

Math S-Xab Summer 2004
Worksheet: Quadratic Functions
July 8, 2004

1. Let $f(x) = x^2 - 2x - 8$.
 - (a) Find the x -intercepts of f by setting the formula equal to 0 and solving for x .
 - (b) Find the x -intercepts of f by using the quadratic formula.
 - (c) Find the x - and y -coordinates of the vertex of f .
 - (d) Is f concave up or concave down?
 - (e) Sketch the graph of f using your answers to parts (a)–(d).
2. Let $f(x) = -(x + 2)^2 + 9$.
 - (a) Find the x -intercepts of f by setting the formula equal to 0 and solving for x .
 - (b) Find the x -intercepts of f by writing f in the form $ax^2 + bx + c$ and using the quadratic formula.
 - (c) Which of the methods in parts (a) and (b) do you find easier?
 - (d) Find the x - and y -coordinates of the vertex of f .
 - (e) Is f concave up or concave down?
 - (f) Sketch the graph of f using your answers to parts (a)–(e).
3. Suppose $f(x) = a(x - h)^2 + k$ for some constants a , h , and k . What are the x - and y -coordinates of the vertex of f ?
4. Let $f(x) = 2(x + 3)(x - 7)$
 - (a) Find the x -intercepts of f by setting the formula equal to 0 and solving for x .
 - (b) Find the x -intercepts of f by writing f in the form $ax^2 + bx + c$ and using the quadratic formula.
 - (c) Which of the methods in parts (a) and (b) do you find easier?
 - (d) Find the x - and y -coordinates of the vertex of f .
 - (e) Is f concave up or concave down?
 - (f) Sketch the graph of f using your answers to parts (a)–(e).
5. Suppose $f(x) = a(x - r)(x - s)$ for some constants a , r , and s . What are the x -intercepts of f ?