1. Solve.

a) $3x^2 - 8 = 88$

$3x^2 = 96$

$x^2 = 32$

$x = \pm\sqrt{32}$

$x = \pm 4\sqrt{2}$

$\{\pm 4\sqrt{2}\}$

$\sqrt{32} = \sqrt{16 \cdot 2} = 4\sqrt{2}$

b) $(3x - 2)^2 = 27$

$3x - 2 = \pm\sqrt{27}$

$3x = 2 \pm \sqrt{27}$

$x = \frac{2 \pm \sqrt{27}}{3}$

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

$\left\{\frac{2 \pm 3\sqrt{3}}{3}\right\}$

$\sqrt{27} = \sqrt{9 \cdot 3} = 3\sqrt{3}$

2. Solve by completing the square.

$x^2 + 6x - 7 = 0$

$x^2 + 6x + 9 = 7 + 9$

$\left(\frac{6}{2}\right)^2 = 3^2 = 9$

$(x+3)^2 = 16$

$x + 3 = \pm\sqrt{16}$

$x = -3 \pm \sqrt{16}$

$x = -3 \pm 4$

$x = -3 + 4$ $\quad x = -3 - 4$

$x = 1$ $\quad x = -7$

$\{1, -7\}$

3. Solve by completing the square. (Remember to first divide both sides by 3.)

$3x^2 - 6x + 2 = 0$

$x^2 - 2x + \frac{2}{3} = 0$

$x^2 - 2x + 1 = -\frac{2}{3} + 1$

$\left(\frac{-2}{2}\right)^2 = (-1)^2 = 1$

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

$x - 1 = \pm\sqrt{\frac{1}{3}}$

$x = 1 \pm \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$x = 1 \pm \frac{\sqrt{3}}{3}$

$\left\{1 \pm \frac{\sqrt{3}}{3}\right\}$

Q: What three letter word can prefix the following three words to make three new words? Ache, Nest, and Drum.