Inverses Day 2 (15)
§6.4 Notes
Rational Exponents
Algebra 2

Name_____

Date_____Hr_____

Example 1 - Find the inverse "$f^{-1}(x)$" of each of the following functions.

a. $y = 10x + 28$

b. $y = -\frac{1}{64}x^3$

KEY CONCEPT *For Your Notebook*

Inverse Functions

Functions f and g are inverses of each other provided:

$$f(g(x)) = x \quad \text{and} \quad g(f(x)) = x$$

The function g is denoted by f^{-1}, read as "f inverse."

Example 2 - Determine if the following functions are inverses of each other.

a. $f(x) = x + 8$

$f^{-1}(x) = 8 - x$

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

$f^{-1}(x) = \frac{1}{4}x - \frac{1}{2}$

Example 3 – A small company produces greeting cards. The cost C (in dollars) of producing n greeting cards per month can be modeled by the function $C = 360 + 0.60n$.

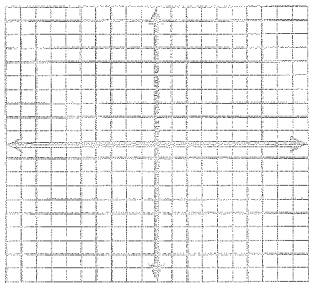
a. Find the inverse of the model.

b. Use the inverse function to find the number of greeting cards produced in a month in which the company's total cost to produce the cards was $615.

Example 4 - $f(x) = x^3 + 6$

a. Find $f^{-1}(x)$

c. Graph f(x) and $f^{-1}(x)$



Is the inverse a function?

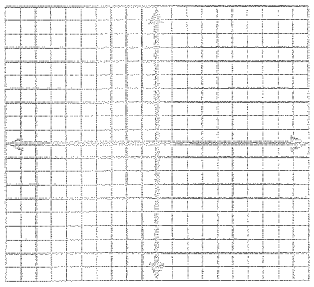
Yes No

b. Verify that f(x) and $f^{-1}(x)$ are inverse functions. Show work!

Example 5 - $f(x) = {}^{-2}/_{3}\,x + {}^{1}/_{6}$

a. Find $f^{-1}(x)$

c. Graph f(x) and $f^{-1}(x)$



Is the inverse a function?

Yes No

b. Verify that f(x) and $f^{-1}(x)$ are inverse functions. Show work!

Example 6 – The average price P (in dollars) for a National Football League ticket can be modeled by $P = 35t^{0.192}$, where t is the number of years since 1995.

a. Find the inverse model that gives time as a function of the average ticket price.

b. Use the inverse power model from part a. to predict the year when the average ticket price will reach $58.

Assignment – P. 442-444 #1-2, 3-41 (odd), 46, 49.