

**Unit #1 Practice Test: Properties of the Real Number System and Solving and Classifying Systems of Equations and Applications****Problem**

1. For each of the following determine the properties of real numbers that are being used.

1.  $(4+5) \cdot (xy) = (xy) \cdot (4+5)$

2.  $(-xyz + abc) + 123 = -xyz + (abc + 123)$

3. Simplify each of the following equations using the properties of real numbers and the concept of collecting like terms.

3.  $9x^3yz^4 - 3xy^3z^2 + 6xyz + 2x^2y^2z^2 - 2xyz - 9yz^4x^3 + 4z^2xy^3 - x^3y^3z^3$

4.  $3x^3y(3m^5z - 2rs + 4) - 4y(2x^3 - 4rx^3s + 2m^5zx^3)$

5. For each of the following systems of equations, please solve the system by graphing method and express the solution as a coordinate point.(SHOW ALL OF YOUR WORK.)

5.  $2x + y = 5$

$3x - 2y = 4$

6.  $-15x + 3y = 12$

$4x + 2y = -6$

7. For each of the following systems of equations, please solve the system by Substitution Method and express the solution as a coordinate point.(SHOW ALL OF YOUR WORK.)

7.  $-3x + y = -4$

$-9x + 3y = -12$

8.  $3x - 5y = -9$

$8x + 2y = -24$

9. For each of the following systems of equations, please solve the system of equations by the method of your choice (GRAPHING, SUBSTITUTION or ELIMINATION) and express the solution as a coordinate point (SHOW ALL OF YOUR WORK.)

$$\begin{aligned} 9. \quad &4x - 2y = 12 \\ &-10x + 5y = -20 \end{aligned}$$

$$\begin{aligned} 10. \quad &2x + 6y = 12 \\ &4x - 12y = 24 \end{aligned}$$

$$\begin{aligned} 11. \quad &15x + 5y = 20 \\ &-6x - 2y = -8 \end{aligned}$$

$$\begin{aligned} 12. \quad &18x + 6y = 54 \\ &2x + 4y = 16 \end{aligned}$$

13. For each of the following please classify whether the systems of equations are Consistent and Independent, Consistent and Dependent, or Inconsistent and whether each system has One Solution, No Solutions, or an Infinite number of Solutions. State your answer; if your answer is Consistent and Independent and has One solution, please solve and give me the one solution.

$$\begin{aligned} 13. \quad &-4x + 2y = -12 \\ &6x - 3y = 12 \end{aligned}$$

$$\begin{aligned} 14. \quad &3x - 12y = 24 \\ &4x - 16y = 32 \end{aligned}$$

$$\begin{aligned} 15. \quad &8x - 4y = 16 \\ &-12x - 3y = -6 \end{aligned}$$

16. For each of the following application word problems, please create two equations from the given information and then solve the system of equations using the method of your choice. (SHOW ALL OF YOUR WORK.)

16. A school play charged adults \$24 and students \$15 for tickets. There were 75 people who attended the play. The box office collected \$1,332. How many adults and how many students attended the play?

17. The senior classes at High School A and High School B planned separate trips to New York City. The senior class at High School A rented and filled 2 van and 12 buses with 744 students. High School B rented and filled 8 vans and 24 buses with 1,560 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

Name: \_\_\_\_\_

ID: A

18. Ilida went to Minewaska State Park one day this summer. All of the people at the park were either hiking or bike riding. There were 178 more hikers than bike riders. If there were a total of 676 people at the park, how many were hiking and how many were riding their bikes?