MATH 251 (PHILLIPS) MIDTERM 0 EXTRA PROBLEM LIST SET 3

1. Find all real solutions to the equation $4x^{-2} = 1$. If no real solution exists, write "no solution".

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2. Find all real numbers a such that $(2a, -a)$ is in the second quadrant (and not on any of the coordinate axes).

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

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

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5. Write as a single fraction, and simplify as much as possible: $\dfrac{6}{c-4} - \dfrac{1}{c-2}$

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6. Find all real solutions to the equation $\dfrac{16w^{-1}}{w+6} = 1$. If no real solution exists, write "no solution".

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

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8. Simplify the following expression as much as possible. If no simplification is possible, write "not possible": $\dfrac{3\cos(7x) + 12}{3\cos(7x) + 6}$

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

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