Name_____ Date_____ Period_____

Day #36 Homework

For problems 1 – 4, find each of the indicated graphical properties. If a function does not have a particular property, explain why it does not. Show your work.

<table>
<tr><td colspan="2">1. $f(x)=\dfrac{(3x+4)(x+2)}{(x-4)(x+2)}$</td><td colspan="2">2. $p(x)=\dfrac{x^2+x-6}{x^2+5x+6}$</td></tr>
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<tr><td colspan="2">3. $h(x)=\dfrac{2x-6}{x^2-x-2}$</td><td colspan="2">4. $g(x)=\dfrac{2x^2-5x+2}{x^2-4}$</td></tr>
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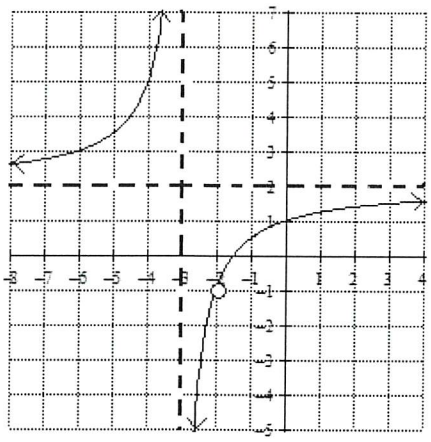
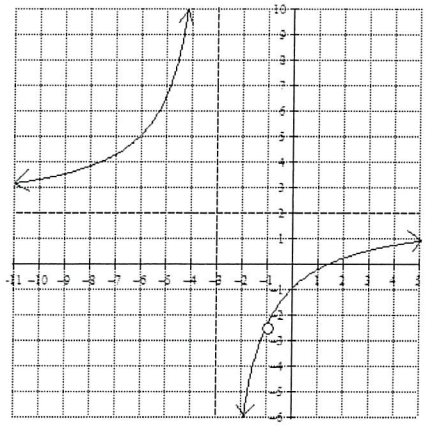
5. In both factored and standard form, what is an equation of the rational function, $h(x)$, pictured to the right?



The graph of a rational function, $g(x)$, is pictured below. Answer the questions that follow.



6. What factor(s) is/are guaranteed to be in the denominator of the equation of $g(x)$? Justify your answer.

7. What factor is guaranteed to be in both the numerator and denominator of the equation of $g(x)$? Justify your answer.

8. What factor is guaranteed to be in the denominator of the equation of $g(x)$ but not in the numerator? Justify your answer.

9. If $g\left(\frac{3}{2}\right)=0$, then what is the equation of $g(x)$ in both factored and standard form?

10. What are the domain and range of $g(x)$?