

## Chapter 8 White Board Problems

Simplify

$$1. \frac{9}{15a-15}$$

$$2. \frac{7n}{24n^3-64n^2} \cdot \frac{9n-24}{7n}$$

$$3. \frac{a^2-ab-12b^2}{5a^2+17ab+6b^2}$$

$$4. \frac{10b^2+42b+36}{6b^2-2b-60} \div \frac{40b+48}{3b^2-13b+10}$$

$$5. \frac{4a^2-5ab-6b^2}{(4a^3b^5+3b^6a^2)(a^2-2ab)}$$

Solve

$$1. \frac{x+7}{x-4} = 5$$

$$2. \frac{1}{6k^2} = \frac{1}{3k^2} - \frac{1}{k}$$

$$3. \frac{2}{3} - \frac{5}{m} = \frac{1}{3m}$$

$$4. 3m = \frac{2m}{3} + \frac{3}{4}$$

$$5. \frac{1}{b} = \frac{3b}{4} + 1$$

## Rational Function Graphs

1. Sketch a graph of  $h(x) = \frac{1}{x+3} + 5$

2. Sketch a graph of  $m(x) = \frac{1}{(x-3)^2} - 2$

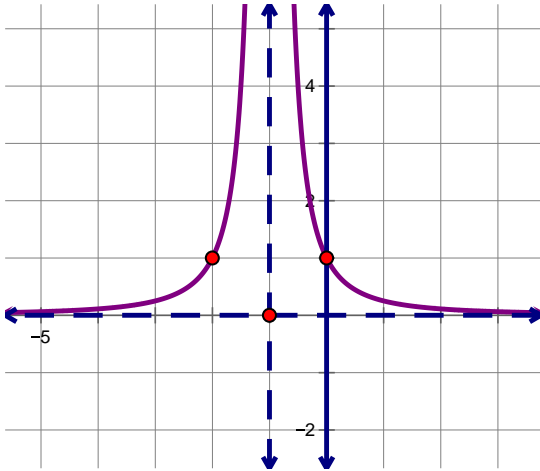
3. Sketch a graph of  $j(x) = -\frac{1}{x+2} - 1$

4. Sketch a graph of  $m(x) = -\frac{2}{(x-6)^2} + 3$

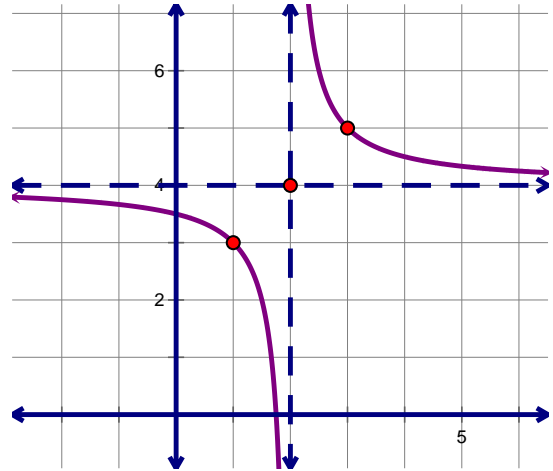
5. Using the parent function  $y = \frac{1}{x^2}$ , graph a function that has a vertical dilation BAFO 5, reflected over the  $x$ -axis, translated left 4, up 2. Then, find the domain, range, and equations of the asymptotes.

# Rational Function Equations

1.

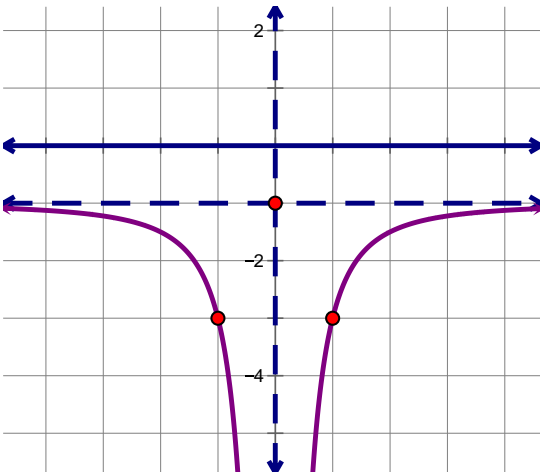


2.

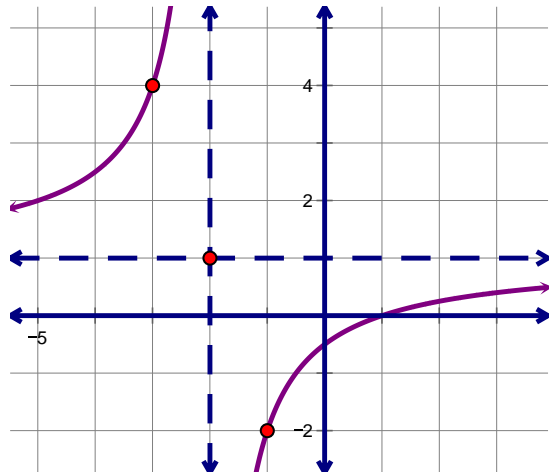


3. Using the parent function  $y = \frac{1}{x}$ , write the equation of a function that has a vertical dilation BAFO 5, reflected over the  $x$ -axis, translated right 11. Then, find the domain, range, and equations of the asymptotes.

4.



5.

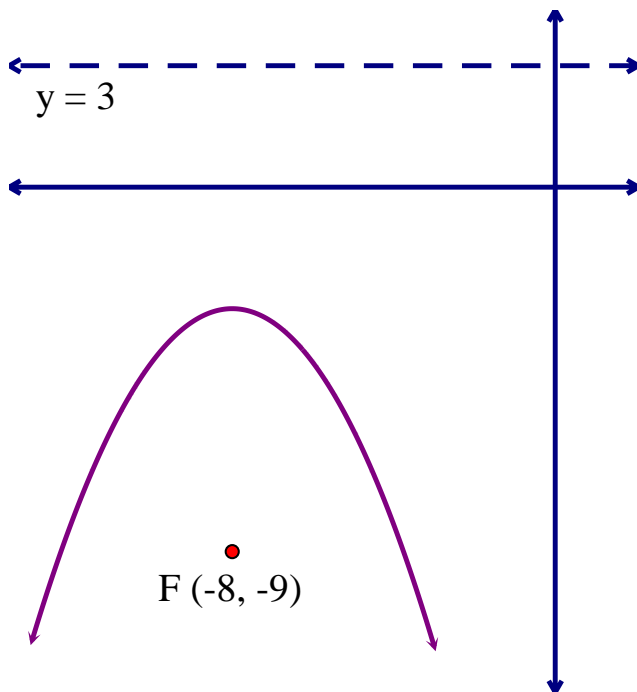


## Applications

1. Nicki's softball team has won 15 games and lost 11 games. How many games does Nicki's team need to win in a row to have a winning record of 88%?
2. Scott has 200 ounces of a sports drink that is 28% sugar and 72% water. How much water does Scott need to add to his sports drink so that it will be 15% sugar and 85% water?
3. Darrin mixed 17 grams of sugar with 40 grams of flour and then realized that his cookie recipe calls for this mixture to be 75% flour. How much flour should he add?
4. Callie has 20 grams of concentrated glue which is 70% glue and 30% water. How much water must she add for the concentration to be 45% glue?
5. Mr. Smith made 2 pounds of trail mix. The recipe called for 25% chocolate chips, 40% nuts and 35% raisins, but after making it, he decided that he wanted more chocolate chips and nuts. How many more pounds of chocolate chips and nuts does he need to add to have only 20% raisins?

## Parabolas

1. If the focus is  $(1,4)$ , and the directrix is  $y = -3$ , where is the vertex?
2. If the vertex is  $(-2,2)$ , and the focus is  $(-2,-4)$ , what is the equation of the directrix?
3. Find the equation of the parabola with directrix at  $x = -2$  and focus at  $(-4,-5)$ . Then sketch a complete graph.
4. Find the equation of the parabola with vertex at  $(2,-6)$  and focus at  $(2,-3)$ . Then sketch a complete graph.
5. Given the graph, find the equation of the parabola.



## Distances and Circles

1. Find the distance between  $(0, -2)$  and  $(-5, -1)$
2. Write the equation of the circle in standard form with center at  $(-1, 3)$  and area  $16\pi$ .
3. If the distance between  $(-8, 10)$  and  $(-6, y)$  is  $2\sqrt{5}$ , solve for  $y$
4. Write the equation of the circle in standard form:  
 $32y + y^2 - 8x = -263 - x^2$
5. Given the graph, write the equation of the circle in standard form and expanded form.

