

Lesson 5.5 • Building Inverses of Functions

Name _____ Period _____ Date _____

- Each of the functions below has an inverse that is also a function. Find four points on the graph of each function f , using the given values of x . Use these points to find four points on the graph of f^{-1} .
 - $f(x) = 3x - 4$; $x = -2, 0, \frac{4}{3}, 4$
 - $f(x) = x^3 - 2$; $x = -3, -1, 2, 5$
- Given $h(t) = 15 - 3t$, find each value.
 - $h(4)$
 - $h(1.5)$
 - $h^{-1}(0)$
 - $h^{-1}(1.5)$
- For each function below, determine whether or not the inverse of this function is a function. Find the equation of the inverse and graph both equations on the same axes.
 - $y = -2x + 5$
 - $y = |x|$
 - $y = x^2 - 4$
 - $y = -\sqrt{1 - x^2}$
 - $y = x^3$
 - $y = -(x + 3)^2$
- Balloons and Laughs Inc. is a small company that entertains at children's birthday parties. B & L uses a complicated formula to calculate its prices, taking into account all of its costs. The price equation is $p(x) = 4\sqrt[3]{(8x + 3)^2} + 25$, where x is the number of person-hours supplied for the party at a price of $p(x)$. For example, if $x = 4$, four clowns will come for one hour, two clowns will come for two hours, or one clown will come for four hours.
 - What is the price if two clowns come to a party for 90 minutes?
 - Many customers want to know what they can get for a particular amount of money. Rewrite the price equation for B & L so that it can input the amount of money a customer wants to spend and the output will be the number of person-hours they will get for their money. Call the new function $p^{-1}(x)$.
 - B & L's Ultimate Party costs \$125. How many person-hours do you get at an Ultimate Party?