1549

Quiz #4 Math 1060 September 25, 2013

Name: Key Section: _____

You have 12 minutes to complete the quiz. Please **show all work**, and then **write your answer on the line provided.**

1. (5 points) Completing the Square to get quadratic in the form $y = a(x-h)^2 + k$, and use this to sketch the graph of the function.

$$y = 2x^2 + 4x + 4$$

$= 2(x^2 + 2x + 2)$ 1 factor 2

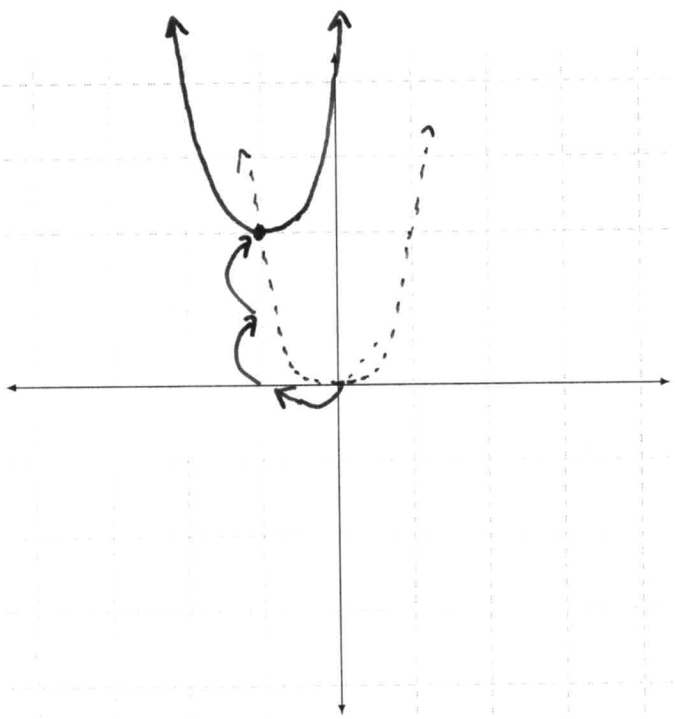
$= 2((x^2 + 2x + \underline{1}) - \underline{1} + 2)$ 1 create blank

$= 2((x+1)(x+1) - \underline{1} + 2)$ 1 fill blank

$= 2((x+1)^2 + 1)$

$y = 2(x+1)^2 + 2$ ← 1 correct answer.

Equation: _____



1 pt

Name: _____ Section: _____

2. (3 points) Let $f(x) = \frac{1}{x}$ and let $g(x) = \sqrt{x+1}$. **Remember to show all work!**

(a) Find $f \cdot g$. $(f \cdot g)(x) =$ _____

$$(f \cdot g)(x) = f(x) \cdot g(x) = \frac{1}{x} \cdot \sqrt{x+1} = \frac{\sqrt{x+1}}{x}$$

(b) Find the domains of $f$ and $g$.

$f$ is defined when $x \neq 0$

$g$ is defined when $x + 1 \geq 0 \iff x \geq -1$

(c) Find the domain of $(f \cdot g)$, graph it on a number line, and write it in interval notation.

$(f \cdot g)(x)$ is defined $\iff$ BOTH $f(x)$ AND $g(x)$ are defined

$\iff$ BOTH $x \neq 0$ AND $x \geq -1$


Interval notation: $[-1, 0) \cup (0, \infty)$

3. (2 points) Sketch the graph of $f(x) = |x+2|$ and of $g(x) = -\sqrt{x-1}$