

Unit #1 Test Reveiw: Building Blocks of Algebra: Pre-Algebra and Algebraic Foundations
(Reference: Lesson #1, #2, #3, #4, #5, #6, #7, #9, #10,#11, #12,#15, #16,#17 & #18 in book)

Problem

- For each of the following problems, show all or your work, and use the provided problem set sheet for all of your answers.

Section #1: Pre-Algebra Section

- What is 18% of 550.

2. $3\frac{1}{2} + 4\frac{1}{5}$

3. $2\frac{1}{3} - \frac{7}{12}$

4. $2\frac{2}{3} \times 4\frac{1}{2}$

5. $1\frac{3}{4} \div 3\frac{2}{3}$

- List all of the Factors of 144.

- Find the GCF of 144 and 84.

- Find the LCM of 12 and 10.

9. SECTION #2: CLASSIFYING REAL NUMBERS AND REAL NUMBER SUBSETS

For each of the following, identify all of the subsets of real numbers to which it belongs.

9. -38

10. $\frac{3}{8}$

11. π

12. 65

13. 0

14. **Identify the set of numbers that best describes each situation (choose only one set). Explain in words your choice.**

14. The number of coke cans in my refrigerator.

15. Temperature on a digital thermometer that displays temperatures to the tenths digit.

16. The volume of air in a spherical hot air balloon.

17. The amount of money in a bank.

18. **For the following questions find both the Intersection ($A \cap B$) and the Union ($A \cup B$) of the sets.**

18. $A = \{11, 13, 15, 19, 21, 34\}$

$B = \{2, 5, 7, 9, 11, 13, 33\}$

19. $A = \{2, 4, 6, 8, 10, 12, 14\}$

$B = \{1, 3, 5, 7, 9, 11, 13\}$

20. **Determine whether each statement is true or false. Provide a counterexample for false statements.**

20. The set of whole numbers is closed under division.

21. The set of natural numbers is closed under multiplication.

22. **Identify the factors, coefficients, variables, and constants in each of the following expressions.**

22. $23rst - 7gh + 13$

Factors:

Coefficients:

Variables:

Constants:

of Terms:

23. $dc + 32jfp - 7$

Factors:

Coefficients:

Variables:

Constants:

of Terms:

24. $\frac{3vw}{4} + 6xy - 3z + 3$

Factors:
 Coefficients:
 Variables:
 Constants:
 # of Terms:

25. Simplify/Evaluate each of the following Numerical or Variable Expressions.

25. $[(10 - 8)^2 - (-1)] + (5 - 3)$

26. $(3 + 12) - (1 - 41 - 2)^3 + 1$

27. $12 + [5(7 - 5)^3 - 14]$

28. $-4 + [6 - (-2 + 4)^2]$

29. $9 - |4 - 6|$

30. $\frac{x(4ap)}{xp}$

Where $x = -3, a = 1, p = 5$

31. $x(x + 2y) - x$

Where $x = \frac{1}{2}, y = \frac{1}{4}$

32. $\frac{x^2 - x|y|}{x^3}$

Where $x = -4, y = -2$

33. $-x[-x(y - x)]$

Where $x = 3, y = 4$

34. $\sqrt{216}$

35. $\sqrt{147}$

36. $\frac{1}{2}x^4 \cdot y^3 \cdot 4z^2 \cdot 8y^8 \cdot x^9$

37. $(3xy^3z^5)^3$

38. $\left(\frac{2x^2yz^5}{3m^9n^6}\right)^3$

39. $2xy + 4x^2z + 3xy + 5x^2z$

40. $x^2y - 3yx + 2yx^2 - 2xy + yx$

41. $-3x^4yz^3 + 6x^5y^2 + 5y^2z^2 - 4y^2x^5 + 7z^3x^4y - 2yz$

42. $2by(5ax - dz + 8) - 7abxy - 20yb$

43. $3x^2(3y^3z - 2n^2z + 4y) - 4z(2y^3x^2 - 4x^2n^2)$

44. **For each of the following identify what property of real numbers these equations belong too.**

44. $(4 + 5) \cdot (xy) = (xy) \cdot (4 + 5)$

45. $(2 + x) + 6 = 2 + (x + 6)$

46. $xy(cd + mn) = xycd + xymn$

47. **For each of the following, translate the words into an Algebraic Expression and the Algebraic Expressions into words.**

47. Three more than the quotient of Z and 24

48. 18 less than 6 times some number

49. $b + 12$

50. $10 - \frac{1}{2}x$