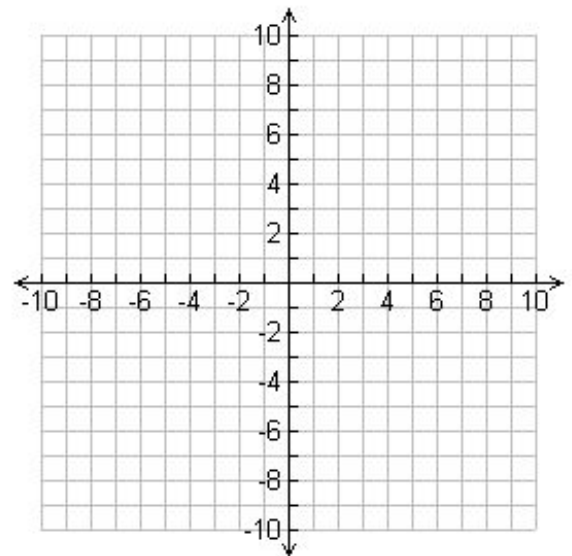# Rational Functions and Inequalities Practice

1) Given the rational function: $f(x) = \frac{2x+7}{x+4}$

    a. Use polynomial division <u>OR</u> the Giant One method to rewrite $f(x)$ in the form $y = \frac{a}{x-h} + k$
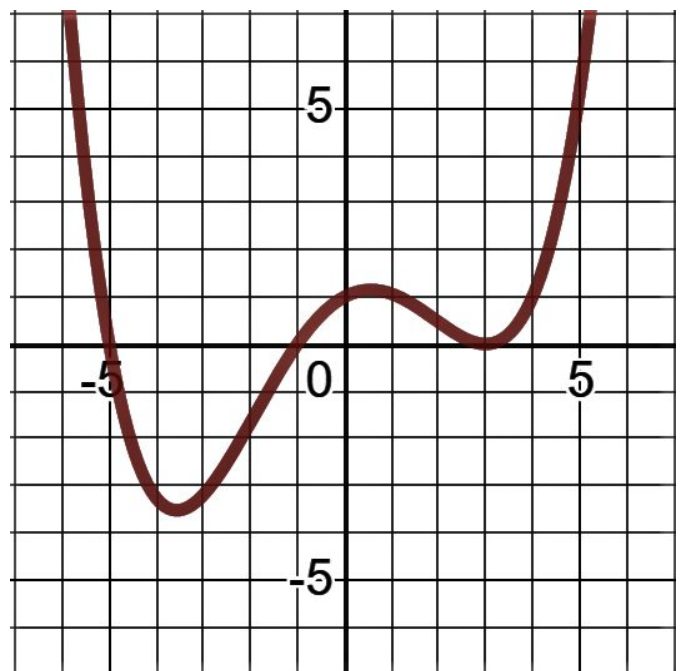
    b. State any intercepts, asymptotes and end behavior for

       $f(x)$ below.

    c. Use your answer to part (a) and (b) to sketch of graph of

       $f(x)$ at right.

2) The graph of the polynomial
$p(x)$ is shown at right.

Graph $y = \frac{1}{p(x)}$ on the same set of axes. State any
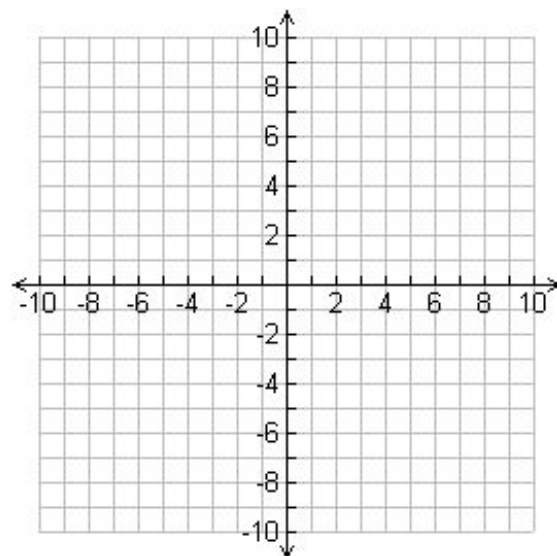intercepts and asymptotes below for $y = \frac{1}{p(x)}$.

PRACTICE PROBLEMS:

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

    a. Rewrite f(x) in factored form.

    b. Rewrite f(x) using polynomial division.

    c. Identify any intercepts and asymptotes.

    d. Sketch a graph of f(x) at right make sure to include all important features..

4) Solve $\dfrac{x^2 - 8x + 3}{x + 3} > 6$. State your solution using interval notation and inequality notation.

5) Given $g(x) = \dfrac{x^2 - 6x - 7}{x^2 - 4x - 21}$, identify all asymptotes, holes and intercepts. Also describe the end behavior for g(x).