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**Quiz 1 [25 pts]. June 5, 2007**

**Math 0115 Sec 0101 Summer 2007**

[5] 1. Classify the following numbers as: natural ( $\mathbb{N}$ ), integer ( $\mathbb{Z}$ ), rational ( $\mathbb{Q}$ ), and/or real ( $\mathbb{R}$ ) [use all terms that apply]:

$$\sqrt{7} :$$

$$.112\bar{7} :$$

$$-2 :$$

$$.32232223222232222 \dots :$$

$$\frac{8}{4} :$$

$$\frac{4}{8} :$$

[5] 2. Simplify:  $(x^2 - 2xy + y^2) \cdot (x - y)^{-4}$

[5] 3. Factor the following:

$$2x^4 - 2x^3 + x - 1 =$$

$$5x^2 - 14x - 3 =$$

[5] 4. Find all solutions to the equation:  $x^6 + 17x^3 + 60 = -4 + x^3$

[5] 5. Find all solutions to the equation:  $\sqrt{\sqrt{x+4}+1} = 3$