

Algebra 2: Chapter 2.3 Homework

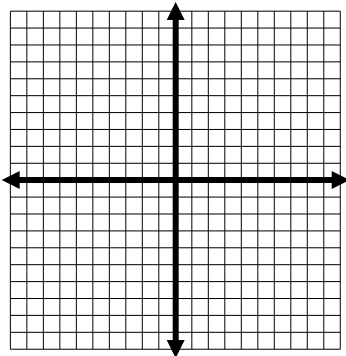
Parabolas

Fill in the Blanks:

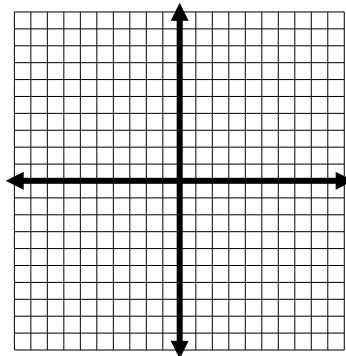
- 1) A Parabola is the set of all _____ equidistant from a fixed _____ (called the Directrix) and a fixed point (called the _____).
- 2) The Distance from the _____ to the Focus of a parabola is p units.
- 3) The Axis of _____ of a parabola runs through the Focus and Vertex and is Perpendicular to the _____.
- 4) $x = \frac{1}{4p}(y - k)^2 + h$ is the standard form of a _____ parabola, where (h, k) is the coordinates of the _____.
- 5) _____ is the standard form of a Vertical parabola.

Specify the **Direction of Opening**, find the equation of the **Axis of Symmetry**, the coordinates of the **Vertex**, the coordinates of the **Focus**, and the equation of the **Directrix** for each parabola. Then sketch a quick graph.

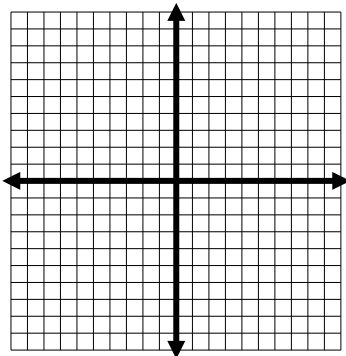
6) $x = \frac{1}{8}y^2$



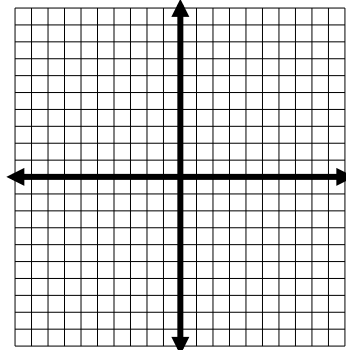
7) $y = -\frac{1}{4}x^2$



8) $y = \frac{1}{20}x^2 - 2$



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



Write an equation in standard form for the information given for each parabola.

10) Vertex $(0,0)$, Focus $\left(-\frac{4}{5},0\right)$

11) Focus $(2,0)$, Directrix $y = 4$

12) Vertex $(0,0)$, Focus $(0,5)$

13) Vertex $(-2,1)$, Directrix $x = 1$

14) An electricity-generating dish uses a parabolic reflector to concentrate sunlight onto a high-frequency engine located at the focus of the reflector. The sunlight heats helium to 650°C to power the engine. Write an equation that represents the cross section of the dish shown with its vertex at $(0, 0)$. What is the depth of the dish?

