Standard 4 Review: Name: _____

1. Find the Domain of the following functions.

a. $f(x) = 3x^2 + 7x - 11$

b. $g(x) = \dfrac{2x}{x^2 - 4}$

c. $h(x) = \sqrt{x - 7}$

d. $j(x) = \dfrac{\sqrt{x+3}}{x^2 - 11x - 28}$

2. Simplify.

a. $\dfrac{x-5}{x^2-25}$

b. $\dfrac{x^2-5x-14}{x-2}$

c. $\dfrac{x^2+6x-27}{x^2-13x+30}$

d. $\dfrac{x^2}{x^2+x}$

3. Multiply or Divide and Simplify.

a. $\dfrac{x^2+4x}{x^2-16} \bullet \dfrac{x-4}{x}$

b. $\dfrac{x^2+6x+8}{x^2+x-12} \bullet \dfrac{x^2-9}{x+2}$

c. $\dfrac{x^2+5x+6}{x^2-8x-33} \div \dfrac{x^2+8x+12}{x+6}$

d. $\dfrac{x^2-5x-14}{x^2-36} \div \dfrac{x^2-7x-18}{x^2-15x+54}$

4. Add or Subtract and Simplify.

a. $\dfrac{8}{x+2} + \dfrac{x}{x-3}$

b. $\dfrac{x-4}{x-8} - \dfrac{40}{x^2-6x-16}$

c. $\dfrac{6}{x^2+2x-8} + \dfrac{1}{x^2-5x+6}$

d. $\dfrac{x+1}{x^2+4x-5} - \dfrac{2}{x^2+8x+15}$

5. Simplify.

a. $\dfrac{3+\dfrac{9}{x-3}}{4+\dfrac{12}{x-3}}$

b. $\dfrac{\dfrac{1}{x+2}+\dfrac{2}{x}}{\dfrac{4}{x}+\dfrac{2}{x(x+2)}}$

6. Solve.

a. $\dfrac{3x+2}{2}=\dfrac{1}{4}$

b. $x+\dfrac{x}{6}+\dfrac{x}{3}=3$

c. $3x-\dfrac{x-2}{4}+6=\dfrac{x+7}{5}$

d. $\dfrac{10}{x-2}=5$

e. $\dfrac{2x}{x-3}+\dfrac{x+3}{4}=0$

f. $1+\dfrac{2}{x+2}+\dfrac{4}{x-2}=0$

g. $\dfrac{5}{x+3}-\dfrac{3}{x}=\dfrac{1}{3x}$

h. $\dfrac{x}{x+5}+\dfrac{1}{x-3}=\dfrac{13}{x^2+2x-15}$

i. $\dfrac{x+2}{x}=\dfrac{2}{x-1}$

j. $\dfrac{6}{x+4}=\dfrac{2}{3(x-2)}$

7. Solve.

a. $\dfrac{x+1}{x-4} \geq 0$

b. $\dfrac{x^2-4}{x} < 0$

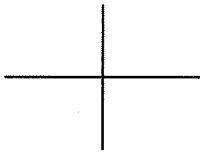
c. $\dfrac{x^2+x-6}{x+1} > 0$

d. $\dfrac{x-4}{x} \leq 2$

8. Find the equations for all the Vertical, Horizontal and Slant Asymptotes of the following Rational Functions. Use them to sketch a graph of the function.

a. $f(x) = \dfrac{1}{x-2}$ V:

H/S:



b. $g(x) = \dfrac{x^4}{x^2+4}$ V:

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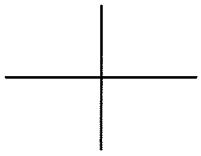

c. $h(x) = \dfrac{3x^2}{x^2-9}$ V:

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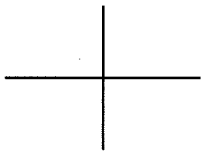

d. $j(x) = \dfrac{2x-4}{x^2+4x-12}$ V:

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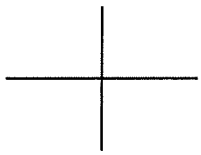

e. $f(x) = \dfrac{x^2+6x+8}{x+3}$ V:

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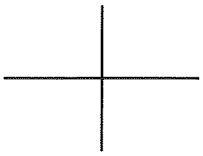

f. $k(x) = \dfrac{2x+8}{4x-16}$ V:

H/S: