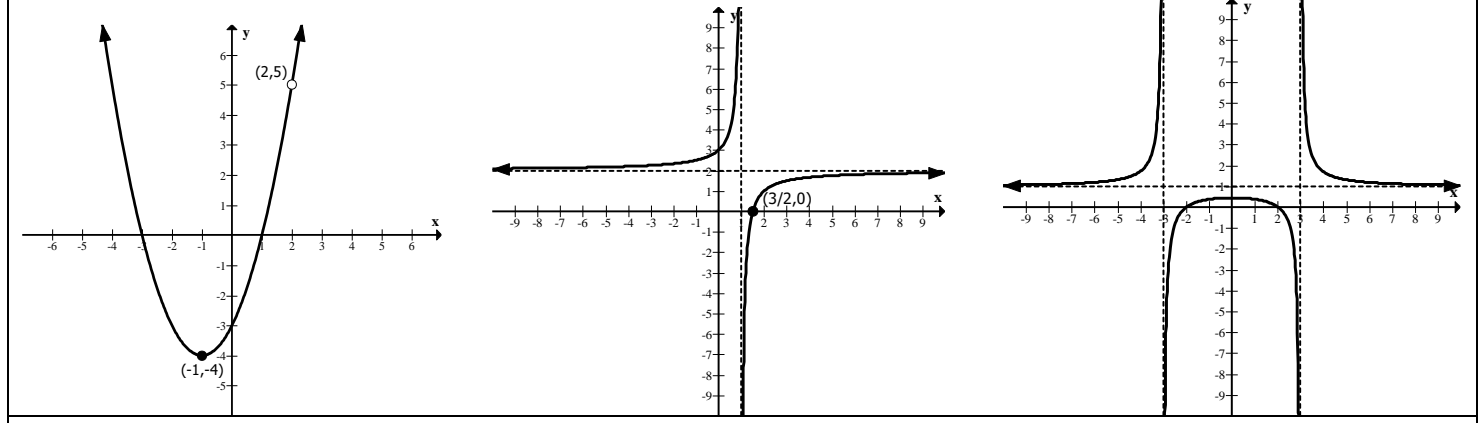


Create an equation that satisfies the conditions:	
1. A rational function with asymptotes: $x = -2$, $x = 1$, and $y = 3$	2. A rational function with asymptotes: $x = 9$, and $y = 0$
3. A rational function with asymptotes: $x = -3$, $x = 4$, and $y = 1$ and x intercepts $(2, 0)$ and $(3, 0)$	4. A rational function with no vertical asymptotes and a y – intercept of 3

5. Find the equation for each rational function.



6. True or False. Explain your answer.
- a) A rational function can have a vertical, horizontal, and slant asymptotes.
 - b) It is possible to have a rational function with no y-intercept and no vertical asymptote.
 - c) A rational function can cross a vertical asymptote but not a horizontal asymptote.
 - d) Transforming a rational function 5 units to the right that has asymptotes of $x = 3$ and $y = 2$ will result in asymptotes at $x = 8$ and $y = 7$.
 - e) The domain of a rational function will exclude the values of the vertical asymptotes and the holes.

7. It will cost \$95,000 for research and development of a new computer game. Once completed, individual games can be produced for just \$1.55 each. If the first 275 disks are the given away as samples, the function $C(x) = \frac{1.55x+95,000}{x-275}$ determines the average production cost per disk where x is the total number of games produced.

A. How many disks should be produced, so you can charge \$20 per disk?
 B. What is the minimum cost per disk?

8. Imagine that you own a T-shirt business. The cost of creating the design and purchasing printing supplies is \$800. In addition, the cost of each T-shirt is \$4.75. The average cost per T-shirt for the business to manufacture x T-shirts is $C(x) = \frac{4.75x+800}{x}$.

A. Find the average cost per T-shirt when $x = 100$, 1000, and 10,000.
 B. What is the minimum cost per T-shirt?

- Find the x and y intercepts
- Find the domain
- Plot specific points on each graph
- Each item should be written as an equation or coordinate pair.
- Find any horizontal, vertical or slant asymptotes
- Find any holes
- If one of the parts does not exist put NONE.

9. $f(x) = \frac{x^2-x-12}{x^2-2x-15}$	10. $f(x) = \frac{x^2}{x^2+9}$	11. $f(x) = \frac{x^2-2x-8}{x^2-9}$
12. $f(x) = \frac{x^2+5}{x}$	13. $f(x) = \frac{1-x^2}{x}$	14. $f(x) = \frac{x^2-11x+30}{x^2-3x-10}$
15. $f(x) = \frac{1-2x}{x}$	16. $f(x) = \frac{4x}{x^2+4}$	17. $f(x) = \frac{1}{(x-3)^2}$