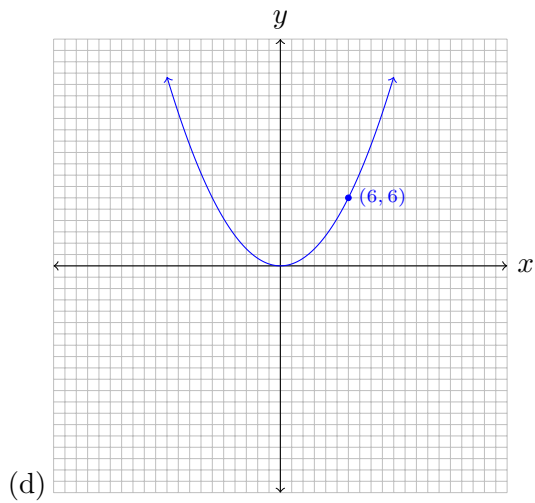
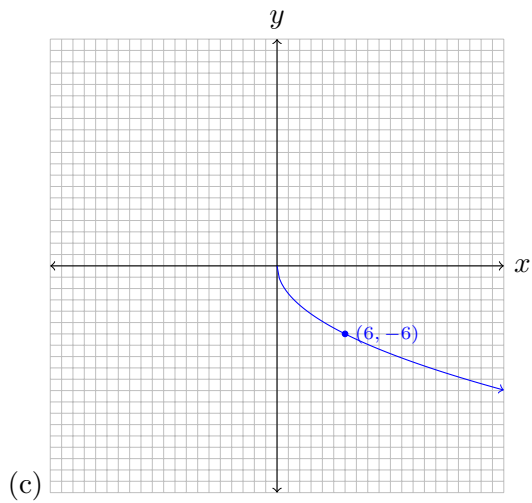
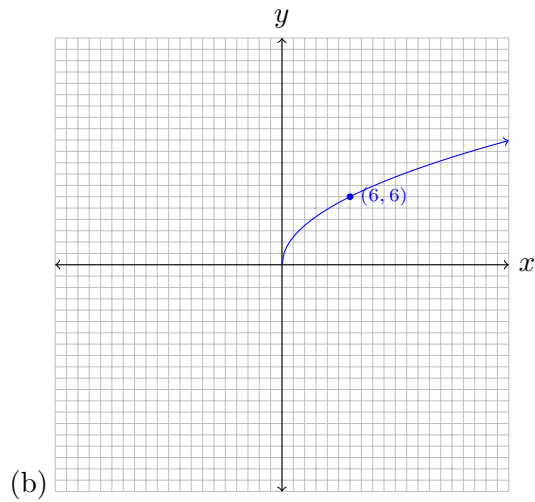
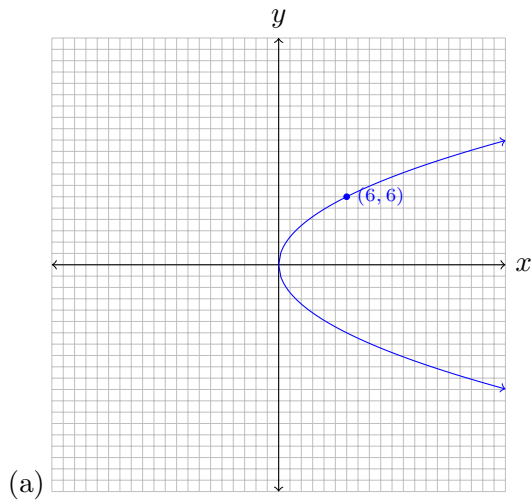


