

Name: _____ / 20

No aids (calculator, notes, text, etc.) are permitted. Show all work for full credit and box your final answer.

1. [3 points] Complete the following **special binomials** formulas:

a. $A^2 - B^2 =$

b. $A^3 - B^3 =$

c. $A^3 + B^3 =$

2. [2 points] Complete the following **perfect square trinomials** formulas:

a. $(A + B)^2 =$

b. $(A - B)^2 =$

3. [2 points] Simplify the following rational expression, and indicate values of the variable that must be excluded:

$$\frac{18y^2 - 24y + 8}{9y^2 - 4} =$$

4. [2 points] Add the following rational expressions:

$$\frac{x^2 + 2x - 35}{x - 5} + \frac{x - 4}{x + 3} =$$

5. [2 points] Simplify the complex rational expression:

$$\frac{1 + xy}{x^{-2} - y^2} =$$

6. [3 points] Simplify the following complex expressions:

a. $\frac{2+3i}{-5+3i} =$

b. $-i^9\sqrt{-25} =$

7. [2 points] Solve the following linear equation

$$6(5w - 5) = -31(3 - w)$$

8. [2 points] Solve the following absolute value equation

$$|4x + 15| = 3$$

9. [2 points] Solve the following equation for the indicated variable:

Ideal Gas Law: $PV = nRT$, solve for T .