MATH 251 (PHILLIPS) MIDTERM 0 EXTRA PROBLEM LIST SET 2

1. Find all real solutions to the equation $\frac{6}{x} + \frac{7}{x^2} = 1$. If no real solution exists, write "no solution".

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2. Simplify the following expression as much as possible. If no simplification is possible, write "not possible": $\frac{x^3 + 7x}{x^3 + 2x}$

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3. Assuming $x > 0$, write the expression $\frac{x^2}{2\sqrt{x}}$ as a numerical constant (possibly a fraction) multiplied by a power of x. (x may not appear in a denominator.)

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4. Multiply out: $(y-5)\big(y^2+3y-2\big)$.

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5. Let $f(x) = 7 - x$. Evaluate the expression $f(2-x) - f(x)$, and simplify it as much as possible.

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6. Find all real numbers a such that $|a+2| = -a - 2$.

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7. Find all real solutions to the equation $3y^{-3} = 0$. If no real solution exists, write "no solution".

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8. Suppose $f(x) = 2x^3 - 4x^2 - x$. Find the exact value of $f(-10)$.

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9. Write as a single fraction, and simplify as much as possible: $\frac{2}{p+4} - \frac{1}{p+5}$

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