

MATH 251 (PHILLIPS) MIDTERM 0 EXTRA PROBLEM LIST SET 1

1. Simplify the following expression as much as possible. If no simplification is possible, write “not possible”:

$$\frac{\sin(7x) + 7}{\sin(7x) - 7}$$

2. Simplify completely (for $y > 0$):

$$\frac{\left(\frac{2}{\sqrt{y}}\right)}{\left(\frac{y^{1/2}}{2}\right)}$$

3. Find all real solutions to the equation $\frac{e^{-5x}}{x^2} = 0$. If no real solution exists, write “no solution”.

4. Let $g(x) = 7 - 4x$. Evaluate the expression $\frac{g(5+h) - g(5)}{h}$, and simplify it as much as possible.

5. Write as a single fraction, and simplify as much as possible:

$$\frac{3}{x+4} - \frac{1}{x-5}$$

6. Find all real solutions to the equation $\frac{8}{x} - x = -2$. If no real solution exists, write “no solution”.

7. Find all real solutions to the equation $\ln(7 - 2x) + 2 = 0$. If no real solution exists, write “no solution”.

8. Find the domain of the function $r(x) = (-x)^{-1/4}$.

9. Multiply out: $(w - 1)(w^2 - 4w - 3)$.

10. The graph of a function $y = g(x)$ is sketched below (at the left). For which values of x shown on the graph is $g(x) > 3$?



