

### Equations of Parabolas

Translation	Vertex	$p$	Equation
Base parabola	(0,0)	3	$y = \frac{x^2}{12}$
$h = 7$	(7,0)	3	$y = \frac{(x-7)^2}{12}$
$h = -3$	(-3,0)	3	$y = \frac{(x+3)^2}{12}$
$k = 2$	(0,2)	3	$y = \frac{x^2}{12} + 2$
$k = 5$	(0,5)	3	$y = \frac{x^2}{12} + 5$
$h = 7; k = 2$	(7,2)	3	$y = \frac{(x-7)^2}{12} + 2$
$h = 9; k = 13$	(9,13)	5	
	(h, k)	$p$	

1. Make a prediction for the equation of a parabola with a  $p$ -value of 5 and a vertex at (9, 13).
2. What are the coordinates of the focus for a parabola with a  $p$ -value of 5 and a vertex at (9, 13)? How do you know?

