

Final Review – Part 3

1. Try to define the following words without looking in your notes.

Roots –

Multiplicity –

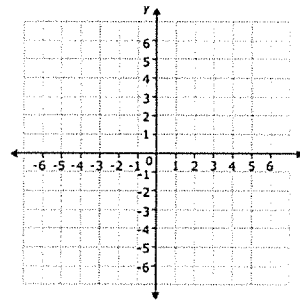
Asymptote –

Constant –

2. Simplify the rational function $f(x) = \frac{2x^3 + 4x^2 + 2x}{x^3 - x}$. Then state the domain and graph.

$f(x) =$

Domain:



3. Do all *lines* have roots? Explain.

4. Let $f(x) = \frac{P(x)}{Q(x)}$ where $P(x)$ and $Q(x)$ are both linear polynomials. If $P(n) = Q(n)$, is it possible for f to have a vertical asymptote at $x = n$? Explain.

Simplify each expression.

5. $\left(\frac{x^{-2}y}{x^2}\right)^{-1}$

6. $(2x - 1)^2$