

**Assignment: Simplify Using Greatest Common Factor (GCF)**

For each rational expression, identify the greatest common factor (GCF), write the expression in factored form, and simplify. Show all work leading to your answer.

1.  $\frac{27a^4}{3a^3}$

2.  $\frac{15m^5n}{25m^2n^6}$

3.  $\frac{x^4 + x^6}{x^3}$

4.  $\frac{a^5}{a^9 - a^4}$

5.  $\frac{3b^2 + b}{5b^4}$

6.  $\frac{9x^2y^3 + x^2y^2}{2x^3y^4}$

7. 
$$\frac{21y^3}{7y^4 - 14y^2}$$

8. 
$$\frac{6x^4 + 12x^3 - 3x^2}{9x^2}$$

9. 
$$\frac{2p^5q - 10pq^3}{4p^3q^4 + 12p^5q^3}$$

10. Imagine you are trying to help another Algebra 1 student learn how to simplify rational expressions using the GCF. To help the student, write your own example of a rational expression and demonstrate how to simplify the expression using the GCF.
- Write a rational expression with a GCF that has both a numeric part and a variable part.
  - Identify the GCF and show how you can simplify your rational expression using the GCF.
  - To help the student remember the procedure, write 2-3 sentences describing how you simplified your rational expression using the GCF.