COLLEGE ALGEBRA QUIZ

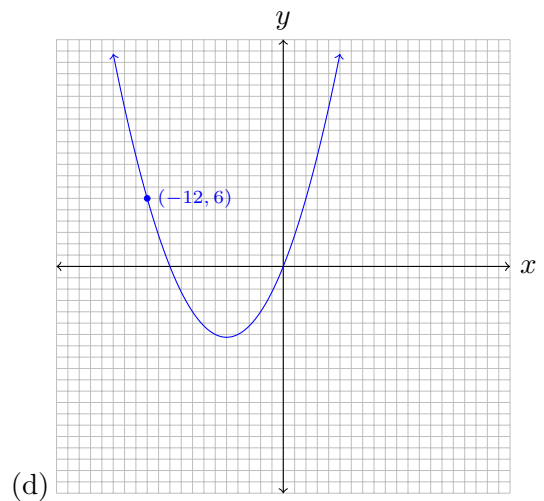
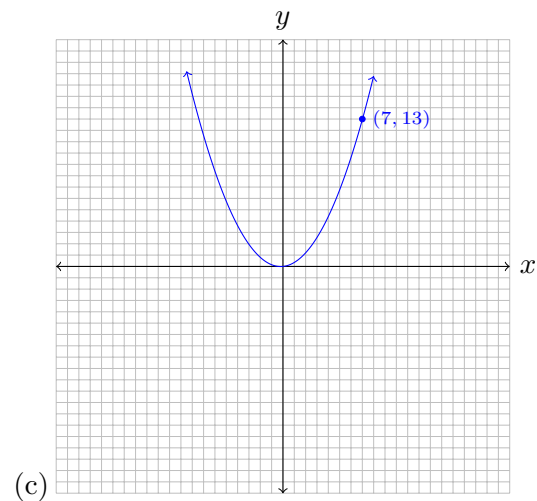
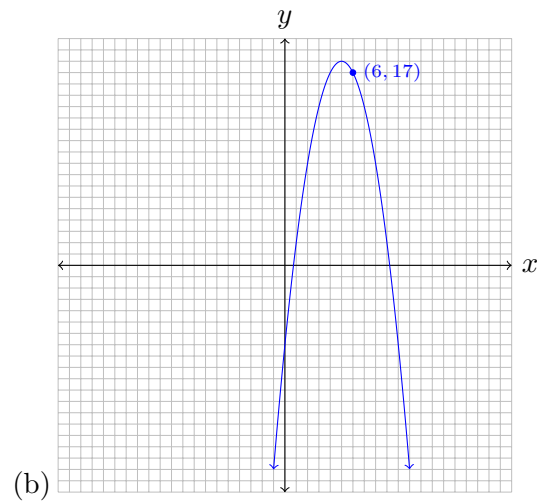
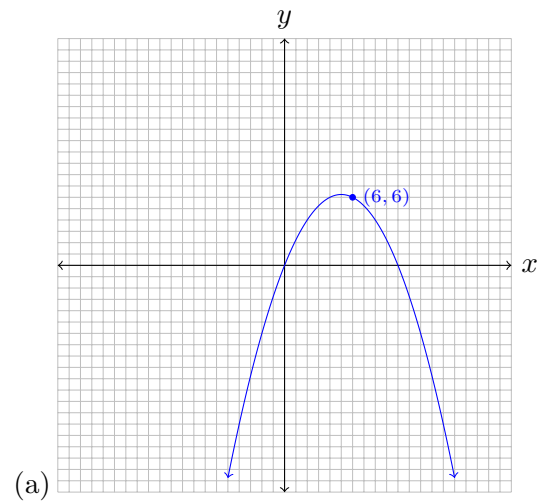
(1) Which of the following graphs belong to $y^2 = 6x$.

Solution: (a)



(2) Which of the following graphs belong to $x^2 - 10x + 4y = 0$.

Solution: (a)



(3) Given the directrix $y = \frac{5}{2}$ and focus $(0, \frac{-5}{2})$, find an equation of the parabola.

Solution: (a)

(a) $x^2 = -10y$

(b) $y^2 = -10x$

(c) $y^2 = \frac{1}{4}(x + \frac{5}{2})^2$

(d) $x^2 = -6y$

- (4) Find the focus, the vertex, and the directrix for the parabola, $y^2 = -8x$

Solution: (a)

- (a) focus: $(-2, 0)$; vertex: $(0, 0)$; directrix: $x = 2$
 (b) focus: $(-3, 0)$; vertex: $(0, 0)$; directrix: $x = 3$
 (c) focus: $(-8, 0)$; vertex: $(0, 0)$; directrix: $x = 8$
 (d) focus: $(-2, 0)$; vertex: $(-2, 0)$; directrix: $x = -2$

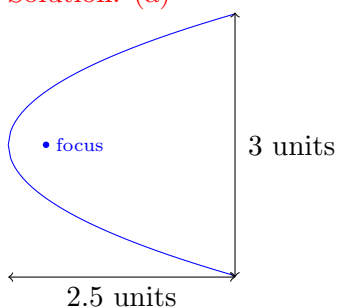
- (5) Find the focus, the vertex, and the directrix for the parabola, $x^2 + 8x + 2y + 2 = 0$

Solution: (a)

- (a) focus: $(-4, \frac{13}{2})$; vertex: $(-4, 7)$; directrix: $y = \frac{15}{2}$
 (b) focus: $(-5, \frac{15}{2})$; vertex: $(-5, 8)$; directrix: $y = \frac{17}{2}$
 (c) focus: $(4, \frac{-15}{2})$; vertex: $(4, -7)$; directrix: $y = \frac{-13}{2}$
 (d) focus: $(5, \frac{-17}{2})$; vertex: $(5, -8)$; directrix: $y = \frac{-15}{2}$

- (6) A parabola has a cross section that is 3 units wide at the opening and 2.5 units deep at the vertex. What is the distance from the vertex to the focus?

Solution: (a)



- (a) 0.225 units
 (b) 0.167 units
 (c) 0.900 units
 (d) 0.450 units