ALGEBRA II REVIEW PROBLEMS
(2-3, 9-1 through 9-3)

Name _____

1. **Solve the following:**

    a. Assume y varies directly as x. If $y = 9$ when $x = 17$, find y when $x = 5$.

    b. A 30-minute long distance telephone call cost \$1.80. The cost varies directly with the length of a call. Write an equation that relates the cost to the length of a call. How long is a call that costs \$3.30?

    c. y varies inversely with the square of x. If $y = 50$ when $x = 4$, find y when $x = 5$.

    d. d varies jointly with r and t. If $d = 110$ when $r = 55$ and $t = 2$, find r when $d = 40$ and $t = 3$.

2. Describe the vertical asymptotes, holes and horizontal asymptote (if any) for the graph of each rational function.
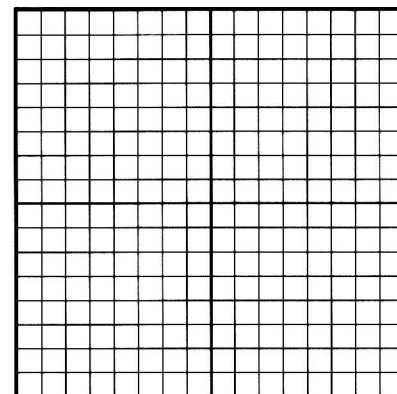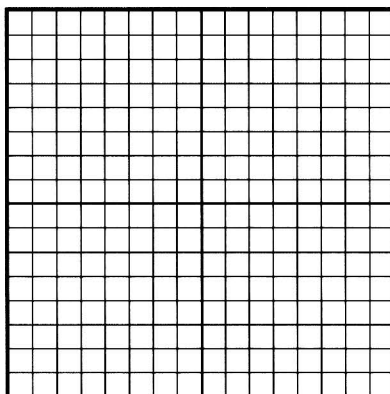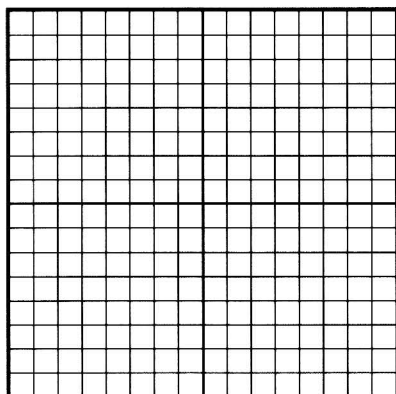
	Vertical Asymptote(s)	Hole(s)	Horizontal Asymptote
$y = \dfrac{3x^2 + 2x}{x}$			
$y = \dfrac{x^2 - 16}{x^2 - 4}$			
$y = \dfrac{9x}{3x^3 - 27x}$			

