BASIC INTEGRAL REPRESENTATIONS AND ABSOLUTE VALUE

State the integer that best describes each.

1. 5 yard gain

2. a withdrawal of $40

3. the stock rose 8 points

4. 20 seconds before blastoff

5. a bill for $15

6. a profit of $22

7. 9° below zero

8. 125 feet below sea level

9. a bank deposit of $35

10. sea level

Evaluate.

1. $|-7|$

2. $|15|$

3. $|0|$

4. $-|5|$

5. $-|-3|$

6. $|-7|-|4|$

7. $|-2|+|15|$

8. $|9|-|-4|$

9. $-|-101|$

10. $|-17|-|17|$

11. $|-13|+|-3|$

12. $|8|-|-7|$

ADDING INTEGERS

Add.

1. –6 + 9

2. 5 + (–11)

3. 8 + 9

4. –3 + (–7)

5. –5 + (–9)

6. 4 + (–11)

7. –9 + 20

8. 8 + 3

9. –11 + (–12)

10. –5 + 13

11. 4 + (–12)

12. 9 + 15

13. –7 + (-6)

14. –8 + 14

15. 7 + 9

16. –4 + (-5)

17. 8 + (–2)

18. –6 + 11

19. –2 + (–17)

20. 5 + 14

21. –14 + 18

22. 42 + (–8)

23. –33 + 17

24. 53 + 27

25. –4 + 31

26. –17 + (–25)

27. 51 + (–34)

28. –35 + (–24)

29. 19 + 44

30. –60 + 25

SUBTRACTING INTEGERS

Subtract.

1. $5 - 9$

2. $7 - 13$

3. $-5 - 4$

4. $-7 - 9$

5. $3 - (-7)$

6. $8 - (-4)$

7. $-9 - (-5)$

8. $-5 - (-7)$

9. $9 - (-5)$

10. $17 - 12$

11. $2 - 7$

12. $-9 - 3$

13. $-6 - (-9)$

14. $8 - (-5)$

15. $-3 - 10$

16. $-21 - (-5)$

17. $19 - 32$

18. $25 - 7$

19. $-18 - (-19)$

20. $43 - (-15)$

21. $28 - 41$

22. $-32 - 15$

23. $-11 - (-42)$

24. $-53 - 24$

25. $42 - (-9)$

26. $83 - 105$

27. $-15 - 29$

28. $-5 - (-41)$

29. $18 - 75$

30. $-18 - 75$

MULTIPLYING AND DIVIDING INTEGERS

Compute.

1. -5×7

2. $18 \div (-6)$

3. $14 \times (-2)$

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

5. $\dfrac{-15}{3}$

6. $7(-4)$

7. $-42 \div (-3)$

8. $\dfrac{36}{-12}$

9. $40 \div (-5)$

10. $-9(8)$

11. $(-8)(-3)$

12. $\dfrac{-24}{-3}$

13. $-30 \times (-4)$

14. $-48 \div 16$

15. $15(-4)$

16. $24 \div (-8)$

17. $-90 \div (-5)$

18. $\dfrac{-40}{-20}$

19. -12×-3

20. $(-9)(5)$

21. 14×-7

22. $-5(-12)$

23. $\dfrac{-64}{16}$

24. $\dfrac{64}{-16}$

25. $15 \times (-5)$

26. $(-3)(-12)$

27. $\dfrac{-18}{-9}$

28. $12(-4)$

29. $(-5) \times (-13)$

30. $-65 \div 5$

MIXED INTEGER PRACTICE

Compute.

