Precalculus
2.6 Homework

For each rational function, do the following:
   a) **Find the domain of the function.**
   b) **Write the function in simplest form if it isn't already.**
   c) **Find the vertical asymptotes of the graph of the function.**
   d) **Find the x- and y-intercepts of the graph of the function.**

1. $R(x) = \dfrac{4x}{x-3}$

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

3. $H(x) = \dfrac{x+5}{x^2-x-30}$

4. $P(x) = \dfrac{-2x^2+8}{3x^2+12x+12}$

5. $F(x) = \dfrac{4x(x-1)}{2x^2-5x-3}$

6. $Q(x) = \dfrac{3x^2}{2x^2+x}$

For each rational function, do the following:
   a) **Determine whether the graph has a horizontal asymptote, an oblique asymptote, or neither.**
   b) **If the graph has a horizontal or oblique asymptote, find it. If it has neither, find the function that the ends approach.**

7. $R(x) = \dfrac{3x+5}{x-6}$

8. $H(x) = \dfrac{x^3-8}{x^2-5x+6}$

9. $P(x) = \dfrac{4x^2}{x^3-1}$

10. $Q(x) = \dfrac{2x^2-5x-12}{3x^2-11x-4}$

11. $F(x) = \dfrac{8x^2+26x-7}{4x-1}$

12. $G(x) = \dfrac{x^4-16}{x^2-2x}$