

## Parts of a Quadratic

**Directions:** For each function tell the following information

- A.** Tell whether the graph *opens up* or *down*.
- B.** Tell whether the vertex is a *maximum* or a *minimum*.
- C.** Find an equation for the *line of symmetry*.
- D.** Find the coordinates of the vertex.

1.  $4x^2 + 12x + 9$

2.  $4x^2 - 4x - 15$

3.  $9x^2 - 4$

## Parts of a Quadratic

4.  $x^2 + 6x - 40$

5.  $2x^2 - 8$

6.  $x^2 + 18x + 77$

7.  $2x^2 - 98$

## Parts of a Quadratic

**8.**  $x^2 + 21x + 98$

**9.**  $x^2 + 20x + 84$

**10.**  $9x^2 + 30x + 16$

**11.**  $8x^2 - 6x - 27$

## Parts of a Quadratic

**12.**  $x^2 - 3x - 54$

**13.**  $x^2 - 169$

**14.**  $25x^2 - 9$

**15.**  $7x^2 + 49$

## Parts of a Quadratic

**16.**  $2x^2 - 10x - 28$

**17.**  $x^2 + 8x + 12$

**18.**  $x^2 - 2x - 35$

**19.**  $x^2 + 2x - 63$

## Parts of a Quadratic

**20.**  $20x^2 - 11x - 3$

**21.**  $12x^2 + 4x - 5$

**22.**  $4x^2 - 5x - 6$

**23.**  $8x^2 + 22x - 21$