

## Rational Functions -- Advanced

For each function, find [a] the  $x$ -intercept(s), [b]  $y$ -intercept, [c] vertical asymptote(s), and [d] non-vertical asymptote. Make a sketch of the function.

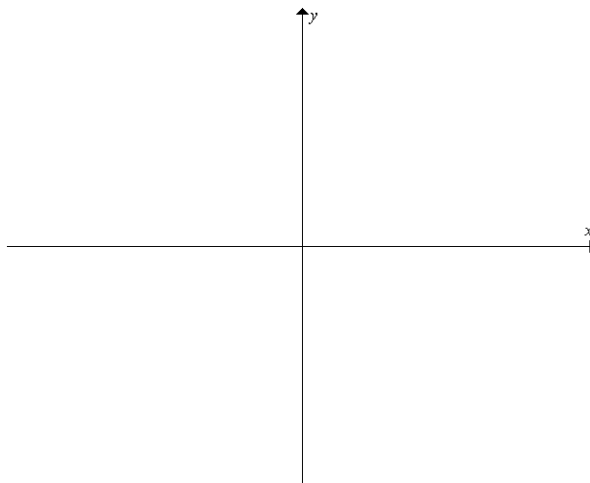
[1]  $f(x) = \frac{x+1}{x^2+4x}$

[a]

[b]

[c]

[d]



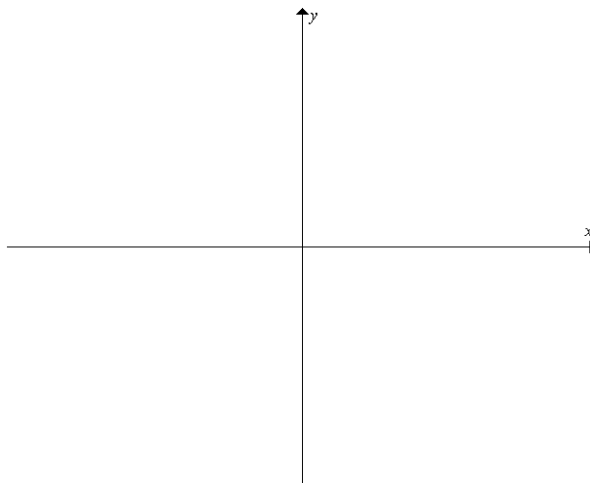
[2]  $f(x) = \frac{x}{x^2+x-2}$

[a]

[b]

[c]

[d]



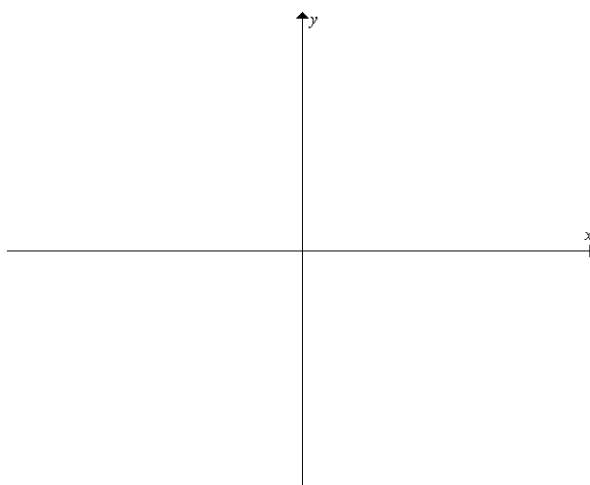
[3]  $f(x) = \frac{x^2}{x^2+x-6}$

[a]

[b]

[c]

[d]



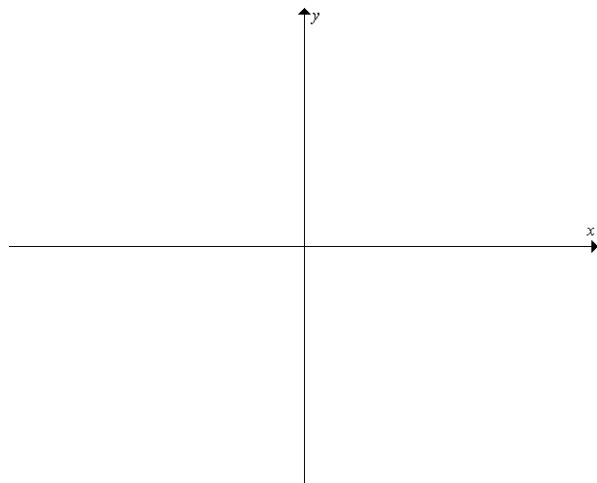
**[4]**  $f(x) = \frac{x^2 + x - 12}{x^2 - 4}$

[a]

[b]

[c]

[d]



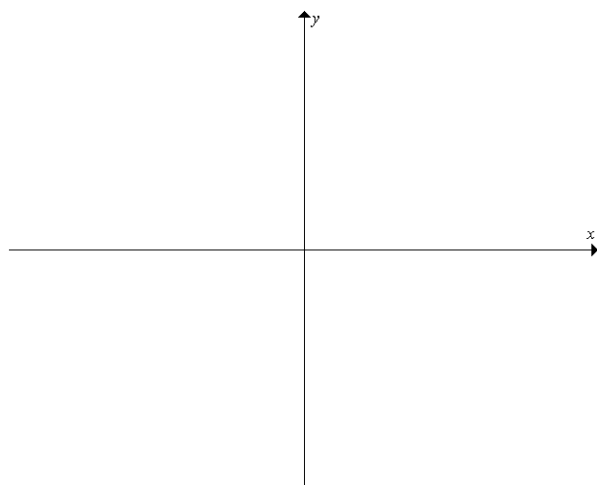
**[5]**  $f(x) = \frac{x^3 - 1}{x^2 - 9}$

[a]

[b]

[c]

[d]



**[6]**  $f(x) = \frac{x^3 - 2x^2 - 5x + 6}{x^3 - 8x^2 + 16x}$

[a]

[b]

[c]

[d]

