1. $a = -1, b = -4, c = -8$

$(-4)^2 - 4(-1)(-8) = 16 - 32 = -16$

$-16 < 0$; this equation has 0 real solutions.

2. $a = 5, b = 0, c = -10$

$(0)^2 - 4(5)(-10) = 0 + 200 = 200$

$200 > 0$; this equation has 2 real solutions.

3. $a = 3, b = 3, c = -1$

$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$x = \frac{-3 \pm \sqrt{3^2-4(3)(-1)}}{2(3)}$

$x = \frac{-3 \pm \sqrt{9-(-12)}}{6}$

$x = \frac{-3 \pm \sqrt{21}}{6}$

4. $x^2 + 5x + 6 = 0$

$a = 1, b = 5, c = 6$

$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$x = \frac{-5 \pm \sqrt{5^2-4(1)(6)}}{2(1)}$

$x = \frac{-5 \pm \sqrt{25-24}}{2}$

$x = \frac{-5 \pm \sqrt{1}}{2}$

$x = \frac{-5 \pm 1}{2}$

$x = \frac{-5-1}{2} = -3$

$x = \frac{-5+1}{2} = -2$

5. $a = 1, b = 0, c = -2$

$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$x = \frac{0 \pm \sqrt{0-4(1)(-2)}}{2(1)}$

$x = \frac{\pm\sqrt{8}}{2} = \frac{\pm 2\sqrt{2}}{2}$

$x = \frac{2\sqrt{2}}{2}, \frac{-2\sqrt{2}}{2}$

$x = \pm\sqrt{2}$