

Math 32 Quiz 3
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Name: _____

1. Let $f(x) = -x^2 + 8x - 11$.

(a) Graph f .

(b) Does f have a minimum, a maximum, both, or neither?

(c) If f has a minimum or maximum, find the x and y coordinates of that min or max.

Completing the square, we get

$$f(x) = -(x^2 - 8x + 11) = -(x^2 - 8x + 16 - 16 + 11) = -((x - 4)^2 - 5) = -(x - 4)^2 + 5$$

f has a maximum value, which is $y = 5$ and is attained at $x = 4$.
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2. Find the equation of the line that contains the points (2,-1) and (4,9).

The slope is

$$m = \frac{9 - (-1)}{4 - 2} = 5$$

$$y - (-1) = 5(x - 2) \text{ or } y = 5x - 11$$

3. Write 27^{4000} as a power of 3.

$$3^{12,000}$$

4. Simplify the following expression by writing it as a power of a single variable:

$$t^4(t^3(t^{-2})^5)^4$$

$$t^{-24}$$

5. True or False?

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

$$\text{False}$$