

Algebra 2

Name \_\_\_\_\_

Chapter 8B Review

Hour: \_\_\_\_\_

Show work to identify all parts of the rational function. Then graph the function.

1.  $f(x) = \frac{x-3}{x^2+6x+5} = \frac{(x-3)}{(x+1)(x+5)}$

x-intercept:  $(3, 0)$

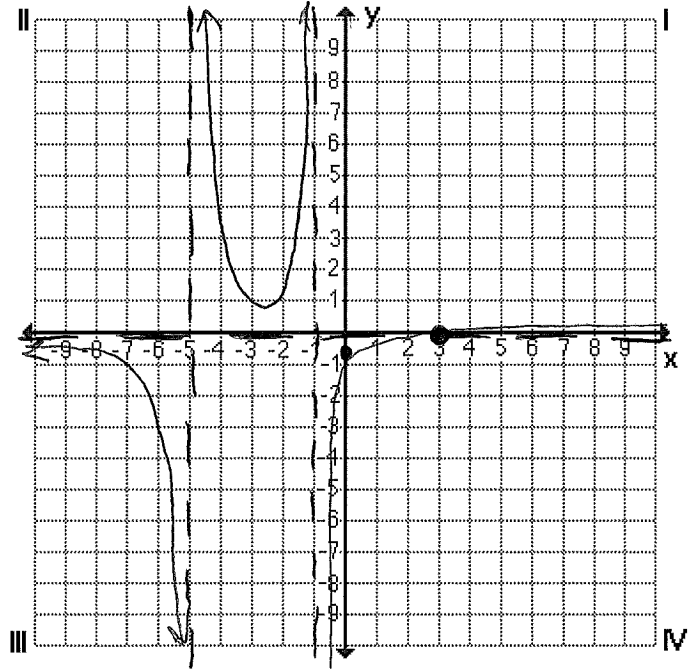
y-intercept:  $(0, -\frac{3}{5})$

vertical asymptote:  $x = -1$  and  $x = -5$

horizontal asymptote:  $y = 0$

Domain:  $x \neq -1, -5$

Holes: none



2.  $f(x) = \frac{3x+3}{|x+2|} = \frac{3(x+1)}{(x+2)}$

x-intercept:  $(-1, 0)$

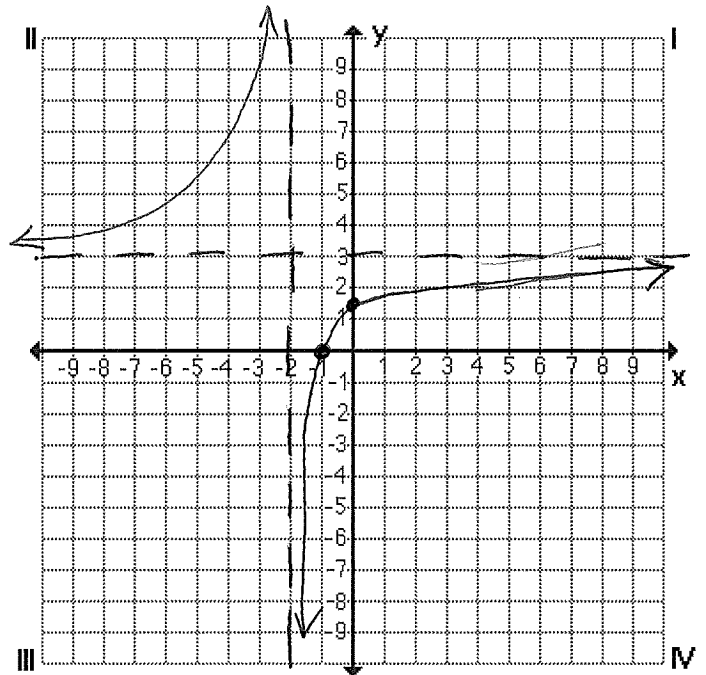
y-intercept:  $(0, 1.5)$

vertical asymptote:  $x = -2$

horizontal asymptote:  $y = 3$

Domain:  $x \neq -2$

Holes: none



$$3. f(x) = \frac{x^3 + x^2 - 6x}{4x^2 + 16x} = \frac{x(x^2 + x - 6)}{4x(x+4)} = \frac{x(x+3)(x-2)}{4x(x+4)}$$

x-intercept:  $(-3, 0)$   $(2, 0)$

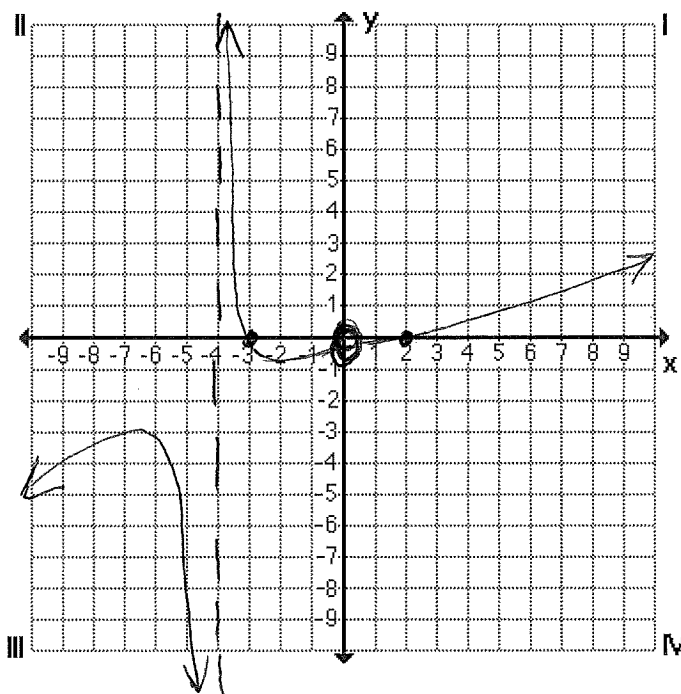
y-intercept:  ~~$(0, -)$~~  None

vertical asymptote:  $x = -4$

horizontal asymptote: none

Domain:  $x \neq 0, -4$

Holes:  $\odot x = 0$



4. Describe in your own words the reason why holes appear in some rational function graphs.

Holes occur when the same factor is in both the numerator and the denominator.