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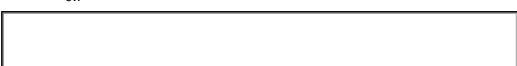
1. $\dfrac{27a^4}{3a^3}$

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

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

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

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

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

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

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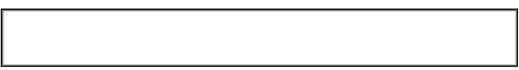

9. $\dfrac{2p^5q - 10pq^3}{4p^3q^4 + 12p^5q^3}$

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.

    a. Write a rational expression with a GCF that has both a numeric part and a variable part.

    b. Identify the GCF and show how you can simplify your rational expression using the GCF.

    c. To help the student remember the procedure, write 2-3 sentences describing how you simplified your rational expression using the GCF.