Meramec Math 160C Quiz 9 Solution Fall 2013

NAME: _____Score_____/10

Please **print** your name **USE FUNCTION NOTATION !** **Use function notation.**

1. The discriminant of a quadratic function $f(x) = ax^2 + bx + c = 0$ is **$b^2 - 4ac$**.

2. The graph of a function is the set of all points of the form **(a, f(a))**
   where a is an element of the domain and f(a) is the corresponding range element.

3. A point is on the x-axis if and only if its **second** coordinate is zero.

4 – 10)

Problem:

Determine the rule for the linear function f whose graph has slope 5 and passes through the point (– 4, – 3). Do not use the point-slope formula.

Process:

Because the function is **linear**, its rule has the form f(x) = mx + b.

The slope of the graph is 5, so the rule has the form **f(x) = 5x + b** (*)

Because the point (– 4, – 3) is on the **graph** of the function, f(– 4) = – 3.

However, from equation (*) we obtain f(– 4) = 5(– 4) + b = – 20 + b.

We have two expressions for the **same** quantity. From The **Transitive Property** we conclude they must be equal.

Therefore – 20 + b = – 3 from which it follows that b = 17.

Use equation (*) and b = 17 to conclude

The rule for the function f is **f(x) = 5x + 17**.