Algebra II, 6.1-7.2

1. Write with a single exponent

   a) $\dfrac{3^4}{q^4}$

   b) $(a+b)^3(a+b)^4$

2. Rewrite each expression by rationalizing the denominator

   a) $\dfrac{r-4}{\sqrt{r-3}-1}$

   b) $\dfrac{\sqrt{3}}{3\sqrt{2}+\sqrt{3}}$

3. If possible, write the expression as a constant times a power of a variable, and identify the coefficient and exponent:

   a) $\dfrac{3}{\sqrt[3]{z}}$

   b) $\sqrt{\sqrt{16x^5}}$

   c) $\sqrt[4]{625+625x}$

   d) $\left(\dfrac{2}{3\sqrt{x}}\right)^3$

4. Newton's law of universal gravitation states that two objects are attracted with a force, F, which is directly proportional to the product of their masses, m_1 and m_2, and inversely proportional to the square of the distance between their centers, r. Write a possible formula for the gravitational force between two objects in terms of the mass and distance (use what you know of power functions to help).