3. Graph the following; label all asymptotes.

a. $y = \dfrac{-1}{x-2} + 3$

b. $y = \dfrac{x-7}{x^2 + 6x + 5}$

c. $y = \dfrac{x^2 + 3x}{x+3}$

POTENTIAL ANSWERS

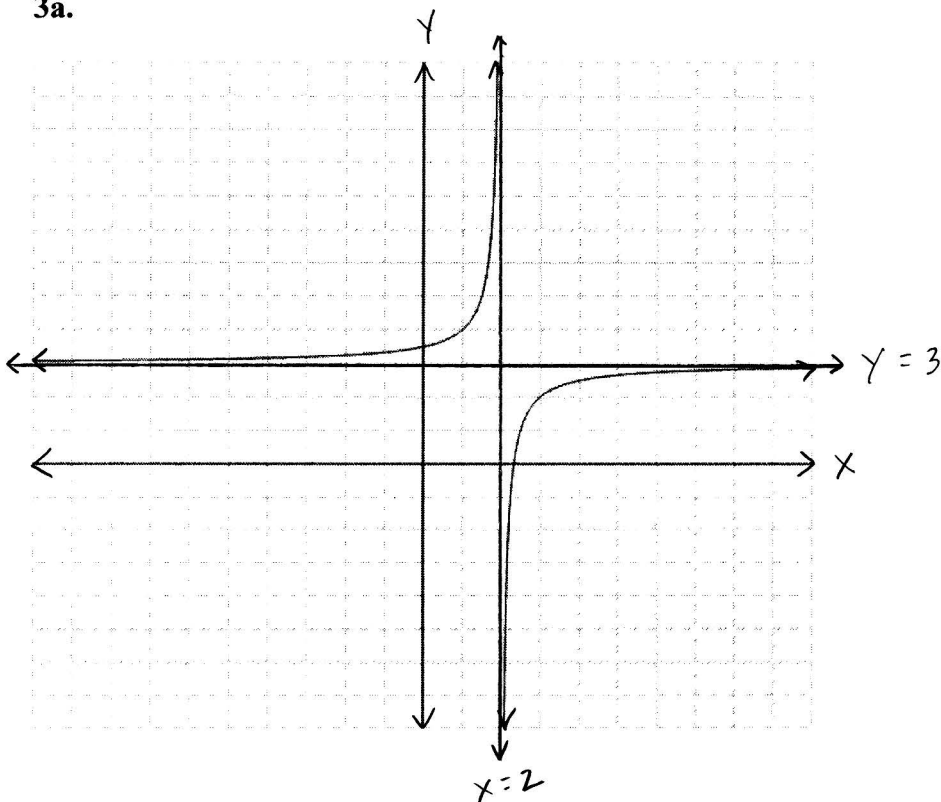**1a.** $y = \dfrac{45}{17}$

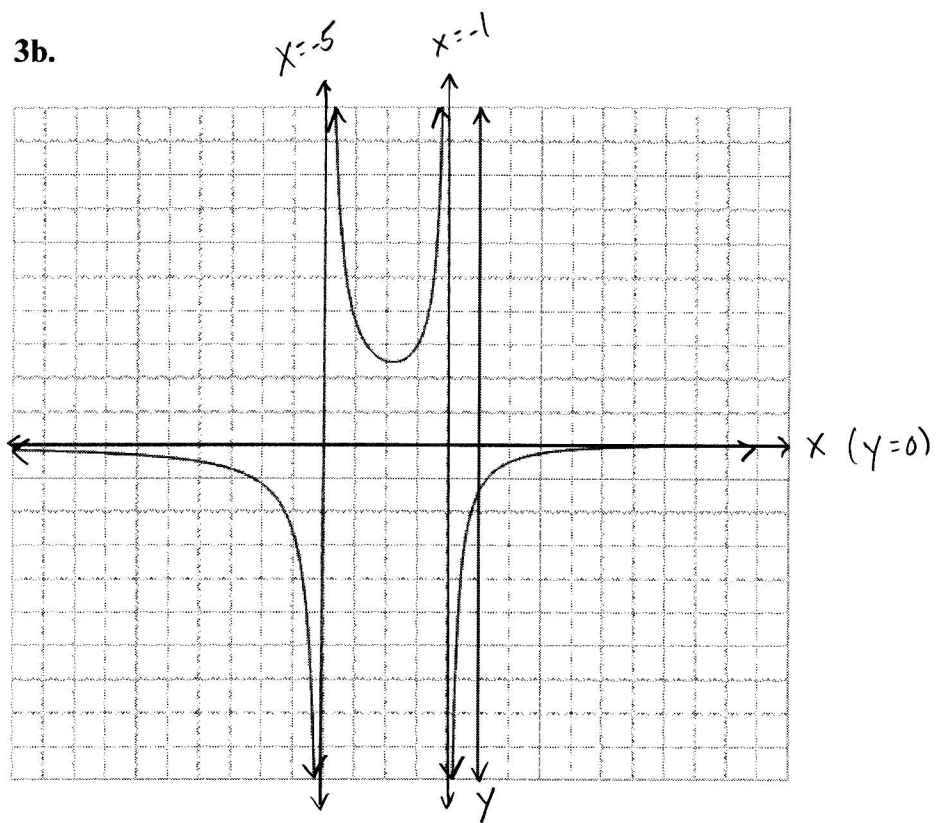**1b.** Cost of Call = .06(Number of Minutes); 55 minutes

1c. $y = 32$

1d. $r = \dfrac{40}{3}$

	Vertical Asymptote(s)	Hole(s)	Horizontal Asymptote
2a.	None	At $x = 0$	None
2b.	$x = -2$ and $x = 2$	None	$y = 1$
2c.	$x = -3$ and $x = 3$	$x = 0$	$y = 0$

3a.

3b.

$x=-5$ $x=-1$

X (y=0)

Y

3c.

X

Y