Name: _____ Period: _____ Date: _____

Unit 1 - Foundations of Algebra Review Guide

Write an algebraic expression for each verbal expression.

1. The ratio between $\boldsymbol{d}$ and $\boldsymbol{t}$

2. Twelve more than three times square of a number

Find each value.

3. $\boldsymbol{5^3}$

4. $\boldsymbol{11^2}$

Write a verbal expression for each algebraic expression.

5. $\boldsymbol{4x^2 - 3}$

6. $\boldsymbol{2x - 5}$

Evaluate the expression for the given value of the variable.

7. $\boldsymbol{\frac{2^3}{x} + 10 - 16}$ when $\boldsymbol{x = 2}$

8. $\boldsymbol{12 \div x - x^5}$ when $\boldsymbol{x = 2}$

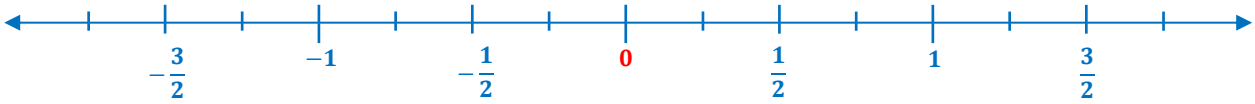
9. $\boldsymbol{\frac{x^5 + 4}{y(x^2 + 12)}}$ when $\boldsymbol{x = 2}$ and $\boldsymbol{y = 3}$

10. $\boldsymbol{\frac{2(17 + 2x)}{y^2 - 11}}$ when $\boldsymbol{x = 4}$ and $\boldsymbol{y = 6}$

Graph each set of numbers.

11. $\{-1.5, -1, 1.5, 3, 5\}$

12. $\left\{-\frac{3}{2}, -\frac{1}{2}, 0, \frac{1}{2}, \frac{3}{2}\right\}$



Name: _____ Period: _____ Date: _____

Unit 1 - Foundations of Algebra Review Guide

Evaluate each expression if $z = -67$.

13. $84 - |65 + z|$
14. $47 - |z - 26|$
15. $|-z| + (z + 33)$

Evaluate each expression if $x = 2$, $y = 3$ and $z = 4$. (Name the property used in each step.)

16. $5(y \cdot 3 - 7) + z \cdot \frac{1}{x}$
17. $\frac{x}{7}[y \div (7 - z)]$
18. $x \cdot \frac{2}{y} + z(2y \div 4 - 5)$

Use a number line to find the sum.

19. $-3 + (-13)$

20. $-4 + 11$

21. $-1 + 8 + (-5)$

Find each sum.

22. $-8.3 + (6.1)$
23. $42.3 + (-5.4)$
24. $-24.2 + 83.9$
25. $7 + 14$

Find each difference

26. $-58 - (-24)$
27. $79.3 - (-14.1)$
28. $4.31 - (-0.84)$
29. $-3 - (-12) + 8$

Find the product.

30. $(4)(-5)$
31. $(-1)(-5)\left(\frac{6}{25}\right)$
32. $(13)(-2)\left(-\frac{6}{7}\right)(21)$

Find the quotient.

33. $(-90) \div \left(-\frac{5}{6}\right)$
34. $\frac{-35}{70}$
35. $(75) \div \left(-\frac{3}{5}\right)$

Name: _____ Period: _____ Date: _____

Unit 1 - Foundations of Algebra Review Guide

Simplify the following expressions:

36. $8 - 3(2x - 5)$

37. $5(3x + 4) - 4$

38. $2(5x + 4) - 3$

39. $7(9) + 7(5)$

40. A total of 2000 people attended a benefit concert was held to raise money for a children foundation. Student ticket cost $2 and an adult ticket cost $3. If the organizer raises a total of $5050, how many students attended the concert?

Tell whether each equation is true, false, or open. Explain.

41. $10x + 4 = 6$

42. $15 - 9 = 28 - 22$

43. $-10 + 3 = -6 + 14$

Use a table to find two consecutive integers between which the solution lies.

44. $4x - 15 = 20$

45. $3x - 26 = 8$

46. $8x + 7 = 86$

Tell whether the given equation has the ordered pair as a solution.

47. $y = x + 11$ $(3, -3)$

48. $x - 3 = 6y$ $(9, 1)$

49. $x - 3y = -2$ $(5, 2)$

Name: _____ Period: _____ Date: _____

Unit 1 - Foundations of Algebra Review Guide

Use a table, an equation, and a graph to represent the relationship.

50. Anna is 5 years younger than her sister Elsa.