Secondary Math 3 Name_____

5.1 Properties of Rational Functions

Date_____ Period____

1) What is a discontinuity?

2) Why are there discontinuities in rational functions?

Identify the points of discontinuity, holes, vertical asymptotes, x-intercepts, y-intercepts, horizontal asymptote, and domain of each rational function.

3) $f(x) = \dfrac{-2x^2 + 32}{x^2 - 9}$

4) # of Discontinuities:

Vertical Asymptotes:

Holes:

Horizontal Asymptotes:

x-intercepts:

y-intercepts:

Domain:

5) $f(x) = \dfrac{2x^2 + 10x + 8}{x^2 + 3x}$

6) # of Discontinuities:

Vertical Asymptotes:

Holes:

Horizontal Asymptotes:

x-intercepts:

y-intercepts:

Domain:

7) $f(x) = \dfrac{x^3 + 2x^2 - 8x}{-4x^2 - 12x}$

8) # of Discontinuities:

Vertical Asymptotes:

Holes:

Horizontal Asymptotes:

x-intercepts:

y-intercepts:

Domain:

9) $f(x) = \dfrac{x-4}{x^2-2x-3}$

10) # of Discontinuities:

Vertical Asymptotes:

Holes:

Horizontal Asymptotes:

x-intercepts:

y-intercepts:

Domain:

11) $f(x) = \dfrac{x^2-x-6}{-4x-12}$

12) # of Discontinuities:

Vertical Asymptotes:

Holes:

Horizontal Asymptotes:

x-intercepts:

y-intercepts:

Domain:

13) $f(x) = \dfrac{2x+8}{x^2-x-6}$

14) # of Discontinuities:

Vertical Asymptotes:

Holes:

Horizontal Asymptotes:

x-intercepts:

y-intercepts:

Domain:

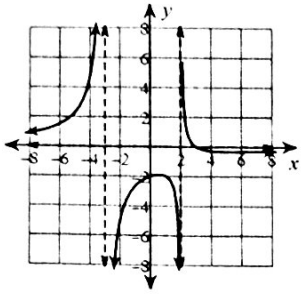
15) Could there be any discontinuities for the function $y = x^2 - 3x - 10$? Explain your answer.

16) Describe what an asymptote is in your own words.

Choose the graph that represents the rational function.

17) $f(x) = -\dfrac{4}{x+4}$

A)



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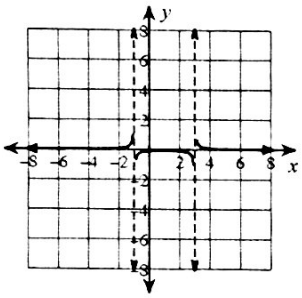

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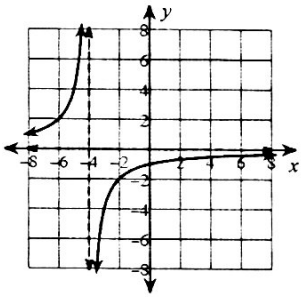

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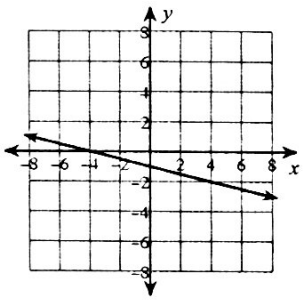
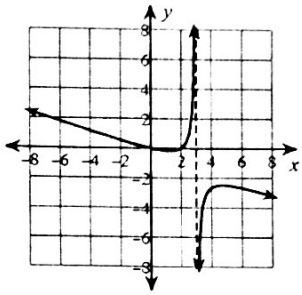


18) $f(x) = \dfrac{1}{-x^2 + 2x + 3}$

A)



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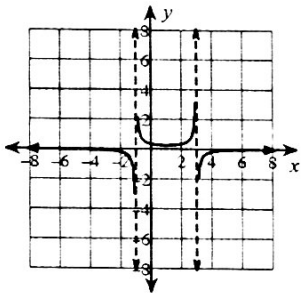

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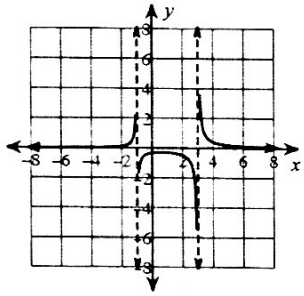

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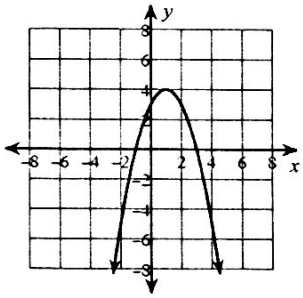
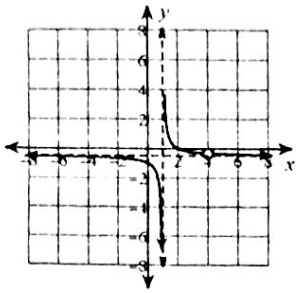


19) $f(x) = \dfrac{x}{x+2}$

A)



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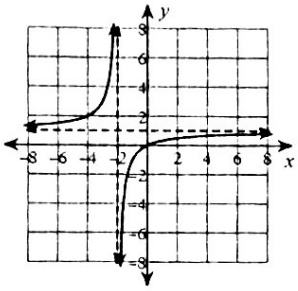

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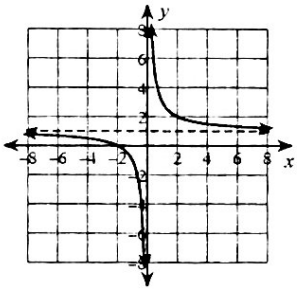

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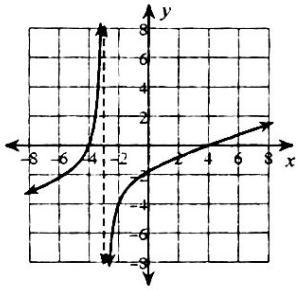
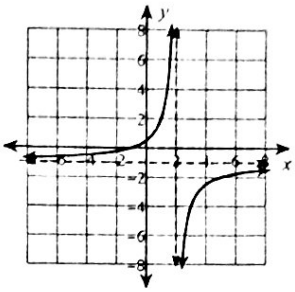


20) $f(x) = \dfrac{x^2 - x - 6}{4x^2 - 4x - 8}$

A)



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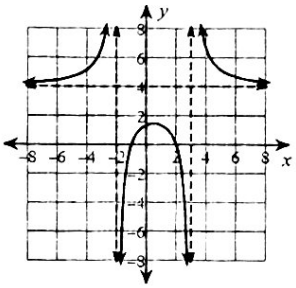

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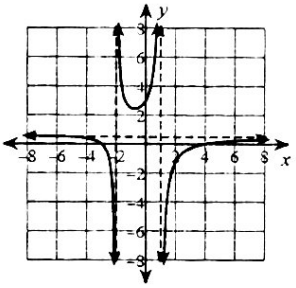

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