

Math 112
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Fall 2005
Assignment #5
Due Wednesday Nov. 2

From the Textbook:

- Section 3.7: 9-15 all.
- Section 7.4: 6-14 all, 27, 28, 30, 37-46 all, 52, 54.

Additional Exercises: (Be sure to justify all your answers)

1. Find the rule of f^{-1} for all of the following.
 - (a) $f(x) = \ln(2x)$
 - (b) $f(x) = 3 \log(x - 4)$
 - (c) $f(x) = 12 \log_2(3x + 2)$
 - (d) $f(x) = 5^{x+3}$
 - (e) $f(x) = 9 \cdot 10^{3x}$
 - (f) $f(x) = 12 \cdot e^{9x-14}$
2. Use the round trip theorem to check you answers for each part of problem 1.
3.
 - (a) Explain why $\arccos(\cos(x)) = x$ for any real number x which lies between 0 and π .
 - (b) Find a number x such that $\arccos(\cos(x))$ is NOT equal to x .
 - (c) Find the following values
[Hint: some should be undefined]
 - i. $\cos(\arccos(0))$
 - ii. $\cos(\arccos(3))$
 - iii. $\cos(\arccos(\frac{1}{2}))$
 - iv. $\cos(\arccos(-2))$

4. True/False [Use the previous problem as a guide]

- (a) We know $\arcsin(\sin(x)) = x$ for any real number x which lies between $-\frac{\pi}{2}$ and $\frac{\pi}{2}$.
- (b) We know $\arcsin(\sin(x)) = x$ for ANY real number x .
- (c) We know $\sin(\arcsin(x)) = x$ for ANY real number x .