

Put in standard form then classify by degree and number of terms.

1. $(x^3 + 3x^2 + x + 2)(3x - 1)$

standard form $\underline{3x^4 + 8x^3 + 5x - 2}$

degree(words) $\underline{\text{quartic}}$

number of terms(words) $\underline{\text{polynomial of four terms}}$

Find the zeroes. State the multiplicity.

2. $y = 3x^4 - 3x^2$ $x = 0$ (multiplicity of 2) or $x = -1$ or $x = 1$

Simplify.

3. $\frac{\sqrt[3]{7}}{\sqrt[3]{4}} \cdot \frac{\sqrt[3]{14}}{2}$ 4. $\frac{\sqrt{32} + \sqrt{24} - 8\sqrt{2} - \sqrt{54}}{-4\sqrt{2} - \sqrt{6}}$

$$\frac{\sqrt[3]{7} \cdot \sqrt[3]{2}}{\sqrt[3]{2^2} \cdot \sqrt[3]{2}} = \frac{\sqrt[3]{14}}{\sqrt[3]{2^3}} = \frac{\sqrt[3]{14}}{2}$$

5. $\frac{\sqrt[3]{32} + \sqrt[3]{108}}{5\sqrt[3]{4}}$

$$\frac{\sqrt[3]{8} \cdot \sqrt[3]{4} + \sqrt[3]{27} \cdot \sqrt[3]{4}}{5\sqrt[3]{4}}$$

$$\frac{2\sqrt[3]{4} + 3\sqrt[3]{4}}{5\sqrt[3]{4}}$$