

Given:

$$f(x) = \frac{1}{2}x + 3 \quad g(x) = x^2 + 2x - 3 \quad h(x) = 2x - 8$$

Evaluate:

(SHOW YOUR WORK!)

1) $f(-8) =$ _____ 2) $g(4) =$ _____ 3) $h(-6) =$ _____

4) $f(h(x)) =$ _____ 5) $g(h(x)) =$ _____

6) $f(h(4)) =$ _____ 7) $h(g(-2)) =$ _____

8) $f(2a-6)$

9) $g(h(a+4)) =$ _____

SHOW YOUR WORK!

Determine if $f(x)$ and $g(x)$ are inverses. if:

$$10) f(x) = \sqrt{x-4}$$

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

$$11) f(x) = \frac{1}{3}x - 4$$

$$g(x) = 3x + 12$$

$$12) f(x) = x^2$$

$$g(x) = \sqrt{x}$$

Find the inverse of each function.

Then prove that they are inverses

13) Find $f^{-1}(x)$ if $f(x) = 2x^2 + 12$. Prove that $f(f^{-1}(x)) = x$ and $f^{-1}(f(x)) = x$

14) Find $f^{-1}(x)$ if $f(x) = \sqrt{2x+3}$. Prove that $f(f^{-1}(x)) = x$ and $f^{-1}(f(x)) = x$

BONUS QUESTION:

WORTH

10 QUIZ POINTS

$$\text{IF } f(x) = x^2 + 2x + 15$$

$$g(x) = x - 2$$

$$h(x) = -2x^2 + 2x - 10$$

Evaluate $\frac{f(g(x))}{g(h(x))}$

~~ANSWER IS SIMPLIFIED!~~
TO RECEIVE CREDIT STUDENTS MUST:

① TEXT/EMAIL THE SOLUTION TO MRS. TURNER NO LATER THAN 12:00 AM ON MONDAY JANUARY 18, 2016. (BONUS INCLUDED)

{ THAT IS MIDNIGHT SUNDAY NIGHT!
{ USE "REMIND" or turner@jmcass.org.

② TURN IN ALL WORK AT THE BEGINNING OF CLASS TUESDAY MORNING.

RECEIVE AN ADDITIONAL 10 QUIZ POINTS

IF THE ANSWER IS SIMPLIFIED!

{ HINT: GOOGLE SIMPLIFYING RATIONAL EXPRESSIONS }