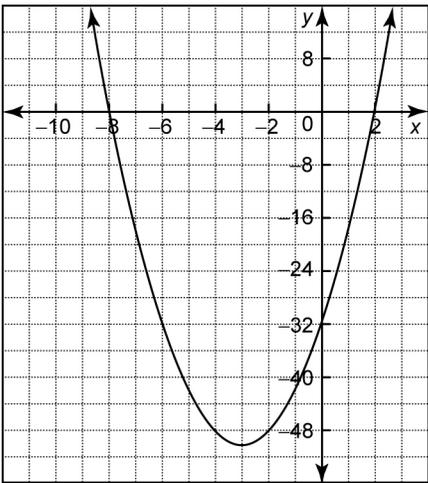
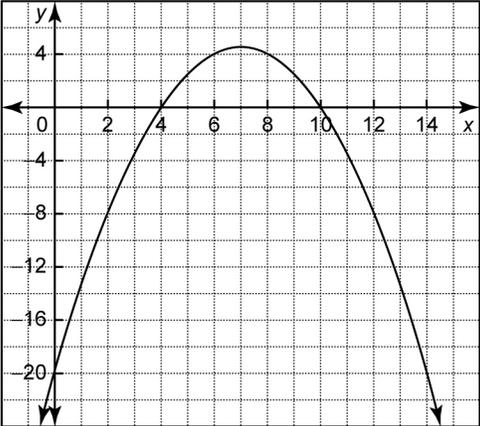


Section 4.5 Practice Master

- Sketch each parabola. Label the vertex and the x -intercepts.
 - $y = (x + 2)(x - 4)$
 - $y = -(x - 6)(x + 4)$
 - $y = 2(x + 8)(x + 2)$
 - $y = -\frac{1}{2}(x - 3)(x - 7)$
- Determine an equation in the form $y = a(x - r)(x - s)$ to represent each parabola by considering the vertex and the x -intercepts.
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- Consider the quadratic relation $y = (x - 3)^2$.
 - Sketch the parabola.
 - Write the coordinates of the vertex.
 - How many x -intercepts does the parabola have?
- The path of a rocket is given by the relation $h = -5(x - 2)(x - 12)$, where x represents the horizontal distance, in metres, the rocket travels and h represents the height, in metres, above the ground of the rocket at this horizontal distance.
 - Sketch the path of the rocket.
 - What is the maximum height of the rocket?
 - What is the horizontal distance when this occurs?
 - What is the height of the rocket at a horizontal distance of 5 m?
 - Find another horizontal distance where the height is the same as in part d).
- The path of a kicked football can be modelled by the relation $h = -0.02x(x - 45)$, where h represents the height, in metres, above the ground and x represents the horizontal distance, in metres, measured from the kicker.
 - When the ball hits the ground, how far has it travelled?
 - If the goal post is 40 m away, will the kick clear the 3-m-high crossbar for a field goal?