

$$(7) \quad 4x^2 - 20x + 17$$

$$a=4, b=-20, c=17$$

$$b^2 - 4ac = (-20)^2 - 4(4)(17)$$

$$= 400 - 272$$

$$= 128 = 2 \cdot 8^2$$

$$\sqrt{128} = 8\sqrt{2}$$

$$x = \frac{20 \pm 8\sqrt{2}}{8} = \frac{5 \pm 2\sqrt{2}}{2} \rightarrow$$

$$4 \left(x - \left(\frac{5+2\sqrt{2}}{2} \right) \right) \left(x - \left(\frac{5-2\sqrt{2}}{2} \right) \right)$$

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

Complete the square Method

$$4x^2 - 20x + 17 = 0$$

$$x^2 - 5x + \frac{17}{4} = 0$$

$$x^2 - 5x = -\frac{17}{4}$$

$$x^2 - 5x + \left(\frac{5}{2}\right)^2 = -\frac{17}{4} + \left(\frac{5}{2}\right)^2 = -\frac{17}{4} + \frac{25}{4} = +\frac{8}{4} = +2$$

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

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

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

$$x = \frac{5}{2} \pm \sqrt{2} = \frac{5 \pm 2\sqrt{2}}{2}, \text{ etc}$$

$$\left|x - \frac{5}{2}\right| = \sqrt{2}$$

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