10.3 ~~algebra~~ to 10.6 Solve QE 's (all methods)   Date_____ Period____

INSTRUCTIONS: Cearly show work. Round final answers to 2 decimals. Do calc. checks and show the last step.

1) $-4x^2 + 1 = -143$

$$\frac{-4x^2}{-4} = \frac{-144}{-4}$$

$$\sqrt{x^2} = \sqrt{36}$$

$$\boxed{x = \pm 6}$$

$C: -143 = -143 \checkmark$

2) $-3x^2 + 4 = 40$

$$\frac{-3x^2}{-3} = \frac{36}{-3}$$

$$\sqrt{x^2} = \sqrt{-12}$$

$$\boxed{x = \text{No Real solution}}$$

No Check REQ'D

3) $-7 - 7m^2 = -441$

$$\frac{-7m^2}{-7} = \frac{-434}{-7}$$

$$\sqrt{m^2} = \sqrt{62}$$

$$\boxed{m = \pm 7.87}$$

ONLY Need 1 check

$C: -440.56 \approx -441 \checkmark$

Solve each equation by Completing the square.

4) $n^2 - 2n - 80 = 0$

$N^2 - 2N + \boxed{1} = 80 + \boxed{1}$

$\sqrt{(N-1)^2} = \sqrt{81}$

$N - 1 = \pm 9$

$N = 9 + 1$ $N = -9 + 1$

$\boxed{N = 10}$ $\boxed{N = -8}$

$C: 0 = 0 ✓$ $C: 0 = 0 ✓$

5) $n^2 + 20n + 68 = 4$

    -68 -68

$N^2 + 20N + \boxed{100} = -64 + 100$

$\sqrt{(N+10)^2} = \sqrt{36}$

$N + 10 = \pm 6$

$N = -10 \pm 6$

$N = -10 + 6$ $N = -10 - 6$

$\boxed{N = -4}$ $\boxed{N = -16}$

$C: 4 = 4 ✓$

Solve the equation by completing the square. (Tip: Remember what to do when A NE 1)

6) $7x^2 + 14x - 21 = 0$

$\dfrac{}{7} \quad \dfrac{}{7} \quad \dfrac{}{7} \quad \dfrac{}{7}$

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

$x^2 + 2x + \boxed{1} = 3 + 1$

$\sqrt{(x+1)^2} = \sqrt{4}$

$x + 1 = \pm 2$

$x = -1 \pm 2$

$x = -1 - 2$ $x = -1 + 2$

$\boxed{x = -3}$ $\boxed{x = 1}$

$C: 0 = 0 ✓$ $C: 0 = 0 ✓$

Solve each equation with the Quadratic formula.

7) $-4x^2 + 3x - 4 = -7x$

$-4x^2 + 10x - 4 = 0$

$A = -4 \quad B = 10 \quad C = -4$

$X = \dfrac{-10 \pm \sqrt{100 - 4(-4)(-4)}}{2(-4)}$

$X = \dfrac{-10 \pm \sqrt{36}}{-8}$

$X = \dfrac{-10 + 6}{-8}$

$\boxed{X = \frac{1}{2}}$

$X = \dfrac{-10 - 6}{-8}$

$\boxed{X = 2}$

$C: -3.5 = -3.5 \checkmark$

$C: -14 = -14 \checkmark$

8) $-4n^2 - 98 - 12n = -12n - 6n^2$

$2N^2 - 98 = 0$

$A = 2 \quad B = 0 \quad C = -98$

$N = \dfrac{-0 \pm \sqrt{0 - 4(2)(-98)}}{2(2)}$

$N = \dfrac{\pm \sqrt{784}}{4}$

$N = \dfrac{\pm 28}{4}$

$\boxed{N = \pm 7}$

$C: -378 = -378 \checkmark$

ONLY Need to check 1 soWtiuN

9) $7x^2 + 16x - 13 = 6x - 3x^2$

$10x^2 + 10x - 13 = 0$

$A = 10 \quad B = 10 \quad C = -13$

$X = \dfrac{-10 \pm \sqrt{100 - 4(10)(-13)}}{2(10)}$

$X = \dfrac{-10 \pm \sqrt{620}}{20}$

$X = \dfrac{-10 + \sqrt{620}}{20}$

$\boxed{X \approx 0.75}$ 0.745

$X = \dfrac{-10 - \sqrt{620}}{20}$

$\boxed{X \approx -1.75}$

$C: 2.94 \approx 2.81$

$X \approx 0.745$ SHOWS IMPACT OF ROUNDING

$\hookrightarrow C: 2.805 = 2.805 \checkmark$

10) $10x^2 - 7x - 3 = -3x - 8$

~~$10x^2 + 19 + 2x = 12 + 2x$~~

$10x^2 - 4x + 5 = 0$

$A = 10 \quad B = -4 \quad C = 5$

$X = \dfrac{4 \pm \sqrt{16 - 4(10)(5)}}{2(10)}$

$X = \dfrac{4 \pm \sqrt{-184}}{20}$

$\boxed{X = \text{No Real Solution}}$

No Check ReQ'd

$C: -19.69 \approx -19.68 \checkmark$

-3-

Solve each equation using the method of your choice (taking square roots, completing the square, quadratic formula, or factoring)

11) $2m^2 = 50$

$$\frac{2m^2}{2} = \frac{50}{2}$$

$$\sqrt{m^2} = \sqrt{25}$$

$$m = \pm 5$$

$C: 50 = 50 \checkmark$

12) $n^2 + 4n - 21 = 0$

$$(N+7)(N-3) = 0$$

$N+7 = 0 \qquad N-3 = 0$

$N = -7 \qquad\qquad N = 3$

$C: 0 = 0 \checkmark \qquad C: 0 = 0 \checkmark$

13) $x^2 + 6x = 27$

$$x^2 + 6x + \boxed{9} = 27 + 9$$

$$\sqrt{(x+3)^2} = \sqrt{36}$$

$$x + 3 = \pm 6$$

$$x = -3 \pm 6$$

$X = -3 + 6 \qquad\qquad X = -3 - 6$

$X = 3 \quad C: 27 = 27 \checkmark \qquad X = -9 \quad C: 27 = 27 \checkmark$

15) $6n^2 + 36n = 0$

$$6N(N+6) = 0$$

$6N = 0 \qquad N+6 = 0$

$N = 0 \qquad N = -6$

$C: 0 = 0 \checkmark \qquad C: 0 = 0 \checkmark$

14) $2x^2 - 7x - 4 = 0$

$A = 2 \quad B = -7 \quad C = -4$

$$X = \frac{7 \pm \sqrt{49 - 4(2)(-4)}}{2(2)}$$

$$X = \frac{7 \pm \sqrt{81}}{4}$$

$X = \frac{7 + 9}{4} \qquad X = \frac{7 - 9}{4}$

$X = 4 \qquad\qquad X = -\frac{1}{2}$

$C: 0 = 0 \checkmark \qquad C: 0 = 0 \checkmark$