1. Tony scored n points in the first basketball game of the season. The expression below represents the total number of points that he scored in the first three games of the season.

$$(n) + (2n) + (2n - 3)$$

Which expression is equivalent to the total number of points Tony scored in the first three games?

A $2n$ **C** $4n - 3$
B $12n$ **D** $5n - 3$

2. Which expression is equivalent to $2 + y + y + y + y + y + 3$?

A $5y$ **C** $y^5 + 5$
B $5y + 5$ **D** $2y^5 + 3$

3. Which of the following expressions is equivalent to $\frac{1}{4}(8x + 12)$?

A $2x + 12$ **C** $2x + 3$
B $5x$ **D** $14x$

4. The Erie Canal in the United States is 60 miles longer than 3 times the length of the Suez Canal in Egypt. If the length of the Suez Canal in miles is represented by the variable x, which expression below BEST represents the length of the Erie Canal?

A $60(3x)$ **C** $3x \div 60$
B $3x + 60$ **D** $60 + 3 + x$

5. Which expression is equivalent to $13x - 2(3x + 6)$?

A $7x - 12$ **C** $7x + 12$
B $-5x$ **D** $19x + 12$

6. Which expression is NOT equivalent to $4 \times \frac{3}{8}$?

A $4 \times (3 \times \frac{1}{8})$ **C** $(4 \times \frac{1}{8}) \times 3$

B $(4 \times 3) \times \frac{1}{8}$ **D** $(4 \times 3) \times (4 \times \frac{1}{8})$

7. Linda and James each wrote an expression using the variables a, b, and c.

Linda's expression: $2a + 10b - c$

James's expression: $-3a + 5b + c$

What is the sum of the two expressions?

A $a - 15b$ **C** $5a + 5b - 2c$

B $-a + 15b$ **D** $5a + 15b + 2c$

8. Which of these expressions is equivalent to $6x - 10x + 20$?

A $2(3x + 5)$ **C** $4(5 - x)$

B $4(x - 5)$ **D** $16x$

9. Which expression is equivalent to $5.5x + 1 - (1.5x + 17)$?

A $4x + 18$ **C** $8x - 18$

B $4x - 16$ **D** $8x + 16$

10. Simplify the expression $7 - x - (-5x) - 10 + 4x$.

A $8x - 3$ **C** $9x - 3$

B $8x + 17$ **D** $9x + 17$

11. Which term should be added to $5y + 18y - (-2y) + (-10y)$ for a result of $19y$?

A $-16y$ **C** $4y$

B $-14y$ **D** $8y$

12. Which is equivalent to $8s + 20t$ by the distributive property?

A $4(2s + 5t)$ **C** $8(s + 20t)$

B $4s(2 + 5t)$ **D** $8s(1 + 3t)$

13. Which expression is equivalent to $2 + 3(x - 6)$?

A $5x - 30$ **C** $2 + 3x - 18$

B $5x - 6$ **D** $2 + 3x - 6$

14. Which expression is equivalent to $-\frac{1}{12}(x+24)$?

A $-\frac{1}{12}x - 2$ **C** $-\frac{1}{12}x - 24$

B $-\frac{1}{12}x + 2$ **D** $-\frac{1}{12}x + 24$

15. A boat rental company has two kinds of boats, rowboats and motorboats. The expressions below represent the cost, in dollars, for renting each kind of boat for *x* number of hours.

Cost of a rowboat rental: 8.50*x* + 3

Cost of a motorboat rental: 17.50*x* + 25

Which expression shows how many more dollars it costs to rent a motorboat than a rowboat for *x* hours?

A   8*x* + 22   **C**   9*x* + 28
B   9*x* + 22   **D**   26*x* + 28

16. Carol used the expression below to calculate the amount of money she would earn in one year at her part-time job.

12(100 + 20)

Which expression is equivalent to Carol's expression?

A   (12 + 100)(12 + 20)   **C**   12(100) + 20(100)
B   12 + (100 × 20)   **D**   12(100) + 12(20)

17. Which expression is equivalent to 1 + 2(*x* − 1)?

A   3*x* − 3   **C**   2*x* − 1
B   3*x* − 1   **D**   2*x*

18. Which of these shows $\dfrac{-2(18x-6y)}{-4}$ simplified?

A   9x − 3y   **C**   16x − 8y
B   −9x + 3y   **D**   36x − 12y

19. Which equation is equivalent to $-(6 - x) = 24$?

A $-6 - x = 24$

B $-6 + x = 24$

C $-6 + x = -24$

D $-6 - x = -24$

20. Expand the expression below.

$$6y \left(\frac{2}{3}x + 6k - \frac{1}{2} \right)$$

A $4xy + 6k - \frac{1}{2}$

B $4xy + 36k - 3$

C $4xy + 36k - 3y$

D $4xy + 36k + 3y$

21. Which expression is equivalent to $3(4x + 10 \div 2 + 3)$

A $12x + 2$

B $12x + 6$

C $12x + 8$

D $12x + 24$

22. Which expression is equal to y, if $(x^2 - 1) + y = (2x^2 + 5)$?

A $x^2 + 4$

B $x^2 + 6$

C $3x^2 + 4$

D $3x^2 + 6$

23. Which answer shows the factored form of $-8wx + 2wz - 6w$?

A $-12(w + x + z)$

B $2w(4x - z + 3)$

C $-8w(x + 2z - 6)$

D $-2w(4x - z + 3)$

24. Which expression is equivalent to $(6x + 2) + (3x + 7)$?

A $18x + 14$

B $8x + 10$

C $9(x + 9)$

D $9(x + 1)$

25. If $d_1 = a^2 + 2a + 3$ and $d_2 = 2a^2 + a + 1$, what is the value of $2(d_1 - d_2)$?

A $-2a^2 + 2a + 4$

B $-2a^2 + 6a + 8$

C $-2a^4 + 2a^2 + 4$

D $-2a^4 + 6a^2 + 8$