

Name: _____ Section: _____

Worksheet - More Practice With Inverse Functions (section 4.3)

1. Use the functions $r(x)$ and $n(x)$ below to determine the following:

x	-1	0	1	2	3
$r(x)$	2	-1	3	1	-2

x	-1	0	1	2	3
$n(x)$	0	-2	2	-1	1

a) $r^{-1}(-1)$

b) $n^{-1}(2)$

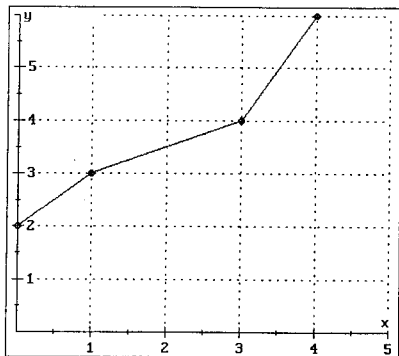
c) $(r^{-1} + n^{-1})(-1)$

d) $(r \circ n^{-1})(2)$

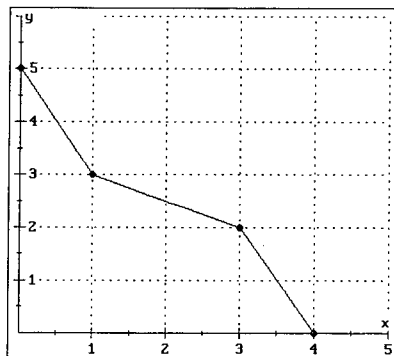
e) $(r^{-1} \circ r)(3)$

f) $(r^{-1} \circ n)(3)$

2. The graphs of $y = b(x)$ and $y = c(x)$ are shown below. Use the graphs to find the following:



$b(x)$



$c(x)$

a) $b^{-1}(3)$

b) $c^{-1}(0)$

c) $(c^{-1} - b^{-1})(2)$

d) $(c \circ b^{-1})(4)$

e) $(b^{-1} \circ c^{-1})(2)$

f) $(c \circ c^{-1})(3)$

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Worksheet - One-to-One Functions

Determine which of the following functions are one-to-one. (In other words, determine which functions have an inverse function.) Explain your reasoning.

- $f(d)$ is the amount of sales tax on an item of clothing that costs d dollars. (Assume the sale takes place in Tucson, taxed at a rate of 7.6%)

- $f(n)$ consists only of the following set of ordered pairs:

n	$f(n)$
3	2
-4	6
1	-1
-2	0

- $f(t) = 3^t - 5$

4. $f(w)$ is the cost in cents of mailing a letter that weighs w grams. (You may want to visit the U.S. Postal Service website at www.usps.com)

5. f is a function which assigns to each U of A student his/her student I.D. number.

6. f is a function which assigns to each U of A student the last four digits of his/her student I.D. number.

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Worksheet - Inverse Functions (section 4.3)

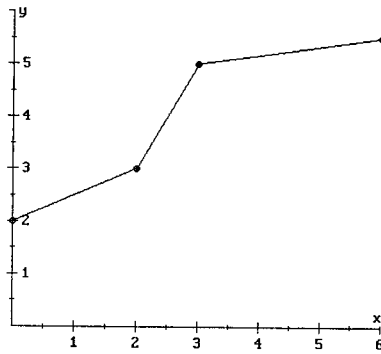
Find the inverse of each function:

1.

r	1	2	3	4	5
$F(r)$	0.09	2.1	5.6	7.8	9.4

2. $S(t) = At^3 + B$, where A and B are constants

3. $M(x)$ is the function graphed below.



4. The life expectancy, L , of a child (at birth) can be modeled by the formula

$$L = f(t) = \frac{t + 66.94}{0.01t + 1}$$

where t is the year of birth, with $t = 0$ corresponding to 1950.

a) Find a formula for the inverse function, if it exists.

b) What is the input and output for the inverse function?

c) What does the inverse of this function tell you, in terms of life expectancy and year of birth?

d) Estimate $f^{-1}(70)$ and give a practical interpretation.