1. –9 + 13

2. (–7)(–5)

3. 18 – (–6)

4. –3 – (–7)

5. –9 – 18

6. $\dfrac{-30}{-3}$

7. 8(–7)

8. –18 + (–13)

9. –9 x (–5)

10. –19 + 11

11. 6 – (–15)

12. –54 ÷ (–6)

13. | –8 | – (–3)

14. –19 + (–7)

15. $\dfrac{40}{-8}$

16. | –5 | – |–9 |

17. –19 x | –3 |

18. –10 – (–31)

19. 7 + (–11)

20. $\dfrac{72}{-18}$

21. –14 – (–11)

22. –9 + 18

23. 14(–7)

24. –12 + (–9)

25. – 46 ÷ (–2)

26. 8 + (–22)

27. –45 ÷ 9

28. –9 + (–3)

29. –9(–4)

30. –12 – 19

PROPERTIES OF ADDITION / MULTIPLICATION

Name of properties	**Example**
1. Commutative Property of Addition	$a + b = b + a$
2. Commutative Property of Multiplication	$ab = ba$
3. Associative Property of Addition	$(a + b) + c = a + (b + c)$
4. Associative Property of Multiplication	$(ab)c = a(bc)$
5. Distributive Property	$a(b + c) = ab + ac$
6. Identity Property of Addition	$a + 0 = 0 + a = a$
7. Identity Property of Multiplication	$a \cdot 1 = 1 \cdot a = a$
8. Inverse Property of Addition	$a + (-a) = -a + a = 0$
9. Inverse Property of Multiplication	$a \cdot \dfrac{1}{a} = \dfrac{1}{a} \cdot a = 1$

Write the number of the property that describes each of the following.

1. $9 \cdot 5 = 5 \cdot 9$ _____

2. $7 + (4 + 8) = (7 + 4) + 8$ _____

3. $7 + 0 = 7$ _____

4. $5(6 + 4) = 5(6) + 5(4)$ _____

5. $-4 + 4 = 0$ _____

6. $10 \left(\dfrac{1}{10} \right) = 1$ _____

7. $-9 \cdot 1 + \text{-}9$ _____

8. $c + (-c) = 0$ _____

9. $8(6 \cdot 5) = (8 \cdot 6) \cdot 5$ _____

10. $xy = yx$ _____

11. $e + (f + g) = (e + f) + g$ _____

12. $4 + (7 + 2) = 4 + (2 + 7)$ _____

13. $6(x + 3) = 6x + 6 \cdot 3$ _____

14. $0 + 13 = 13$ _____

15. $\tfrac{1}{2} \cdot 2 = 1$ _____

STORY PROBLEMS WITH INTEGERS

Read carefully and solve.

1. When Steve woke up. His temperature was 102º F. Two hours later it was 3º lower. What was his temperature then?

2. An elevator is on the twentieth floor. It goes down 11 floors and then up 5 floors. What floor is the elevator on now?

3. A deep-sea exploring ship is pulling up a diver at the rate of 25 feet per minute. The diver is 200 feet below sea level. How deep was the diver 10 minutes ago?

4. If it is 5º outside and the temperature will drop 17º in the next six hours, how cold will it get?

5. Josie has $47 left on her checking account. If she writes a check for $55, what will Josie's balance be?

6. Joe is playing a game with a regular die. If the number that turns up is even, he will gain 5 times the number that comes up. If it is odd, he will lose 10 times the number that comes up. He tosses a 3. Express the results as an integer.

7. It will be – 12º tonight. The weatherman predicts it will be 25º warmer by noon tomorrow. What will the temperature be by noon tomorrow?

8. The average temperature at the South Pole is – 45º F. The average temperature on the Equator is 92º F. How much warmer is the average temperature on the Equator than at the South Pole?

9. Felix reported that the coldest day on record for his town was five times colder than yesterday's temperature, –4º C. What was the temperature of the coldest day on record in Felix's town?

10. The elevation of Mt. Everest is 29,028 feet. The elevation of the Dead Sea is –485 feet. What is the difference in the elevation between Mt. Everest and the Dead Sea?

