

Name: _____
Date: _____
Class: _____

Algebra
Unit 10
HW 10-7

1) Place the following function into vertex form: $f(x) = x^2 - 24x + 146$

2) Place the following two functions into vertex mode and describe the transformation $f(x)$ would have to go through to become $g(x)$.

$$f(x) = x^2 + 4x + 14 \quad \text{and} \quad g(x) = x^2 - 12x + 40$$

3)

A cable is attached at the same height from two poles and hangs between them such that its height above the ground, y , in inches, can be modeled using the equation:

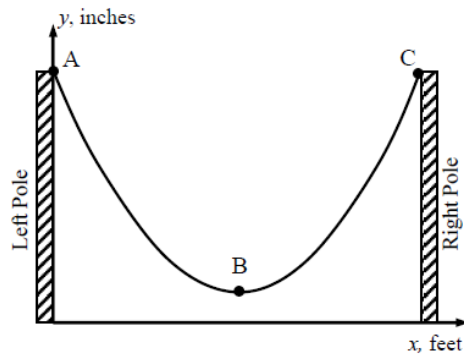
$$y = x^2 - 16x + 67$$

where x represents the horizontal distance from the left pole, in feet.

(a) What height is point A above the ground? Show your work and use proper units.

(b) Write the equation in vertex form.

(c) What is the difference in the heights of points A and B? Show your analysis and include units.



(d) What is the horizontal distance that separates points A and C? Explain your reasoning.

4) Compare the vertex for both equations: $y = 2(x-2)^2 - 36$ and $y = 2x^2 - 8x - 28$.

5) Place the following function into vertex form: $f(x) = 2x^2 + 12x + 5$

6) Place the following function into vertex form and describe the shifts that $f(x) = x^2$ would have to go through to become $g(x)$: $g(x) = 2x^2 + 28x - 686$

7) Solve: $-19x^2 + 14 - 23x = 19 - 25x^2 - 32x$