# *Solve by Factoring:*

1) $x^2 = 22x - 96$                              2) $5x^2 - 3x - 15 = 6x^2 + 10x + 15$

3) $8x^2 - 6x + 72 = 9x^2 - 6x - 72$             4) $5x = x^2 - 84$

5) $6x^2 = 30x + 396$

6) $x^3 + 39x = 16x^2$

7) $20x^2 - 45 = 0$

8) $3x^2 = -3x + 216$

**9)** $5x^3 - 210x = 5x^2$

**10)** $5x^2 + 35x = 40$

**11)** $21x^2 + 3x - 10 = 5x^2 + 3x - 9$

**12)** $x^2 = -22x - 72$

**13)** $11x^2 - 4x - 15 = 7x^2 - 4x - 14$        **14)** $4x^2 - 17x + 3 = 6x^2 - 9x + 3$

**15)** $8x^2 + 2x - 11 = 5x^2 + 11x - 11$        **16)** $3x^2 - 6x + 8 = 12x^2 + 21x + 8$

*Answer Key:*

*1) x = {6,16}*      *2) x = {-10, -3}*      *3) x = {-12,12}*      *4) x = {-7,12}*

*5) x = {-6,11}*      *6) x = {0,3,13}*      *7) $x = \{-\frac{3}{2}, \frac{3}{2}\}$*      *8) x = {-9,8}*

*9) x = {-6,0,7}*      *10) x = {-8,1}*      *11) x = {- ¼ , ¼ }*      *12) x = {-18,-4}*

*13) x = {- ½ , ½ }*      *14) x = {-4,0}*      *15) x = {0,3}*      *16) x = {-3,0}*

# *Solve Using The Quadratic Formula:*

1) $3x^2 - 10x - 1 = 0$                                    2) $9x^2 = 5x + 4$

**3)** $5x^2 = 17x - 6$

**4)** $12x^2 + 22x = -4$

**5)** $4x^2 - 7 = -16x$                           **6)** $8x^2 = -1 - 12x$

7) $x^2 - 10x - 25 = 0$          8) $7x^2 = 13x - 16$

*Answer Key:*

1) $x = \dfrac{5}{3} \pm \dfrac{2\sqrt{7}}{3}$          2) $x = \{-\dfrac{4}{9}, 1\}$          3) $x = \{\dfrac{2}{5}, 3\}$          4) $x = \dfrac{-11}{12} \pm \dfrac{\sqrt{73}}{12}$

5) $x = -2 \pm \dfrac{\sqrt{23}}{4}$          6) $x = \dfrac{-3}{4} \pm \dfrac{\sqrt{7}}{4}$          7) $x = 5 \pm 5\sqrt{5}$          8) $x$ No Real Solution ($\sqrt{-279}$)

# *Solve Using Completing the Square:*

**1)** $x^2 + 6x - 39 = 0$                                        **2)** $x^2 - 20x + 16 = 0$

**3)** $x^2 - 24x - 31 = 0$

**4)** $x^2 + 8x - 176 = 0$

5) $x^2 - 18x + 1 = 0$                    6) $x^2 + 16x - 8 = 0$