

Beverly Hills High School -- IAT -- Quest #3 -- Chapter 8 -- 75 points

As usual, show all your work for full credit. Partial credit for partial achievement. Pencils only. All problems are five points unless specified otherwise.

- 1) The cost of gasoline, C , varies directly as the number of gallons, g , purchased.
- a) Write this relationship as an equation: _____
 - b) Over the course of a week, Chuy bought twenty-one gallons of gas for his '64 Chevy Impala. It cost him \$63.00. Determine the constant of proportionality.
 - c) During the next month, he expects to buy 80 gallons of gas. How much should he expect to pay?

- 2) Give a real-world example of an
- a) inverse relation: _____
 - b) inverse square relation: _____

3) Y varies directly as the square of x . If y is 36 when x is 8, find x when y is 324.

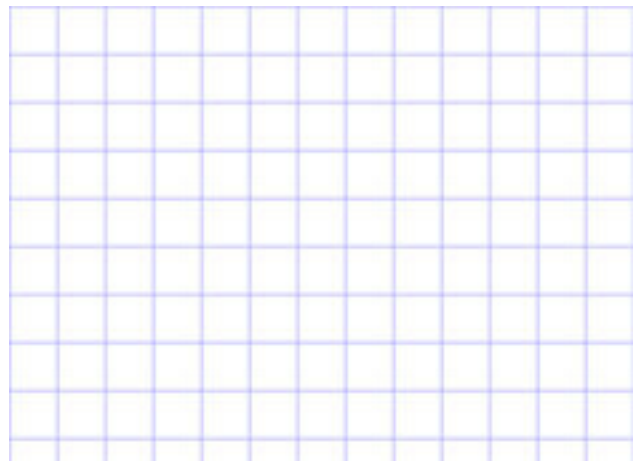
Graph each of the following rational functions and answer questions for each:

4) $y = \frac{-2}{x + 3}$



What value does y approach as x goes to infinity?

5) $y = \frac{4}{x(x - 4)}$



What is(are) the asymptote(s) of this function?

Multiply, divide, add or subtract as indicated. Then simplify completely.

$$6) \frac{x^2 - 7x + 12}{2x^2 - 18} \cdot \frac{4(x + 3)^2}{4 - x}$$

$$7) \frac{6a^2 - 11a - 10}{-12a - 8} \cdot \frac{8a^2 + 16a + 8}{2a^2 - 3a - 5}$$

$$8) \frac{(-6t - 8)(t - 6)^2}{(8t - 48)^2} \div \frac{3t^2 - 2t - 8}{64t^2 - 256}$$

$$9) \frac{3}{n} + \frac{2}{n+2} - \frac{1}{n^2}$$

$$10) \frac{2x}{x+3} - \frac{6x}{x-7}$$

Simplify each of these:

$$11) \frac{\frac{3}{k} + \frac{8}{m}}{\frac{6}{m} - \frac{5}{k}}$$

$$12) \frac{\frac{3x}{x-1} - \frac{4x}{x+2}}{\frac{2x}{x+2} + \frac{5x}{x-1}}$$

Solve each of these for the indicated variable.

$$13) \frac{2p-3}{2p+1} = \frac{p-4}{p+2}$$

$$14) \frac{3}{n-7} + 1 = \frac{8}{n^2 - 9n + 14}$$

$$15) \frac{2y}{y-1} + \frac{2}{3} - \frac{10}{y-1} = 0$$