1.

$c = \left(\frac{-10}{2}\right)^2 = (-5)^2 = 25$

$c = 25$

2.

$c = \left(\frac{3}{2}\right)^2 = \frac{9}{4}$

$c = \frac{9}{4}$

3.

$x^2 + 10x = -2$

$x^2 + 10x + \left(\frac{10}{2}\right)^2 = -2 + \left(\frac{10}{2}\right)^2$

$x^2 + 10x + 25 = -2 + 25$

$(x + 5)^2 = 23$

$\sqrt{(x + 5)^2} = \sqrt{23}$

$x + 5 = \pm\sqrt{23}$

$x = -5 \pm \sqrt{23}$

4.

$x^2 - 6x + (\frac{-6}{2})^2 = 10 + (\frac{-6}{2})^2$

$x^2 - 6x + 9 = 10 + 9$

$(x - 3)^2 = 19$

$\sqrt{(x - 3)^2} = \sqrt{19}$

$x - 3 = \pm\sqrt{19}$

$x = 3 \pm \sqrt{19}$

5.

$x^2 + 5x + \left(\frac{5}{2}\right)^2 = -6 + \left(\frac{5}{2}\right)^2$

$x^2 + 5x + \frac{25}{4} = -6 + \frac{25}{4}$

$x^2 + 5x + \frac{25}{4} = -\frac{24}{4} + \frac{25}{4}$

$(x + \frac{5}{2})^2 = \frac{1}{4}$

$\sqrt{(x + \frac{5}{2})^2} = \sqrt{\frac{1}{4}}$

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

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

$x = -2, -3$