Algebra 1 | Tues. 4-30-13 | Class Notes

Homework Review: Pg 588 #43 to 48

(43) $2x = 3 + 2x^2$

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

$a = 2$

$b = -2$

$c = 3$

$b^2 - 4ac$

$(-2)^2 - 4(2)(3)$

$4 - 24 = -20 = d$

NO REAL SOLUTIONS

(44) $x^2 = 2x + 9$

$x^2 - 2x - 9 = 0$

$a = 1$

$b = -2$

$c = -9$

$b^2 - 4ac$

$(-2)^2 - 4(1)(-9)$

$4 + 36 = 40 = d$

$\sqrt{40}$
$\sqrt{4}\sqrt{10}$
$2\sqrt{10}$

$x = \frac{-b \pm \sqrt{d}}{2a} = \frac{\frac{1}{2} \pm \frac{1}{2}\sqrt{10}}{\frac{2}{1}} = 1 \pm \sqrt{10}$

(see CKs on next Pg.)

$x = \{1 + \sqrt{10}, 1 - \sqrt{10}\}$

(44) (CONTINUED)

$$x^2 = 2x + 9 \qquad x = \{1+\sqrt{10},\ 1-\sqrt{10}\}$$

CK $(1+\sqrt{10})$

$$(1+\sqrt{10})^2 \stackrel{?}{=} 2(1+\sqrt{10}) + 9$$

$$(1+\sqrt{10})(1+\sqrt{10})$$

$$1 + 2\sqrt{10} + 10 \stackrel{?}{=} 2 + 2\sqrt{10} + 9 \checkmark$$

CK

$$1+\sqrt{10} = 4.16227766$$

$$(4.16227766)^2 \stackrel{?}{=} 2(4.16227766) + 9$$

$$17.32455 \stackrel{?}{=} 8.32455 + 9$$

$$17.32455 = 17.32455$$

(45) $2 = 7x + 4x^2$

$\boxed{4x^2 + 7x - 2 = 0}$ QE $ax^2 + bx + c = 0$

$a = 4$ $\quad b^2 - 4ac$

$b = 7$ $\quad (7)^2 - 4(4)(-2)$

$c = -2$ $\quad 49 + 32 = \boxed{81 = d}$

QF $\boxed{x = \frac{-b \pm \sqrt{d}}{2a}} = \frac{-7 \pm \sqrt{81}}{8}$

$x = \frac{-7 \pm 9}{8} = \boxed{\left\{\frac{1}{4}, -2\right\}}$

CK $x = \frac{1}{4}$ $\quad 2 \stackrel{?}{=} 7\left(\frac{1}{4}\right) + 4\left(\frac{1}{4}\right)^2$

$2 \stackrel{?}{=} \frac{7}{4} + \frac{1}{4}$ ✓

$x = -2$ $\quad 2 \stackrel{?}{=} 7(-2) + 4(-2)^2$

$2 \stackrel{?}{=} -14 + 16$ ✓

$ax^2+bx+c=0$

b can be zero
c can be zero
a cannot be zero

(46) $-7 = x^2$

$1x^2 + 0x + 7 = 0$

a b c

$a = 1$

$b = 0$

$c = 7$

$b^2 - 4ac$

$(0)^2 - 4(1)(7)$

$0 - 28 = -28 = d$

No Real Solution

(47) $-12x = -9x^2 - 4$

$9x^2 - 12x + 4 = 0$

$a = 9$

$b = -12$

$c = 4$

$b^2 - 4ac$

$(-12)^2 - 4(9)(4)$

$144 - 144 = \boxed{0 = d}$

$$x = \frac{-b \pm \sqrt{d}}{2a} = \frac{12 \pm \sqrt{0}}{18}$$

$$x = \frac{12}{18} = \boxed{\frac{2}{3}}$$

CK $-12\left(\frac{2}{3}\right) \stackrel{?}{=} -9\left(\frac{2}{3}\right)^2 - 4$

$-8 \stackrel{?}{=} -4 - 4$ ✓

(48) $x^2 - 14 = 0$

$x^2 + 0x - 14 = 0$

$a = 1$

$b = 0$

$c = -14$

$b^2 - 4ac$

$(0)^2 - 4(1)(-14)$

$+56 = d$

$\sqrt{56}$

2 | 28

2 | 14

2 | 7

$\sqrt{4}\sqrt{14}$

$2\sqrt{14}$

$x = \frac{-b \pm \sqrt{d}}{2a} = \frac{0 \pm \sqrt{56}}{2}$

$x = \frac{\pm 2\sqrt{14}}{2}$

$x = \pm\sqrt{14}$

CK $(\sqrt{14})^2 - 14 \stackrel{?}{=} 0$ ✓