

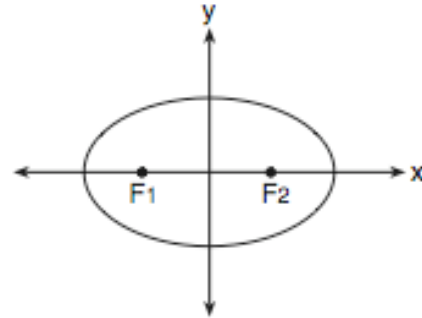
1. Camisha is paying a band \$330 to play at her graduation party. The amount each member earns,  $d$ , varies inversely as the number of members who play,  $n$ . The graph of the equation that represents the relationship between  $d$  and  $n$  is an example of

- (1) a hyperbola                      (3) a parabola  
 (2) a line                              (4) an ellipse

2. Which equation defines a relation that is *not* a function?

- (1)  $y = 2x + 3$                       (3)  $x^2 + y^2 = 25$   
 (2)  $y = x^2$                               (4)  $y = 3$

3. The accompanying diagram shows the elliptical orbit of a planet. The foci of the elliptical orbit are  $F_1$  and  $F_2$ .



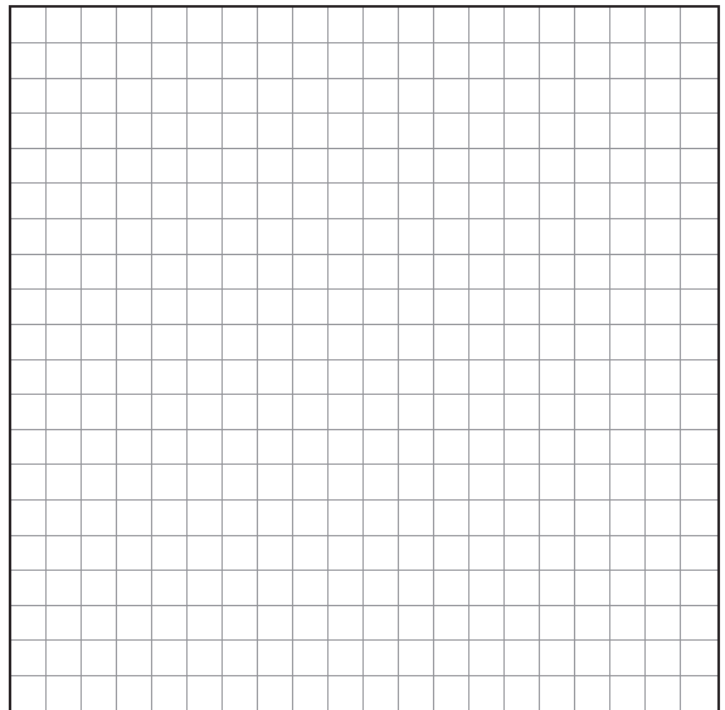
If  $a$ ,  $b$ , and  $c$  are all positive and  $a \neq b \neq c$ , which equation could represent the path of the planet?

- (1)  $ax^2 - by^2 = c^2$                       (3)  $y = ax^2 + c^2$   
 (2)  $ax^2 + by^2 = c^2$                       (4)  $x^2 + y^2 = c^2$

5. Chad had a garden that was in the shape of a rectangle. Its length was twice its width. He decided to make a new garden that was 2 feet longer and 2 feet wider than his first garden. If  $x$  represents the original width of the garden, express the difference between the area of his new garden and the area of the original garden in terms of  $x$ .

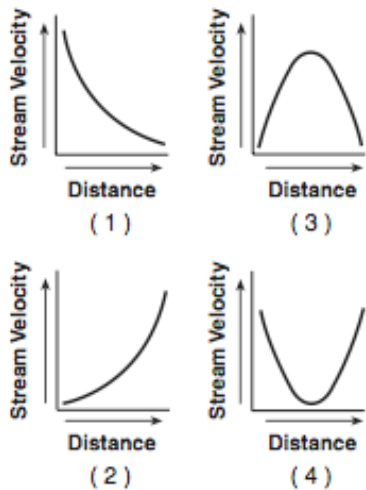
6. Draw the graph of the equation:

$$9(y + 2)^2 - 9(x - 3)^2 = 81$$



7. When a current,  $I$ , flows through a given electrical circuit, the power,  $W$ , of the circuit can be determined by the formula  $W = 120I - 12I^2$ . What amount of current,  $I$ , supplies the maximum power,  $W$ ?

8. Which graph represents an inverse variation between stream velocity and the distance from the center of the stream?



9. Which of the following is both a function and a hyperbola?

- (1)  $y^2 = 9 - x^2$
- (2)  $y^2 = x^2 - 9$
- (3)  $y = 9 - x^2$
- (4)  $y = \frac{9}{x}$

10. Find the inverse of the function  $f(x) = -\frac{1}{3}x + 2$  and sketch both  $f$  and  $f^{-1}$  on the accompanying grid.

State the coordinates of a point on the inverse function.

