Review Problems

August 31, 2016

1. (Fall 2002, Exam 1, #3) Find a formula for the inverse of the function

$$f(x) = \frac{1+2x}{3+4x}, x \neq 3/4.$$

What is the domain of the inverse function?

- 2. (Fall 2006, Exam 1, #7) Which of the following statements are true?
 - I. $5^x \cdot 5^y = 5^{x+y}$
 - II. $(4 \cdot 3)^x = 4^x + 3^x$
 - III. $8^x + 8^y = 8^{x+y}$
- 3. (Fall 2006, Exam 1, #8) Find the inverse of the function

$$f(x) = \frac{3x-2}{2x+5}.$$

4. (Fall 2007, Exam 1, #2) Find the domain of the function

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

- 5. (Fall 2007, Exam 1, #7) Which of the following statements are true?
 - I. $4^{x} \cdot 4^{y} = 16^{x+y}$ II. $(5 \cdot 8)^{x} = 5^{x} \cdot 8^{x}$ III. $\left(\frac{10}{17}\right)^{x} = \frac{10^{x}}{17^{x}}$
- 6. (Fall 2007, Exam 1, #12) Given the functions f and g defined by the table below, find the value of $f \circ g^{-1}$ at x = -1.

x	-1	0	1	2
f(x)	0	3	1	-1
g(x)	1	-1	2	-3