

Alg 2 Review Sec 9-2, 9-3, 9-6 Spring 2016

Solve each. Check for extraneous solutions.

1. $\frac{5}{x-6} - \frac{3}{x+2} = \frac{1}{x^2 - 4x - 12}$

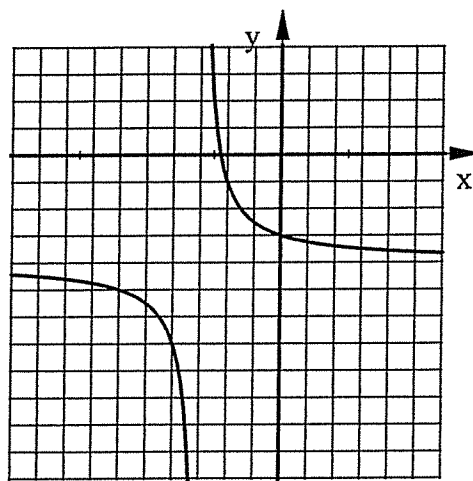
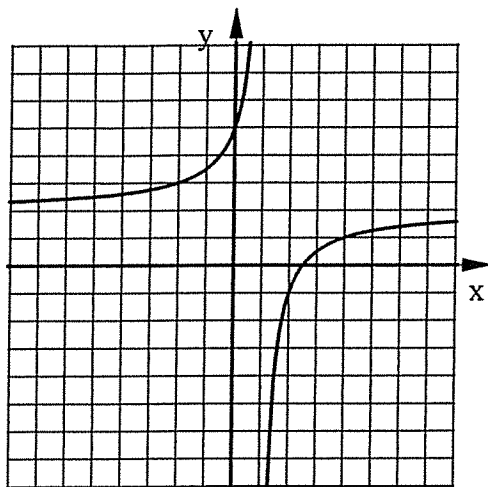
2. $\frac{11}{3x} + \frac{4}{x^2} = \frac{1}{3}$

3. $\frac{x}{x+2} = \frac{x+10}{x^2 - 4}$

4. $\frac{3x}{x-4} + \frac{20}{x^2 - 3x - 4} = \frac{4x}{x+1}$

5. Each graph is a translation of the function $y = \frac{3}{x}$. Write the equation of each.

a) b)



NO GRAPHING
CALC

6. Sketch the graph of each. State the equations of the Vertical and Horizontal Asymptotes.

a) $y = \frac{-10}{x-2} - 3$

b) $y = \frac{0.25}{x+5} + 2$

NO GRAPHING
CALC

7. Find all points of discontinuity and classify them as either Holes or Vertical Asymptotes.

a) $y = \frac{4x^2 - 20x}{x^2 - 25}$

b) $y = \frac{x^2 - 9}{2x^3 - 2x^2 - 24x}$

c) $y = \frac{x^2 + 8x + 12}{3x^2 + 18}$

8. State the equation of the Horizontal Asymptote, if any.

a) $y = \frac{9x^2 + 15x - 8}{3x - 2}$

b) $y = \frac{12x + 7}{2x^2 - 1}$

c) $y = \frac{10x^2 - 18x + 21}{4x^2 + 7}$

9. Find the x and y intercepts of each, if any.

a) $y = \frac{2x^2 + 8x}{x^2 - 9}$

b) $y = \frac{x^2 - 2x - 24}{x^3 + 5x^2 + 4x}$

c) a) $y = \frac{x^2 + 16}{x^2 - x - 20}$

10. Graph the given rational function. Show the intercepts, the asymptotes as dashed lines, and the correct behavior around each asymptote.

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

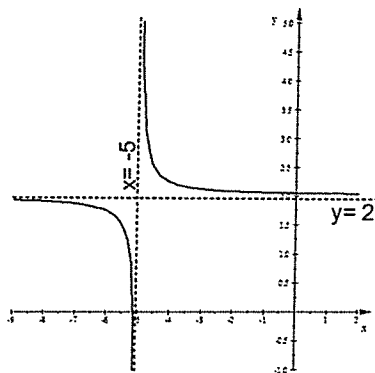
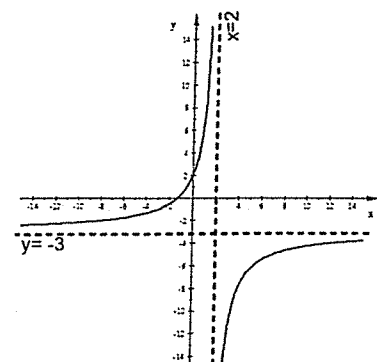
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1. $x = -\frac{27}{2}$ 2. $x = -1, 12$ 3. $x = 5$ 4. $x = 20$

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

b) $y = \frac{3}{x+3} - 4$

6. a)



7. a) VA: $x = -5$ Hole: $x = 5$ b) VA: $x = 0, 4$ Hole: $x = -3$ c) No pts of discontinuity.

8. a) No HA b) HA: $y = 0$ c) HA: $y = 2.5$

9. a) $x - \text{int} = -4, 0$ $y - \text{int} = 0$ b) $x - \text{int} = 6$ (-4 is a hole) $y - \text{int} = \text{None}$

b) $x - \text{int} = \text{None}$ $y - \text{int} = -\frac{16}{20} = -0.8$

10. $x - \text{int} = -\frac{1}{2}, 3$ $y - \text{int} = \frac{3}{10}$ HA : $y = 2$ VA : $x = 5, -2$

Graph:

