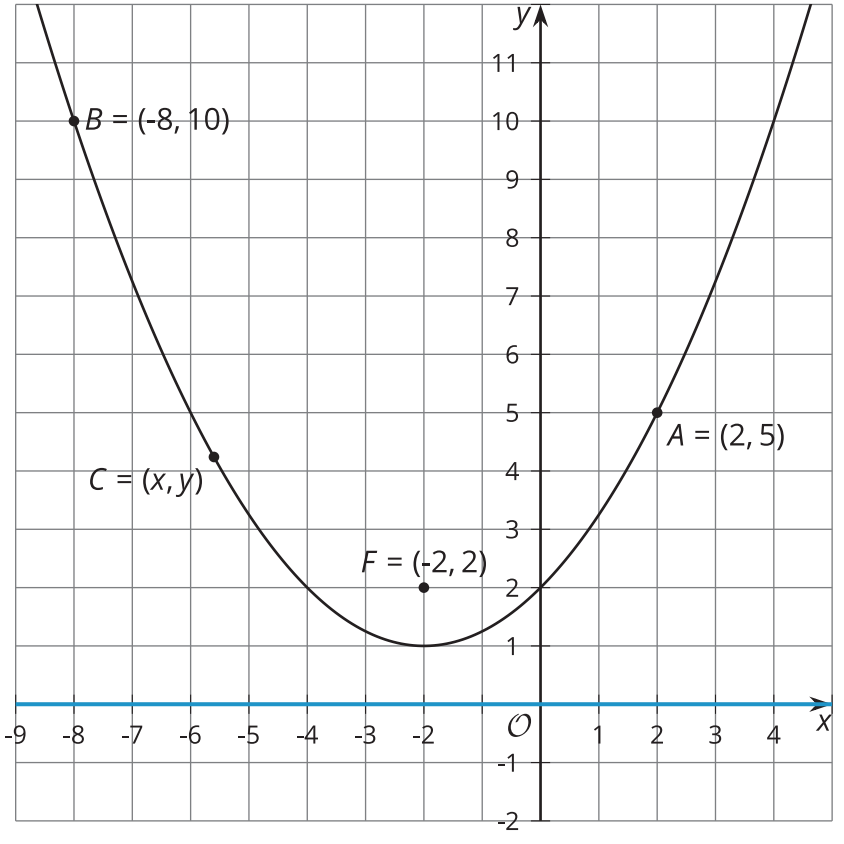
Unit 6 Lesson 8: Equations and Graphs

1 Focus on Distance (Warm up)

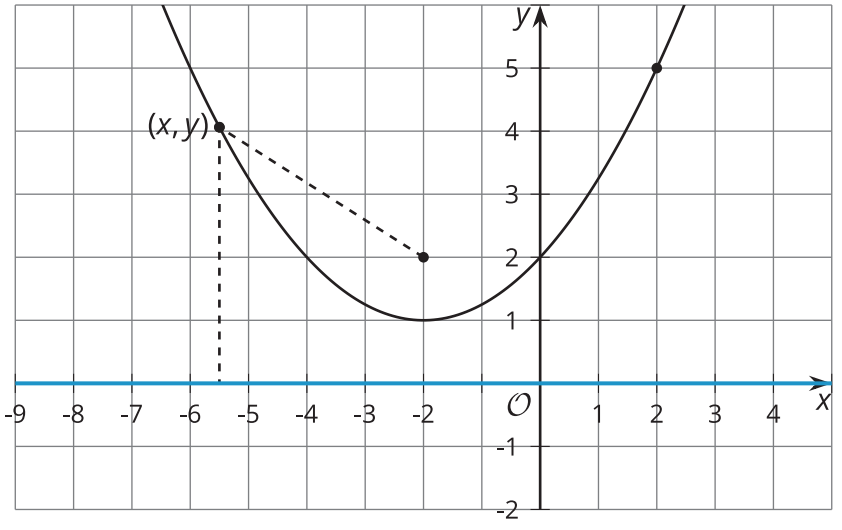
Student Task Statement

The image shows a parabola with focus $(-2, 2)$ and directrix $y = 0$ (the x-axis). Points A, B, and C are on the parabola.



Without using the Pythagorean Theorem, find the distance from each plotted point to the parabola's focus. Explain your reasoning.

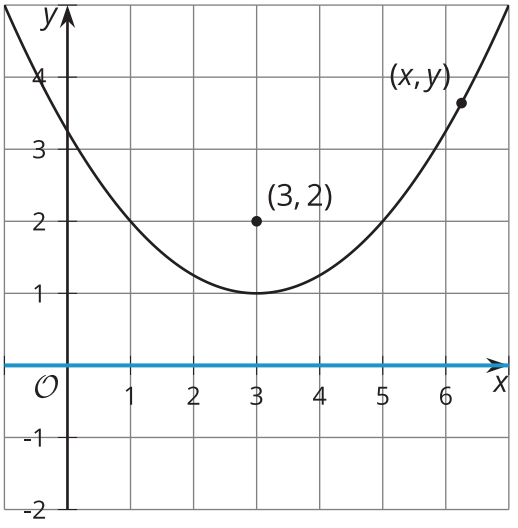
Activity Synthesis



2 Building an Equation for a Parabola

Student Task Statement

The image shows a parabola with focus $(3, 2)$ and directrix $y = 0$ (the x-axis).



1. Write an equation that would allow you to test whether a particular point (x, y) is on the parabola.
2. The equation you wrote defines the parabola, but it's not in a very easy-to-read form. Rewrite the equation to be in vertex form: $y = a(x - h)^2 + k$, where (h, k) is the vertex.

3 Card Sort: Parabolas

Student Task Statement

Your teacher will give you a set of cards with graphs and equations of parabolas. Match each graph with the equation that represents it.

Images for Activity Synthesis