

NAME: \_\_\_\_\_ Score \_\_\_\_\_/10

Please **print** your name

You must show your work in order to receive credit.

1. (3 pts) Show that  $\sqrt{2}$  is a zero of the function whose rule is  $f(x) = x^2 - 3x + 3\sqrt{2} - 2$ .

$$f(\sqrt{2}) = (\sqrt{2})^2 - 3\sqrt{2} + 3\sqrt{2} - 2 = 2 - 3\sqrt{2} + 3\sqrt{2} - 2 = 0$$

2. (3 pts) Find the inverse of the function whose rule is  $f(x) = 5x - 3$ .

$$y = 5x - 3$$

$$x = 5y - 3$$

$$x + 3 = 5y$$

$$y = \frac{x + 3}{5}$$

$$f^{-1}(x) = \frac{x}{5} + \frac{3}{5}$$

3. (3 pts) Consider the function whose rule is  $f(x) = x^2 + x + 2$ . What is the second coordinate of the point which is on the graph of  $f$  and whose first coordinate is 3.

$$\text{The second coordinate is } f(3) = 3^2 + 3 + 2 = 14$$

4. (1 pt) If  $f$  and  $g$  are functions and are inverses of each other, then

$$f \circ g(2) = 2$$