11. A scuba diver swam 96 feet beneath the surface of the lake. He then climbs up 49 feet. What is his depth now?

12. The temperature was –3º C last night. It is now –4º C. What was the change in temperature?

13. While watching a football game, Lin Chow decided to list yardage gained as positive integers and yardage lost as negative integers. After these plays, Lin recorded 14, –7, and 9. What was the net gain or loss?

14. Pythagoras was born about 582 BC. Isaac Newton was born in 1643 AD. How many years apart were they born.?

15. Sonny has $75 to spend. The purchase he wants to make requires $93. If he borrows the extra money that he needs, how much does he need to borrow?

16. Two golfers completed one round of golf. The first golfer had a score of +6 and the second golfer had a score of –3. How many more shots did the first golfer take?

17. What is the balance as a result of having a credit of $84 and a debit of $29?

18. The freezing point of water is 32º F. Tim added potassium and found out that the freezing point went down by 8º F. What was the freezing point of the water with the added potassium ?

19. The city's budget is $8,000,000. The city actually spends $12,000,000. What is the city's deficit?

20. The local movie theater reported losses of $475 each day for three days. What was the loss for the three days?

ORDER OF OPERATIONS

Compute.

1. $3 + 4 \cdot 5$

2. $(4^2 + 8) \div 2$

3. $15 \div 5 + 2$

4. $10 + 2 \cdot 3 - 6 \div 3$

5. $6 \cdot 6 \div 2$

6. $(4 + 2) \cdot 3 - (6^2 + 2)$

7. $10 - 7 - 2$

8. $(35 - 4) \cdot 3$

9. $(3 + 4) \cdot 5$

10. $15 + 3 \cdot 2 - (27 - 3^3)$

11. $6 + 4(3 + 2) - 12 \div 4$

12. $4 + 8 \div 2$

13. $3 \cdot 4^2 \div 12 + (8 - 2)$

14. $18 \div 6 \div 3$

15. $10 - (7 - 2)$

16. $17 - 4(12 - 2 \cdot 6) + 3$

17. $17 - (3 + 4 \cdot 2)$

18. $3^2 \times (7 + 1) - 8 \times 2 \div 4$

19. $21 - 7 \times 2 + 4$

20. $6 + 2 \times 4^2 - 3 \div 3$

CUMULATIVE REVIEW

Evaluate.

1. $-5 \times (-7)$

2. $18 + (-32)$

3. $7 - (-15)$

4. $18 \div (-6)$

5. $|-9| + |7|$

6. $-8 - 9$

7. $(-3)(5)$

8. $-|7| - |-3|$

9. $8 - 14$

10. $\dfrac{-45}{-9}$

11. $-17 + (-5)$

12. $(-11)(-9)$

13. $-|-4| - |-8|$

14. $|-19| + |-5|$

15. $-18 \div 3$

16. $(-19) + 15$

17. $|-7| + |-5|$

18. $(15)(-4)$

19. $6 - (-16)$

20. $-44 \div 11$

21. $-9 - (-8)$

22. $19 + (-17)$

23. $(-17)(-9)$

24. $-15 - (-8)$

25. $3^2 + (2^3)(9 - 12)$

26. $40 \div (-3 - 7) + 9$

27. $18 + 5(5 - 9) \div 2$ 28. $10 - 5^2 + (9 - 14)$

29. $(13 - 2) \times (5 - 7) - 6$ 30. $29 - (7^2 - 9) \div 5$

Solve.

31. Aristotle was born in 384 BC. Ron Howard was born in 1952 AD.
     How many years apart were they born?

32. The Bolo Cavern outside of Vandalia is 421 ft below sea level. A little
     more than 75 miles away. Mt. Owens is 7295 feet above sea level.
     What is the difference in elevation between the Bolo Cavern and Mt.
     Owens?

1.) Arrange in ascending order: –2, –12, 3, 0

    A. 0, –2, 3, –12
    B. 0, –12, –2, 3
    C. –12, –2, 0, 3
    D. 3, 0, –2, –12
    E. –2, –12, 0, 3

2.) The absolute value of 64 is the same as which of the following?

