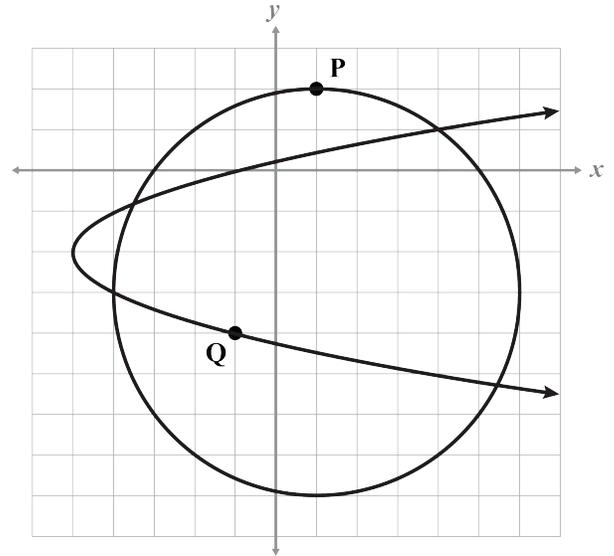# ✎ Test 14 (Lessons 27–28): Parabolas and Circles

For problems 1–2, write the equations of the graphs on the coordinate plane.

1) The circle that contains point P

2) The parabola that contains point Q

3) Write the equation of a circle with diameter endpoints of $(-6.5, 0.5)$ and $(1.5, 0.5)$.

4) A sprinkler is placed in a garden to water plants and a hanging flower basket. The time (seconds) and height (feet) of the sprinkler water stream are measured at three points as indicated on the graph. Determine the equation of the parabolic curve of the water.
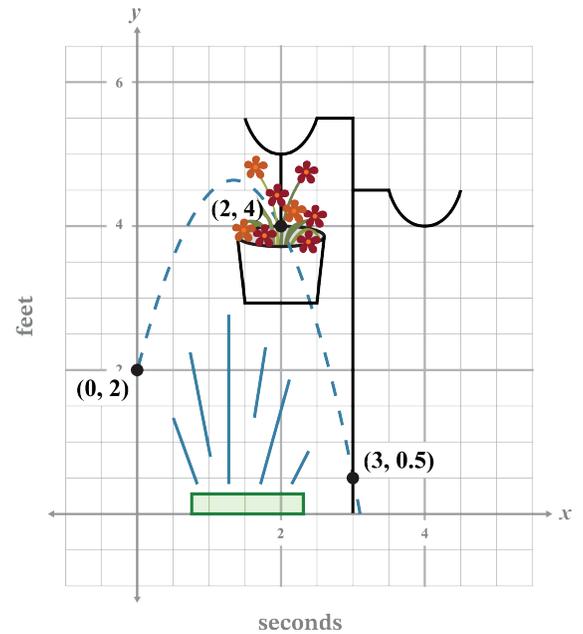
For problems 5–6, write the equation in the form $(x-h)^2+(y-k)^2=r^2$, $y=a(x-h)^2+k$, **or** $x=a(y-k)^2+h$. **State if the equation represents a circle or a parabola.**

5) $x^2+y^2+y-2=0$

6) $3x^2-60x=-311$

Rose is extending her existing rectangular flower bed. She will use one side of the flower bed as the starting point.

7) Determine the dimensions of the flower bed if Rose will only use a 12 foot board.

8) What is the maximum area of the flower bed?

Graph problems 9 and 10 on the same coordinate plane.

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

10) $(x+3)^2 + (y+2)^2 = 16$