BECA / Huson / Algebra 2: Polynomials Jan 2023 Regents Name:
5 May 2025

Regents problems: Exponents

1. Given $x > 0$, the expression $\dfrac{x^{\frac{1}{5}}}{x^{\frac{1}{2}}}$ can be rewritten as
   (a) $\sqrt[3]{x}$
   (b) $-\sqrt[10]{x^3}$
   (c) $\dfrac{1}{\sqrt[10]{x^3}}$
   (d) $\sqrt[3]{x^{10}}$

2. Given $x > 0$, the expression $\dfrac{1}{\sqrt[3]{x^2} - 1}$ can be rewritten as
   (a) $\dfrac{1}{\sqrt[3]{x} - 1}$
   (b) $\dfrac{1}{\sqrt[3]{x} + 1}$
   (c) $\dfrac{1}{\sqrt{x} - 1}$
   (d) $\dfrac{1}{\sqrt{x} + 1}$

3. Given $a > 0$, solve the equation $a^{x+1} = \sqrt[3]{a^2}$ for x algebraically.

4. Solve the equation $\sqrt{49 - 10x} + 5 = 2x$ algebraically.