

Name : _____ ID. # : _____ SER. # : _____

1. (a) Find the product and then simplify: $(\sqrt[3]{x^2} + \sqrt[3]{x})(\sqrt[3]{x^2} - \sqrt[3]{x})$ (3 pts)

(b) Rationalize the denominator and simplify: $\frac{3}{\sqrt{2}} - \frac{5}{\sqrt[3]{4}}$ (3 pts)

2. (a) Give an example of a binomial of degree 5 and with leading coefficient -3 and constant term 2 . (2 pts)

(b) Perform the indicated operations and simplify: $(3x - 5y^2)^3 - (x - 2y)^3$ (3.5 pts)

3. Factor as completely as possible:

(a) $6x^4 + 4x^2y^2 - 10y^4$

(3 pts)

(b) $x^3 - a^3 + x^2 - a^2$

(3.5 pts)