What questions do you have on your "Solving Quadratics by Completing the Square" worksheet? We will be taking our quiz soon...

(17) $6n^2 + 20n - 47 = 3$

$ +47 \quad +47$

$\left(\dfrac{\frac{20}{6}}{2}\right)^2 = \left(\dfrac{5}{3}\right)^2 = \dfrac{25}{9}$

$6n^2 + 20n = 50$

$6\left(n^2 + \dfrac{20}{6}n + \dfrac{25}{9}\right) = 50 + \dfrac{50}{3}$

$6\left(n + \dfrac{5}{3}\right)^2 = \dfrac{200}{3}$

$6\left(n + \dfrac{5}{3}\right)^2 - \dfrac{200}{3} = 0$

(12) $6k^2 - 12k - 48 = 0$

$ +48 \quad +48$

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

$6k^2 - 12k = 48$

$6(k^2 - 2k + 1) = 48 + 6$

$6(k - 1)^2 = 54$

$6(k - 1)^2 - 54 = 0$

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(18) $4x^2 - 17x + \underset{-18}{18} = \underset{-18}{6}$

$4x^2 - 17x = 6 - 18$

$4\left(x^2 - \frac{17}{4}x + \frac{289}{64}\right) = -12 + \frac{289}{16}$

$4\left(x - \frac{17}{8}\right)^2 = \frac{97}{16}$

$4\left(x - \frac{17}{8}\right)^2 - \frac{97}{16} = 0$

$\frac{\cancel{4}}{1} \cdot \frac{17}{\cancel{4}} = 17$

$\left(\dfrac{-\frac{17}{4}}{2}\right)^2 = \left(\dfrac{-17}{8}\right)^2$

$= \dfrac{289}{64}$

To solve quadratics by taking square roots, you use your equation-solving skills, using PEMDAS backwards.

From your worksheet.

Solve each equation by taking square roots.

$a^2 - 39 = 0$ $\sqrt{13 \cdot 3}$

4) $\sqrt{a^2} = \sqrt{39}$

$\boxed{a = \pm\sqrt{39}}$ or $a = \sqrt{39}, -\sqrt{39}$

10) $2n^2 - 6 = -22$

$ +6 \quad\quad +6$

$\dfrac{2n^2}{2} = \dfrac{-16}{2}$

$\sqrt{n^2} = \sqrt{-8}$

$i = \sqrt{-1}$
$i^2 = -1$

$n = \pm\sqrt{-1 \cdot 4 \cdot 2}$

$n = \pm\sqrt{-1} \cdot \sqrt{4} \cdot \sqrt{2}$

$\boxed{n = \pm 2i\sqrt{2}}$ or $n = 2i\sqrt{2}, -2i\sqrt{2}$

Solve each equation by taking square roots.

16) $49x^2 + 8 = 9$

$$\underline{-8 \quad -8}$$

$$\frac{49x^2}{49} = \frac{1}{49}$$

$$\sqrt{x^2} = \sqrt{\frac{1}{49}}$$

$$x = \pm\frac{\sqrt{1}}{\sqrt{49}} = \pm\frac{1}{7}$$

$$\boxed{x = \pm\frac{1}{7}} \quad \text{or} \quad x = \frac{1}{7}, -\frac{1}{7}$$

20) $25x^2 - 2 = 7$

$$\underline{+2 \quad +2}$$

$$\frac{25x^2}{25} = \frac{9}{25}$$

$$\sqrt{x^2} = \sqrt{\frac{9}{25}}$$

$$\boxed{x = \pm\frac{3}{5}} \quad \text{or} \quad x = \frac{3}{5}, -\frac{3}{5}$$

Apr 5-8:22 AM

Homework

Solving Quadratics by Taking Square Roots WKS