

7.2 Parabolas

- 1) The interesting points of a parabola are the y -intercept, the roots (x -intercepts)—if any, and the minimum or maximum point.

- 3)
 - a) The value of c always determines the y -intercept: $(0, c)$.
 - b) The value b determines the y -intercept of the graph $y = 3x + b$: $(0, b)$
 - c) Similarly, the value of d in the equation $y = x^3 + 4x^2 + 2x + d$ determines the y -intercept of the graph: $(0, d)$.
 - d) The value of x must be 0.

- 5)
 - a) $x = -4.37$ or $x = 1.37$
 - b) $(0, -6)$
 - c) $(-1.5, -8.25)$

- 7)
 - a) no roots
 - b) one root
 - c) two roots.

- 9)
 - b) $(0, 11.2)$
 - c) No

- 11) $y = 3(x - 2.1)(x - 2.6)$
 - a) Multiplication of $(x - 2.1)$ and $(x - 2.6)$ yields an x^2 term.
 - b) $x = 2.1$ or $x = 2.6$
 - c) These values of x are called the *roots* or *solutions* or *zeroes* or *x -intercepts* of the quadratic equation.
 - d) The roots are at 2.1 and 2.6. The x -coordinate of the vertex (here it is a minimum value) occurs midway between the roots at $x = 2.35$.
TblStart = 2; Tbl = .05

- 13)
 - a) $(400, 84)$
 - b) Yes, Sammy hit a homerun.

- 15)
 - a) $(0, 8)$
 - b) About 66 ft
 - c) approximately 203 ft

- 17)
 - a) $A = 93.5 \text{ in}^2$
 - b) $P = 39 \text{ in}$

- 19) $2x^3 - 5x^2 - 12x$