Unit 3 (Laws of Exponents/Scientific Notation), Unit 4(Algebra & Simplifying Expressions), and Unit 5 (Factoring Expressions)

In 1 – 5 translate each of the following sentences into an expression, equation or inequality.

1. When the quotient of a number and 5 is increased by six, the result is 12.

2. Twice the sum of a number and 10 is 64.

3. When 7 is subtracted from three times a number, the result is less than 29.

4. An amusement park charges a fixed rate of $30 plus $5 per ride, r, to enter.

5. UPS charges $3 to ship a package and an additional $0.50 per ounce.

6. What is the coefficient of 12y?

7. What is the constant of 8x + 3?

8. Find the sum: 3x + 2y and 4x – 5y

9. Simplify: 5x + 6 subtracted from 3x – 2

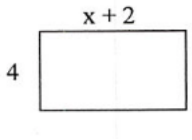
10. Simplify: m + m + m

11. What is a prime number? Give an example.

12. What is a composite number? Give an example.

13. What is relatively prime Give an example.

14. Write a simplified expression to represent the area of the rectangle.



15. Write a simplified expression of the perimeter of the above rectangle.

16. Simplify: -3 + 2(4x – 6) – 8x

17. Simplify: 6(3x – 5) – 2(x – 1)

18. Simplify: 6 – 4(5x – 3) – 2x

19. Simplify: -(2x + 3)

20. Simplify 5x – 1 – (2x – 4)

21. Simplify $-\frac{1}{2}(8x - 5)$

22. Simplify: 0.25x – 0.30 subtracted from 4.7x + 1.2.

23. Which expression below is not equivalent to -3x + 6?

A. (4x + 2) + (-7x + 4) B. -3(x – 2) C. (-4x + 4) – (x – 2) D. -0.5(6x – 12)

Factor each expression using the GCF.

24. $9x + 21$ 25. $32x – 48$ 26. $8x + 2$ 27. $15w + 65$

28. $36a + 16b$ 29. $2.2x + 4.4$ 30. $4h – 3$ 31. $25x^2y + 5xy^3$

32. One side of a square is represented by $2x + 3$ units. Write an expression to represent the perimeter of the square.

33. The perimeter of a square is $24g + 48$ inches. Write an expression for one side of the square.

34. T or F: Eight less than six times a number can be translated to $8 < 6x$.

35. T or F: If *x* represents an integer, the next consecutive integer can be represented as $x + 1$.

36. T or F: If *x* represents an integer, the next consecutive odd integer can be represented as $x + 3$.

Use the laws of exponents to simplify each expression. Where possible, evaluate.

37. $2^3 \times 2^2$ 38. $3^9 \div 3^3$ 39. $10^7 \div 10$ 40. 4^{-2}

41. $k^3 \cdot k \cdot k^4$ 42. $\frac{8^6}{8^3}$ 43. $\frac{x^4 \bullet x^5}{x^2}$ 44. $\frac{4^{-4}}{4^{-6}}$

45. $(-3a^3)(2a^5)$ 46. $(x^3)^4$

47. Write 489,000 in scientific notation.

48. Write 0.035 in scientific notation.

49. Write 5.23×10^4 in standard form.

50. Write 4.16×10^{-3} in standard form.

51. Write 35.7×10^7 in scientific notation.

52. Write 0.05×10^5 in scientific notation.

Find the product or quotient in each example.

49.) $(3.1 \times 10^{-5})(3 \times 10^2)$ 50.) $\frac{2.4 \times 10^{-3}}{2 \times 10^4}$ 51.) $\frac{(6.0 \times 10^{-4})(3 \times 10^{-8})}{(9 \times 10^{-12})}$