NAME: Solution

MAC 1147 Section 3079
Quiz Three

Please show all of your work in a NEAT and ORGANIZED fashion.

1. (3 points) Identify the x- and y-intercepts of the graph of the following equation:

$$x = y^2 - 1$$

x-intercept: $x = 0^2 - 1 = -1 \rightarrow (-1, 0)$

y-intercepts: $y^2 - 1 = 0$

$(y+1)(y-1) = 0$

$y = -1, 1 \rightarrow (0, -1), (0, 1)$

2. (3 points) Write an equation of the line that passes through $(4, -2)$ and is parallel to the line $y = 3x - 1$:

The slope of the line is 3 (equal to the slope of the given line)

$y = 3x + b$, passing through $(4, -2)$

$-2 = 3(4) + b$

$-2 = 12 + b$

$-14 = b \longrightarrow y = 3x - 14$

3. (a) (1 point) Determine the domain of the following function:

$$f(x) = x^{3/2} - 2x$$

$$= \sqrt{x^3} - 2x$$

The domain of f is all real numbers x such that $x \geq 0$,

(b) (2 points) Evaluate the following difference quotient and simplify:

$$\frac{f(x) - f(4)}{x - 4}, x \neq 4$$

$$\frac{x^{3/2} - 2x - (4^{3/2} - 2(4))}{x-4} =$$

$$\frac{x^{3/2} - 2x - (8-8)}{x-4} =$$

$$\frac{x^{3/2} - 2x}{x-4}, \quad x \neq 4$$