    A. – 64
    B. 46
    C. 64
    D. $\sqrt{64}$
    E. $\dfrac{1}{64}$

3. Which property is demonstrated by the equation?
$$\tfrac{1}{2}(0.7 + 4) = (\tfrac{1}{2} \times 0.7) + (\tfrac{1}{2} \times 4)$$

    A. associative
    B. distributive
    C. communicative
    D. multiplicative identity
    E. additive identity

4. Which of the following sentences is NOT true?

    A. $15 + 5 = 5 \times (3 + 1)$
    B. $(8 + 4) \times 2 = 8 + (4 + 2)$
    C. $4 \times (25 \times 7) = (4 \times 25) \times 7$
    D. $7 + (8 - 8) = 7$
    E. $6 + (3 \times 2) = (3 \times 2) + 6$

5. Which sentences illustrates the distributive property?

    A. $xy = yx$

    B. $x(yz) = (xy)z$

    C. $x(y + z) = xy + xz$

    D. $1(xy) = xy$

E. $x + y = y + z$

6. If a and b are integers, which statement is ALWAYS TRUE?

   A. $a - b = b - a$

   B. $a + b = b + a$

   C. $\dfrac{a}{b} = \dfrac{b}{a}$

   D. $a + 2b = b + 2a$

   E. $2a - b = 2b - a$

Depths of Large Body of Water	Bodies of Water Average Depth (m)
Hudson Bay	90
Atlantic Ocean	3,740
Mediterranean Sea	1,500
Pacific Ocean	4,190
Arctic Ocean	1,330
Black Sea	1,190

7. The average depth of the Red Sea is 540 m. Use the table above to determine which bodies of water listed are deeper than the Red Sea.

   A. Hudson Bay

   B. Black Sea

   C. both Pacific and Atlantic Oceans

   D. all except Hudson Bay

   E. none

8. Vivian played a board game in which a player can move forward or backward from the starting line. In the first round Vivian moved forward 8 square, then back 6 squares, then back 4 squares, then back 9 squares and then forward 6 squares. At the end of the round what was Vivian's position relative to the starting line?

   A. 5 behind the line

   B. 9 behind the line

   C. 2 in front of the line

   D. at the starting line

   E. can not tell from the given information

9. In Butte, Montana between noon and midnight the temperature dropped 59º. If the temperature at noon was 5º, what was the midnight temperature?

    A. 54º

    B. –54º

    C. –59º

    D. 64º

    E. –64º

10. Bruns Corporation stock had a change of –5. If its stock closed at 93, what price did the stock open that day?

    A. –5 points

    B. 88 points

    C. 93 points

    D. 98 points

    E. not enough information given.

11. The temperature fell 12 degrees Centigrade over a four-hour period. If the decrease was spread equally over the four hours, how much did the temperature change during each hour?

    A. Decreased 4 degrees

    B. Increased 4 degrees

    C. Decreased 3 degrees.

    D. Increased 3 degrees

    E. Decreased 12 degrees.

12. The high temperature yesterday was –8ºF. Today the high temperature was six degrees higher. What was today's temperature?

    A. 14º F

    B. 2ºF

    C. –2º F

    D. –14º F

    E. 6ºF

13. On Monday the temperature was 31º F. By Thursday it went down to –8º F. How much did the temperature drop?

    A. 20º

    B. 31º

C. 39°

D. 49°

14. Which of the following in NOT an example of the commutative property of addition?

A. $3(x + 3) = 3x + 9$

B. $C + 2 = 2 + C$

C. $x + (-y) = (-y) + x$

D. $3 + 5 = 5 + 3$

E. $3x + rt = rt + 3x$

15. Which answer should you get when you subtract -6 from -8?

A. 2

B. 14

C. -14

D. -2

E. ¾