Math 151 - Quiz 6

October 7, 2015

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) Solve: $x^3 - x^2 = 72x$

$x^3 - x^2 - 72x = 0$

$x(x^2 - x - 72) = 0$

$x(x-9)(x+8) = 0$

$x = 0, \; x = 9, \; x = -8$

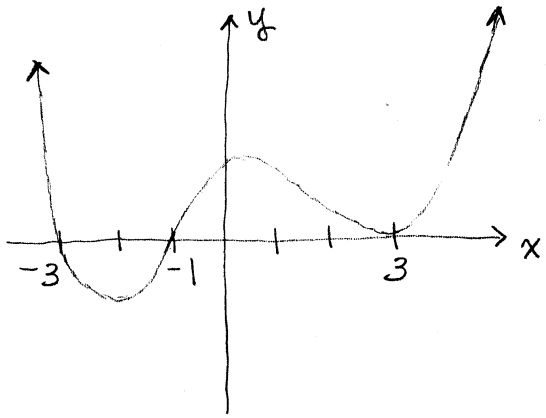
2. (3 points) Draw a rough sketch of the graph of $g(x) = (x-3)^2(x+1)(x+3)$. Be sure that your graph correctly illustrates the x-intercepts and the end behavior.

ZEROS: $x = 3$ MULT 2 (BOUNCE)

$x = -1$ MULT 1 (CROSS)

$x = -3$ MULT 1 (CROSS)

END BEHAVIOR: x^4



3. (3 points) Use long division or synthetic division to determine the quotient and remainder when $p(x) = (2x^3 - 5x^2 - 9)$ is divided by $(x-5)$.

5	2	-5	0	-9
		10	25	125
	2	5	25	116

$2x^2 + 5x + 25 + \frac{116}{x-5}$

4. (1 point) Refer back to problem #3. Use your result to determine $p(5)$.

$p(5) = 116$