

Name _____ Group _____

/20

Functions: Properties, Parameters, Inverse, Operations, and Composites

Each question is worth 2 points

1) Given:

$$f(x) = x^2 + 4$$

$$g(x) = 3x - 1$$

$$h(x) = f(g(x))$$

Determine the rule for $h(x)$.

2) Given:

$$f(x) = 6x + 2$$

$$g(x) = 4 + 2x$$

$$h(x) = g^{-1}(f(x))$$

Find $h(-3)$.

3) Given $f(x) = 4x^2$, what is the rule of its inverse, f^{-1} and its domain?

4) Given:

$$f(x) = 4x + 16$$

$$g(x) = 12x - 8$$

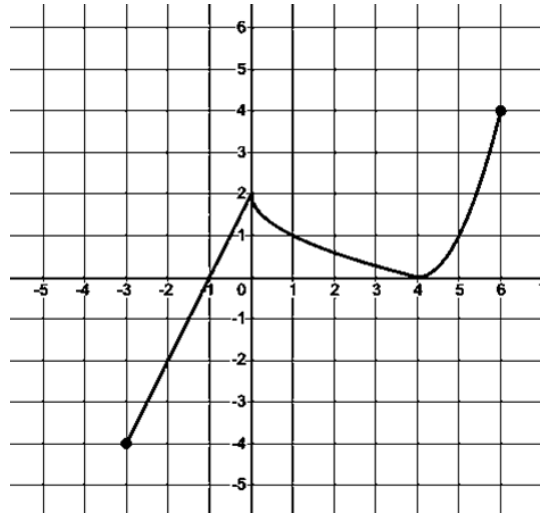
$$h(x) = g(f(x))$$

Determine the zero of $h(x)$.

5) Given $f(x) = \frac{3x+2}{4x-8}$, what is the rule of its inverse, f^{-1} .

6) Given the function, f , graphed to the right:

- a) Sketch its inverse, f^{-1}
- b) Determine the extrema of f^{-1}



7) Given:

$$f(x) = 2x^2 + 4$$

$$g(x) = 3x - 8$$

$$h(x) = f + g$$

Determine the initial value of $h(x)$.

8) Given:

$$f(x) = 2x + 4$$

$$g(x) = 3x^2 + 6x - 2$$

$$h(x) = 3x - 2$$

$$i(x) = \frac{f - g}{h}$$

Determine the rule for $i(x)$.

9) Given:

$$f(x) = \frac{\sqrt{x-1}}{x}$$

$$g(x) = x^2 + 1$$

$$h(x) = f(g(x))$$

Determine $h(5)$.

10) Find two functions, f and g , such that $g(f(0)) = 4$.