Quiz 5A

Name:

UAlbany Email: Answer Key

Closed book/notes. No calculators allowed.

Consider the quadratic function $Q(x) = -3x^2 + x - 9$.

1. (6 Points) Rewrite the quadratic function in the form $Q(x) = a(x-h)^2 + k$.

$Q(x) = -3x^2 + x - 9$

$a = -3, b = 1, c = -9$

$h = \frac{-b}{2a} = \frac{-1}{2(-3)} = \frac{-1}{-6} = \frac{1}{6}$

$k = Q(h) = Q(\frac{1}{6}) = -3(\frac{1}{6})^2 + \frac{1}{6} - 9$

$= -3(\frac{1}{36}) + \frac{1}{6} - \frac{54}{6}$

$= -\frac{1}{12} - \frac{53}{6} = -\frac{1}{12} - \frac{106}{12} = -\frac{107}{12}$

$\boxed{Q(x) = -3(x - \frac{1}{6})^2 - \frac{107}{12}}$

2. (4 Points) Find the maximum value of $Q(x)$.

a is negative so the vertex (h,k) is the maximum point

so $k = \boxed{-\frac{107}{12} \text{ is the maximum value}}$

Grade: /10