Solving quadratic equations by completing the square

47

Name:

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Solve the following quadratic equations, leaving your solutions in exact form

a) $x^2 + 6x + 1 = 0$

$$x = -3 \pm 2\sqrt{2}$$

d) $x^2 + 6x - 1 = 0$

$$x = -3 \pm \sqrt{10}$$

c) $x^2 - 8x + 2 = 0$

$$x = 4 \pm \sqrt{14}$$

b) $x^2 + 4x - 2 = 0$

$$x = -2 \pm \sqrt{6}$$

e) $x^2 - 4x - 3 = 0$

$$x = 2 \pm \sqrt{7}$$

f) $x^2 - 10x - 5 = 0$

$$x = 5 \pm \sqrt{30}$$

g) $x^2 + 3x - 3 = 0$

$$x = -\frac{3}{2} \pm \frac{\sqrt{21}}{2}$$

h) $x^2 - 5x - 1 = 0$

$$x = \frac{5}{2} \pm \frac{\sqrt{29}}{2}$$

i) $x^2 + 7x - 7 = 0$

$$x = -\frac{7}{2} \pm \frac{\sqrt{77}}{2}$$

Solve the following quadratic equations, leaving your solutions in exact form

j) $3x^2 - 12x + 4 = 0$

$$x = 2 \pm 2\sqrt{\frac{2}{3}}$$

k) $4x^2 - 14x + 3 = 0$

$$x = \frac{7}{4} \pm \frac{\sqrt{37}}{4}$$

l) $5x^2 + 15x - 2 = 0$

$$x = -\frac{3}{2} \pm \frac{\sqrt{\frac{53}{5}}}{2}$$

Exam question:

Solve $x^2 + 8x + 6 = 0$, leaving your answer in the form $b \pm \sqrt{a}$

$$x = -4 \pm \sqrt{10}$$