Problem Set

Find the inverse of each function below.

a.
$$h(x) = (3x + 7)^2$$

b.
$$h(x) = \sqrt[3]{x^2 - 8}$$

c.
$$h(x) = \frac{1}{2x-3}$$

d.
$$f(x) = \frac{3x-7}{5}$$

e.
$$f(x) = \frac{5+x}{6-2x}$$

$$f. f(x) = e^{x-5}$$

g.
$$f(x) = 2^{5-8x}$$

f.
$$Y = e^{x-5}$$

 $x = e^{y-5}$
 $\ln(x) = y-5$

t-,(x)=|u(x)+2

$$\frac{\sqrt{x-7}=y}{\sqrt{3}}$$

$$\sqrt{f^{-1}(x)} = \sqrt{x-7}$$

$$3x$$

$$2y = \frac{1}{x} + 3$$

9.
$$Y = 2^{5-8x}$$

 $X = 2^{5-8y}$
 $X = 2^{5-8y}$
 $\log_2(x) = 5^{-8y}$

u.
$$y = (3 \times 47)^2$$

 $x = (3y + 7)^2$

$$\frac{\sqrt{x}-7}{3}=y$$

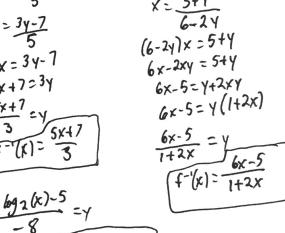
$$f^{-1}(x)=\frac{\sqrt{x}-7}{3}$$

$$X = \frac{3y-7}{2}$$

$$5x = 3y - 1$$
 $5x + 7 = 3y$

$$\frac{5x+7}{3} = y$$
 $f^{-1}(x) = \frac{5x+7}{3}$

$$\frac{\log_2(x)-5}{-8} = y$$



e. Y= 51X

 $X = \sqrt[3]{y^2 - 8}$

Suppose that the inverse of a function is the function itself. For example, the inverse of the function $f(x) = \frac{1}{x}$ (for $x \neq 0$) is just itself again, $g(x) = \frac{1}{x}$ (for $x \neq 0$). What symmetry must the graphs of all such functions have? (Hint: Study the graph of Exercise 5 in the lesson.)

All of these Kinds of graphs must have reflective symmetry over Y=X ble that is how inverses are formed graphically