Algebra 2B
Ch 6.4 + 6.7 Quest
Review Problems

Name: _____
Date/Pd: _____

Factor the polynomial.

① $8x^3 - 27$

$(2x-3)(4x^2+6x+9)$

② $x^4 - x^3 + 2x - 2$

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

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

③ $4x^5 - x^3$

$x^3(4x^2-1)$

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

④ $x^3 + x - 9x - 9$

$x(x^2+1) - 9(x-1)$

Solve the polynomial:

⑤ $x^3 + 8 = 0$

$(x+2)(x^2+2x+4) = 0$

$x+2=0$ $\quad x = \frac{-2 \pm \sqrt{4-4(1)(4)}}{2(1)}$

$x=-2$ $\quad = \frac{-2 \pm \sqrt{-12}}{2}$

$= \frac{-2 \pm 2i\sqrt{3}}{2}$

$\boxed{\{-2, -1 \pm i\sqrt{3}\}}$ $\quad = \boxed{-1 \pm i\sqrt{3}}$

⑥ $(5x^2 - x) + (20x - 4) = 0$

$x(5x-1) + 4(5x-1) = 0$

$(x+4)(5x-1) = 0$

$x+4=0$ $\quad 5x-1=0$

$x=-4$ $\quad x = \frac{1}{5}$

$\boxed{\{-4, \frac{1}{5}\}}$

5) How many solutions will $f(x) = x^5 - 7x^4 + x^2 - 21$ have?

5 (degree of 5)

8) Find the real zeros using your graphing calculator for: $f(x) = x^3 - 5x^2 + 14$.

$(-1.47, 0)$ $(2.26, 0)$ $(4.21, 0)$