consisting of 10 two-part questions. Both parts correct earns 5 points, one part correct earns 2 points, and no parts correct earns -1 point.

- a. What is the mean points per question for PI-Squared?

- b. What is the mean points per question for Euler Circles?

Team	Both	One	None
PI-Squared	4	2	4
Euler Circles	2	6	2

- c. Which team should win the competition? Explain your reasoning.

20. A 155-pound person burns about 500 calories per hour playing racquetball.

- a. One pound is equal to 3500 calories. How long will it take to burn 1 pound playing racquetball?
- b. How long will it take to burn 5 pounds playing racquetball? Explain your reasoning.
- c. If the person were to rest 5 minutes for every 30 minutes of playing, how long would it take to burn 1 pound?