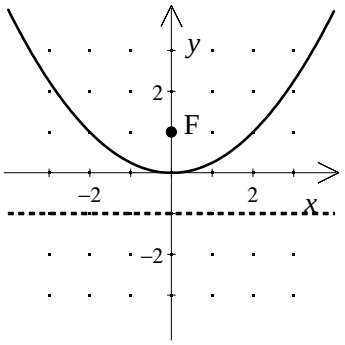
NAME:_____

1. Use the information in the graph to write an equation for the parabola.



2. Write an equation of the parabola with its vertex at the origin if its focus is at (–4, 0).

3. Find an equation for the parabola with focus at (–3, –11) and vertex at (–3, –6).

4. Write an equation of the parabola with its vertex at the origin if its directrix is $y = 4$.

[A] $y = -16x^2$ [B] $y = -\frac{1}{16}x^2$

[C] $x = 4y^2$ [D] $x = -\frac{1}{16}y^2$

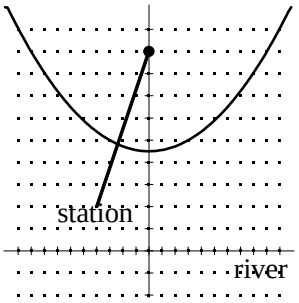
5. Which is the equation of the parabola that opens to the right, has a focus at (3, 0), and has a directrix at $x = -3$?

[A] $x = \frac{1}{12}y^2$ [B] $y = \frac{1}{12}x^2$

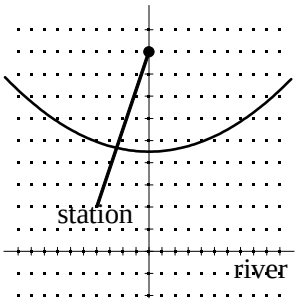
[C] $x = -\frac{1}{12}y^2$ [D] $y = -\frac{1}{12}x^2$

6. A small ranger station is deep in the forest 9 minutes hiking time north of a straight river. You need to construct a supply depot that is equidistant from the ranger station and the river. If your unit of distance is a minute of hiking, which graph represents all the possible locations of the supply depot?

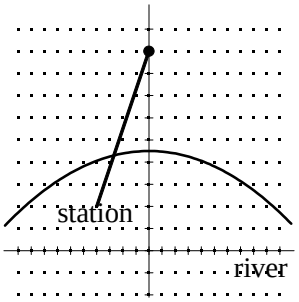
[A]



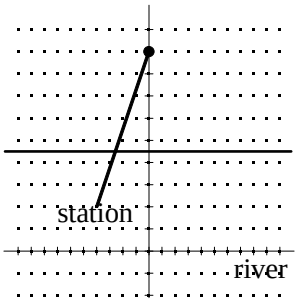
[B]



[C]



[D]



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7. Compare the quantity in Column A with the quantity in Column B.

Column A	Column B
-5	the y-coordinate of the focus of $y = -\frac{1}{20}x^2$

[A] The quantity in Column A is greater. [B] The quantity in Column B is greater.

[C] The two quantities are equal.

[D] The relationship cannot be determined on the basis of the information supplied.

8. Find the focus of the parabola: $y^2 = 28x$. [A] (0, 7) [B] (0, –7) [C] (7, 0) [D] (–7, 0)

9. A small ranger station is deep in the forest 8 minutes hiking time south of a straight river. You need to construct a supply depot that is equidistant from the ranger station and the river. If your unit of distance is a minute of hiking, sketch all the possible locations of the supply depot.

10. The shape of a solar collector can be modeled by the equation $y = \frac{1}{8}x^2$, where x and y are in inches. Find the distance from the vertex to the focus.

11. A parabolic mirror can be modeled by the equation $y = 0.5x^2$. Graph this equation using a graphing calculator. Estimate the width of the mirror at the points where $y = 2$ cm.

12. Find the equation of a parabola that models a suspension bridge with towers that rise 500 ft above the roadbed. The length of the main span is 2200 ft. Round coefficients to the nearest hundred thousandth.

[1] $y = \frac{x^2}{4}$

[2] $x = -\frac{1}{16}y^2$

[3] $x^2 + 6x + 20y + 129 = 0$

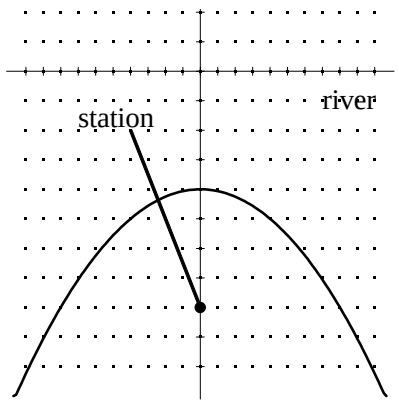
[4] B

[5] A

[6] A

[7] C

[8] C

[9] 

[10] 2 in.

[11] 4 cm

[12] $y = 0.00041x^2$