

Quiz Problems

3rd Test 7:30am
Tuesday/Wednesday

(1) $x^2 + 10x + 21 = 0$

$(x+3)(x+7) = 0$

$x+3=0$ or $x+7=0$

$x = -3$ or $x = -7$

in general form

$a = 1$

$b = 10$

$c = 21$

(2) $x^2 - 49 = 0$

$(x+7)(x-7) = 0$

$x+7=0$ or $x-7=0$

$x = -7$ or $x = 7$

$a = 1$

$b = 0$

$c = -49$

(3) $25x^2 = 40x$

$25x^2 - 40x = 0$

$5x(5x - 8) = 0$

$5x = 0$ or $5x - 8 = 0$

$x = 0$ or $5x = 8$

$x = \frac{8}{5}$

$a = 25$

$b = -40$

$c = 0$

METHODS FOR SOLVING A QUADRATIC EQUATION

(1) Factoring Method

(2) Square Root Method

(3) Quadratic Formula - \hat{x} MEMORIZE THIS \hat{x}

General Form of a Quadratic Equation: $ax^2 + bx + c = 0$

Solution to the general quadratic equation: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

e.g. $x^2 + 4x + 2 = 0$

$a = 1$

$b = 4$

$c = 2$

$$x = \frac{-4 \pm \sqrt{4^2 - 4(1)(2)}}{2(1)}$$

$$= \frac{-4 \pm \sqrt{16 - 8}}{2}$$

$$= \frac{-4 \pm \sqrt{8}}{2}$$

$$= \frac{-4 \pm 2\sqrt{2}}{2}$$

$$= \boxed{-2 \pm \sqrt{2}} \rightarrow \begin{matrix} -2 + \sqrt{2} \\ -2 - \sqrt{2} \end{matrix}$$

WEBASSIGN

1.4-10. $36x^2 + 24x - 9 = 0$

optional $\frac{1}{3}(36x^2 + 24x - 9) = \frac{1}{3}(0)$

$a = 12$

$b = 8$

$c = -3$

$$12x^2 + 8x - 3 = 0$$

$$x = \frac{-8 \pm \sqrt{(8)^2 - 4(12)(-3)}}{2(12)}$$

$$= \frac{-8 \pm \sqrt{64 + 144}}{24}$$

$$= \boxed{\frac{-8 \pm \sqrt{208}}{24}}$$

$$= \frac{-8 \pm \sqrt{4^2 \cdot 13}}{24}$$

$$= \frac{-8 \pm 4\sqrt{13}}{4 \cdot 6} = \boxed{\frac{-2 \pm \sqrt{13}}{6}}$$

$a = 36$

$b = 24$

$c = -9$

$$x = \frac{-24 \pm \sqrt{24^2 - 4(36)(-9)}}{2(36)}$$

$$= \frac{-24 \pm \sqrt{24^2 + 36^2}}{72}$$

$$= \frac{-24 \pm 12\sqrt{2^2 + 3^2}}{72}$$

$$= \frac{-24 \pm 12\sqrt{13}}{6 \cdot 12}$$

$$= \frac{-2 \pm \sqrt{13}}{6}$$

1.4-11. $3x+4x^2-2=0.$

$$4x^2+3x-2=0$$

$$x = \frac{-3 \pm \sqrt{3^2 - 4(4)(-2)}}{2(4)}$$

$$= \frac{-3 \pm \sqrt{9+32}}{8}$$

$$= \boxed{\frac{-3 \pm \sqrt{41}}{8}}$$

← put it in standard form

$$a=4, b=3, c=-2$$

