

1. Find all points of discontinuity and state if they are holes or vertical asymptotes. $y = \frac{x^2 - 16}{2x^3 - 2x^2 - 24x}$

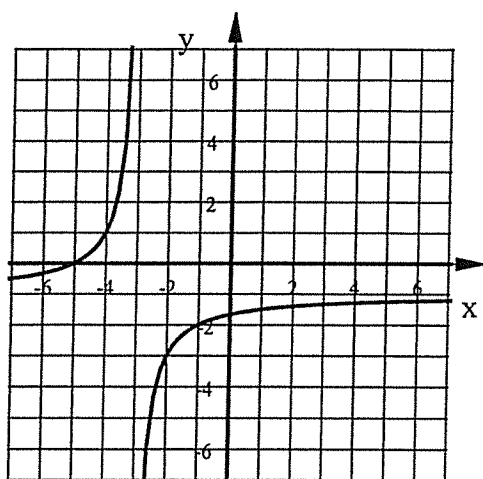
2. Write the equation of the Horizontal Asymptote of each, if any.

a) $y = \frac{6x^2 + 10x - 3}{2x^2 - 5x + 1}$

b) $y = \frac{14x + 3}{7x^2 - 4x - 5}$

c) $y = \frac{8x^3 + 9x^2 - 4}{2x^2 + 3x + 4}$

3. Write the equation of this graph which is a transformation of $y = \frac{2}{x}$



4. Solve each rational equation.

a) $\frac{5}{x+3} = \frac{2x}{x^2 + 5x + 6} + \frac{7}{x+2}$

b) $\frac{2x^2 - 6x - 18}{x^2 + 3x + 2} + \frac{4}{x+1} = \frac{x}{x+2}$

5. Use this function: $y = \frac{x^2 + 2x - 3}{x^2 - 2x - 24} = \frac{(x+3)(x-1)}{(x-6)(x+4)}$

a) State all x-intercepts, if any.

b) State all y-intercepts, if any.

6. Simplify. State restrictions on the variables.

$$\frac{3x^2 + 18x}{x^2 + 5x - 6} \cdot \frac{x^3 - 9x^2 + 20x}{x^2 - 4x - 5} \div \frac{6x^2 - 24x}{x^2 - 1}$$

7. Simplify. Don't state restrictions on the variables.

a) $\frac{\frac{2}{x+3} - \frac{3}{x^2 + x - 6}}{\frac{5}{x-2}}$

b) $\frac{3x}{x^2 + 7x + 12} - \frac{4}{2x^2 + 4x - 16}$

8. R varies inversely with the cube of H and jointly with G and the square of C. $R = 12.5$ when $G = 8$, $C = 5$, and $H = 4$.

a) Write a variation equation including the proper value of k .

b) Find the value of G when $R = 100$, $C = 2$, and $h = 6$.

9. Determine if each table of values represents Direct Variation, Inverse Variation, or neither. If it represents one of the variations write a variation equation and find the value of x when $y = 75$. Round to the nearest hundredth when necessary.

a)

X	Y
-6	16
-2	9
5	12.5
9	-22.5
22	-55

b)

X	Y
-16	-15
-12	-20
-5	-48
25	9.6
40	6

c)

X	Y
-8	28
-5	17.5
-0.25	0.875
6	-21
11	-38.5

Hon Alg 2 Ch 9 Final Exam Review

ANSWERS

1. Points of discontinuity are $x = 0, -3, 4$ Holes: $x = 4$ VA: $x = -3, 0$

2. a) $y = 3$ b) $y = 0$ c) No HA

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

4. a) $x = \frac{-11}{4}$ b) $x = 5$

5. a) $x - int = -3, 1$ b) $y - int = \frac{3}{24} = \frac{1}{8}$

6. $\frac{x}{2}$ $x \neq -6, 0, \pm 1, 5, 4$

7. a) $\frac{2x-7}{5(x+3)}$ b) $\frac{6x^2-16x-12}{2(x-2)(x+3)(x+4)}$

8. a) $R = \frac{4GC^2}{H^3}$ b) $G = 1350$

9. a) Neither b) Inverse Variation. $xy = 24$, $x = 3.2$

c) Direct Variation. $y = -3.5x$, $x = -21.43$