

Name: \_\_\_\_\_

Show work needed to justify your answer.

Date: \_\_\_\_\_

HW: # 6: Math IBSL - Standard 6 - Inverse Functions

5 points

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**1** Determine algebraically whether the following pairs of functions are inverses.

**c**  $f(x) = \sqrt{3x-2}$  and  $g(x) = \frac{x^2}{3} + \frac{2}{3}$

**d**  $g(x) = -\frac{3}{4}x + 5$  and  $h(x) = -\frac{4x-20}{3}$

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**2** Find the  $x$ -intercept and  $y$ -intercepts of the line  $y = -4x + 2$ . Explain how these points can help you to graph the inverse.

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**6** If  $f(x) = 2x - 5$ :


**a** solve  $f(x) = 11$

**b** find  $f^{-1}(x)$

**c** find  $f^{-1}(11)$ .

**d** What do you notice about your answers to parts **a** and **c**?

**e** Create a general rule to explain your answer for part **d**.



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- 2 a** Show that  $y = 3 - x$  is a self-inverse function.
- b** Show that  $y = -2 - x$  is a self-inverse function.
- d** Write a generalization from your answers in parts **a-c**.
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- 3** Show that  $f(x) = \frac{-x-2}{5x+1}$  is a self-inverse function.
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- 4** Find the value of  $m$  such that  $g(x) = \frac{2x-4}{x+m}$  is a self-inverse function.