MATH 251 (PHILLIPS) MIDTERM 0 EXTRA PROBLEM LIST SET 4

1. Suppose $g(x) = 2x^3 - 10x^2 + 2$. Find the exact value of $g(3)$.

2. Write as a single fraction, and simplify as much as possible: $\dfrac{1}{x+3} - \dfrac{1}{x-4}$

3. Find all real solutions to the equation $\dfrac{e^x + x^3}{x^3} = 1$. If no real solution exists, write "no solution".

4. Find all real numbers a such that $\frac{1}{|a|} = -\frac{1}{a}$.

5. Find all real solutions to the equation $x(x-1) = 20$. If no real solution exists, write "no solution".

6. Let $f(x) = 2 - x$. Evaluate the expression $f(x+3) - f(2x+1)$, and simplify it as much as possible.

7. Multiply out: $(6x - 2)(3x + 4)$.

8. Simplify the following expression as much as possible. If no simplification is possible, write "not possible": $\dfrac{2t^2 + 2}{2t^2 + 6}$

9. Assuming $y > 0$, write the expression $\dfrac{\sqrt[7]{y}}{7}$ as a numerical constant (possibly a fraction) multiplied by a power of y. (y may not appear in a denominator.)

10. Determine the exact value of the **slope** of the line in the graph below.