

Little AP Assignment- Graphing

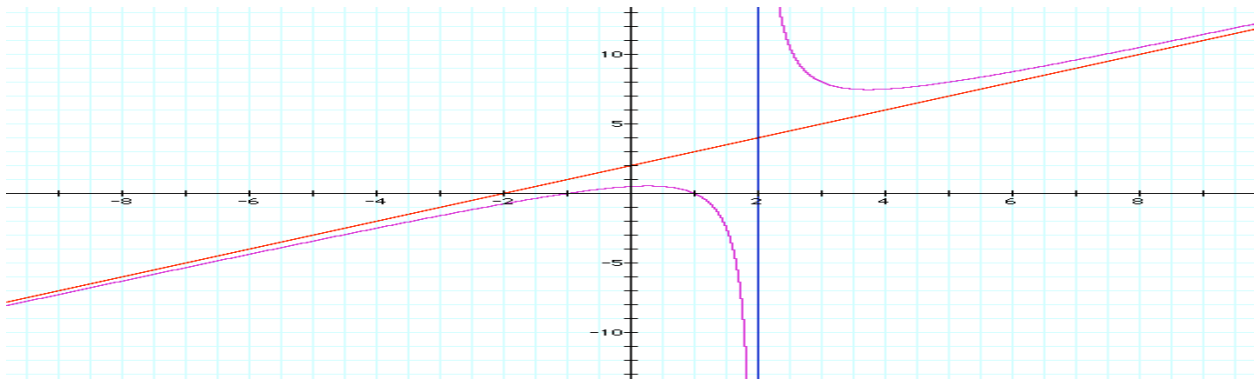
1. The equation of the tangent to the graph of $f(x) = \frac{kx + 8}{x + k}$ at $x = -2$ is $y = x + c$. Find the possible value(s) of constants k and c .

3. Consider the function $g(x) = \frac{2x + b}{cx + b}$, where b, c are non-zero constants.

Given that $x = 2$ is the vertical asymptote and $y = \frac{1}{3}$ is the horizontal asymptote, find the x and y intercepts of $g(x)$.

4. Identify a possible equation for the graph shown below:

(The straight lines shown in the diagram are the asymptotes)



5. Graph the following: Find any asymptotes and max/min values algebraically. Do not find, but state the **number** of changes in concavity.

a) $y = \frac{x^2 - 2x + 1}{x^2 + 4x + 3}$

b) $y = \frac{x^2 - 2x + 1}{x + 2}$

6. Sketch the following functions: a) $f(x) = \frac{\sqrt{x^2 - 4x - 32}}{x}$ and

b) $g(x) = \sqrt{x^2 - 4x - 32} - x$.

For each, determine, with algebraic justification, the domain, range, intercepts, relative extrema (if any). State also the equations of any asymptotes.