Algebra 1 Weds. 4-24-13 Class Notes

(34) $\frac{3x^2}{3} + \frac{x}{3} = \frac{10}{3}$

$\frac{120}{36} + \frac{1}{36}$

$x^2 + \frac{1}{3}x + \left(\frac{1}{6}\right)^2 = \frac{10}{3} + \frac{1}{36}$

$\left(x + \frac{1}{6}\right)^2 = \frac{121}{36}$

$x + \frac{1}{6} = \pm \frac{11}{6}$

$x = -\frac{1}{6} \pm \frac{11}{6}$

$x = \left\{\frac{5}{3}, -2\right\}$

CK $3\left(\frac{5}{3}\right)^2 + \left(\frac{5}{3}\right) \stackrel{?}{=} 10$

$\frac{1}{3}\left(\frac{25}{3}\right) + \frac{5}{3} \stackrel{?}{=} 10$ ✓

$3(-2)^2 + (-2) \stackrel{?}{=} 10$

$12 - 2 \stackrel{?}{=} 10$ ✓

(35) $x^2 = 2x + 6$

$x^2 - 2x + \{1^2\} = 6 + \{1\}$

$(x - 1)^2 = 7$

$x - 1 = \pm\sqrt{7}$

$x = +1 \pm \sqrt{7}$

$x = \{+1+\sqrt{7}, +1-\sqrt{7}\}$

POSITIVE CONJUGATE

CK $(1+\sqrt{7})^2 \stackrel{?}{=} 2(1+\sqrt{7}) + 6$

$1 + 2\sqrt{7} + 7 \stackrel{?}{=} 2 + 2\sqrt{7} + 6$

$8 + 2\sqrt{7} \stackrel{?}{=} 8 + 2\sqrt{7}$ ✓

(36) $2a^2 = 5a + 12$

$\frac{2a^2}{2} - \frac{5a}{2} = \frac{12}{2}$

$a^2 - \frac{5}{2}a + \left(\frac{5}{4}\right)^2 = \frac{6}{1} + \frac{25}{16}$

$\frac{96}{16} + \frac{25}{16}$

$\left(a - \frac{5}{4}\right)^2 = \frac{121}{16}$

$a - \frac{5}{4} = \pm\frac{11}{4}$ ✓

$a = \frac{5}{4} \pm \frac{11}{4} = \left\{4, -\frac{3}{2}\right\}$

CK

$2(4)^2 \stackrel{?}{=} 5(4) + 12$

$32 \stackrel{?}{=} 32$ ✓

$2\left(-\frac{3}{2}\right)^2 \stackrel{?}{=} 5\left(-\frac{3}{2}\right) + 12$

$2\left(\frac{9}{4}\right) \stackrel{?}{=} -\frac{15}{2} + \frac{24}{2}$

$\frac{9}{2} \stackrel{?}{=} \frac{9}{2}$ ✓

$$2x^2 + 5x = 3$$

(37) $$\frac{2x^2}{2} + \frac{5x}{2} = \frac{+3}{2}$$

$$x^2 + \frac{5}{2}x + \left(\frac{5}{4}\right)^2 = +\frac{3}{2} + \left(\frac{25}{16}\right)$$

$$+\frac{24}{16} \quad +\frac{25}{26}$$

$$\left(x + \frac{5}{4}\right)^2 = \frac{49}{16}$$

$$x + \frac{5}{4} = \pm\frac{7}{4}$$

$$x = -\frac{5}{4} \pm \frac{7}{4} = \left\{+\frac{1}{2}, -3\right\}$$

Ck

$2\left(-\frac{1}{2}\right)^2 + 5\left(-\frac{1}{2}\right) \stackrel{?}{=} 3$

$2\left(\frac{1}{4}\right) + \frac{5}{2} \stackrel{?}{=} 3$

$\frac{6}{2} \stackrel{?}{=} 3$

✓

$2(-3)^2 + 5(-3) \stackrel{?}{=} 3$

$18 - 15 \stackrel{?}{=} 3$ ✓

(38) $4x = 7 - x^2$

$x^2 + 4x + \{2^2\} = 7 + \{4\}$

$(x+2)^2 = 11$

$x + 2 = \pm\sqrt{11}$

$x = -2 \pm \sqrt{11} = \{-2+\sqrt{11}, -2-\sqrt{11}\}$

CK $4(-2+\sqrt{11}) \stackrel{?}{=} 7 - [(-2+\sqrt{11})^2]$

$-8 + 4\sqrt{11} \stackrel{?}{=} 7 - [4 - 4\sqrt{11} + 11]$

$-8 + 4\sqrt{11} \stackrel{?}{=} 7 - [15 - 4\sqrt{11}]$

$-8 + 4\sqrt{11} = 7 - 15 + 4\sqrt{11}$

$-8 + 4\sqrt{11} = -8 + 4\sqrt{11}$ ✓

(39) $8x = -x^2 + 20$

$x^2 + 8x + \{4^2\} = 20 + \{16\}$

$(x+4)^2 = 36$

$x + 4 = \pm 6$

$x = -4 \pm 6 = \{2, -10\}$