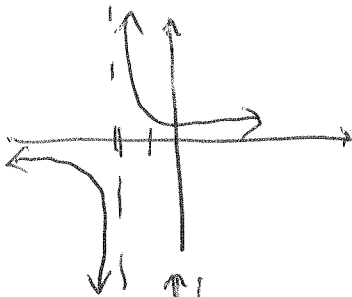# Algebra II Chapter 9 Test

Name: __Key__

Graph the following. Indicate the vertical and horizontal asymptotes.
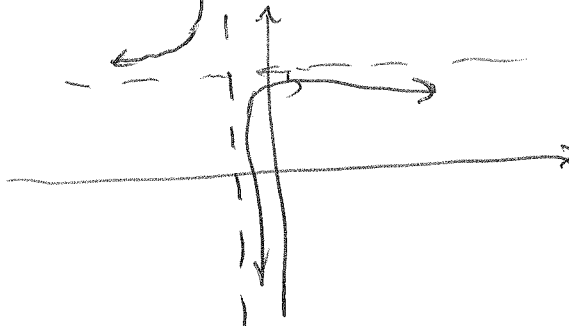
1. $\dfrac{1}{x+2}$

$x=-2$
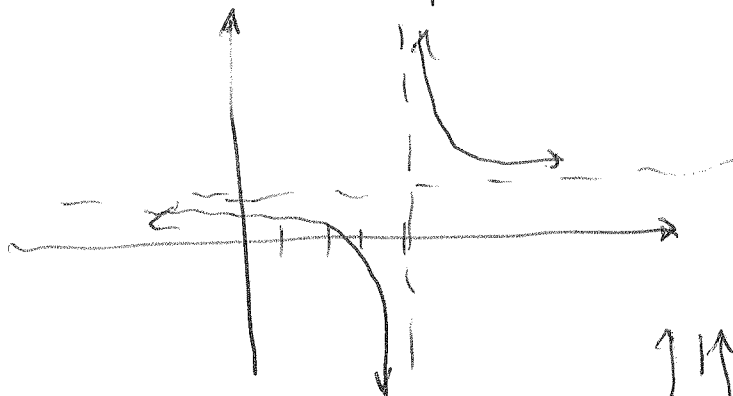$y=0$

2. $\dfrac{5x}{x+1}$

$x=-1$
$y=5$
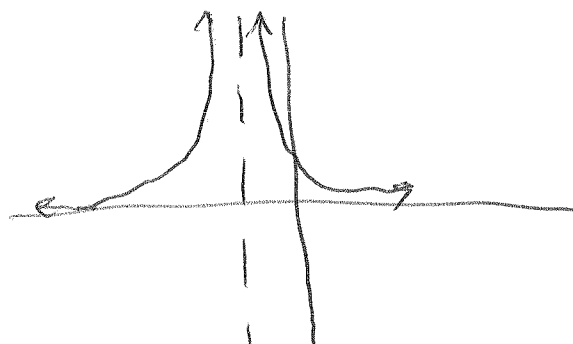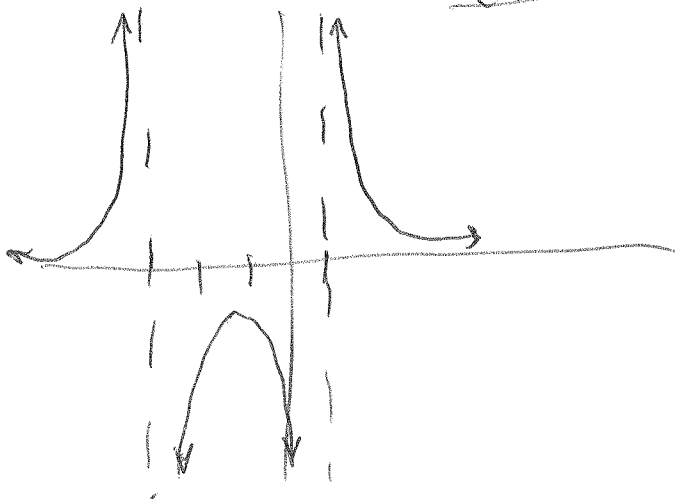
3. $\dfrac{x-1}{x-4}$

$x=4$
$y=1$

4. $\dfrac{1}{(x+2)^2}$

$x=-2$
$y=0$

5. $\dfrac{8}{(x-1)(x+3)}$

$x=1$ $y=0$
$x=-3$

Write an equation for each statement Then solve the equation

6.   if y varies directly as x and y =12 when x = 3, find y when x = 16

$$y = 4x$$ $$64$$

7.   if r varies inversely as t and r = 18 when t = -3, find r when t = -11

$$r = \frac{-54}{t}$$ $$4.91$$

Simplify each expression

8. $\dfrac{45xy^3}{20y^7}$ $\dfrac{9x}{4y^4}$

9. $\dfrac{5x-5}{x^2-1}$ $\dfrac{5}{x+1}$

10. $\dfrac{(ab)^2}{c} \cdot \dfrac{cx^2}{xa^3b}$ $\dfrac{bx}{a}$

11. $\dfrac{35}{16x^2} \div \dfrac{21}{4x}$ $\dfrac{5}{12x}$

12. $\dfrac{9x^2y^3}{(5xyz)^2} \div \dfrac{(3xy)^3}{20x^2y}$ $\dfrac{4}{15xyz^2}$

13. $\dfrac{5}{x^2 - 3x - 28} + \dfrac{7}{2x - 14}$

$$\dfrac{7x + 38}{2(x-7)(x+4)}$$

14. $\dfrac{x}{x + 3} - \dfrac{6x}{x^2 - 9}$

$$\dfrac{x(x-9)}{(x+3)(x-3)}$$

15. $\dfrac{5}{x + 3} - \dfrac{2}{x - 2}$

$$\dfrac{3x-16}{(x+3)(x-2)}$$

16. $\dfrac{3m + 2}{m + n} + \dfrac{4}{2m + 2n}$

$$\dfrac{3m+4}{m+n}$$

Solve

17. $\dfrac{x+1}{3} + \dfrac{x-1}{3} = \dfrac{4}{3}$

6.94
1.73

18. $\dfrac{1}{t-1} + \dfrac{1}{t+2} = \dfrac{1}{2}$

4, -1

19. $\dfrac{1}{m+2} - \dfrac{1}{3-m} = -\dfrac{1}{6}$

-12, 1

20. $\dfrac{3}{x^2+3x} + \dfrac{x+2}{x+3} = \dfrac{1}{x}$

-1