

10.6 Practice B

NOTE: P, SQ = PERFECT SQUARE

Date 2023 KEY Period _____

ALG.f.3 Solve each equation with the quadratic formula.

- (a) Rewrite a quadratic equation into standard form. **①**
- (b) Then use the quadratic formula to solve for real solutions. **② STATE A, B, C**
- (c) Clearly show your work!! Round solutions to 2 decimals. Circle your answer. **③ PLUG INTO Q F**
- ④**
- ⑤ DO CALC CHECK**

1) $n^2 + 5n = 50$

$n^2 + 5n - 50 = 0$

$A=1 \quad B=5 \quad C=-50$

$$N = \frac{-5 \pm \sqrt{25 - 4(1)(-50)}}{2(1)}$$

$$N = \frac{-5 \pm \sqrt{225}}{2} \leftarrow \text{psq}$$

$$N = \frac{-5 + 15}{2}$$

$$\boxed{N=5}$$

$C: 50=50 \checkmark$

$$N = \frac{-5 - 15}{2}$$

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

$C: 50=50 \checkmark$

3) $2x^2 - 10x = 12$

$2x^2 - 10x - 12 = 0$

$A=2 \quad B=-10 \quad C=-12$

$$X = \frac{10 \pm \sqrt{100 - 4(2)(-12)}}{2(2)}$$

$$X = \frac{10 \pm \sqrt{196}}{4} \leftarrow \text{psq}$$

$$X = \frac{10 + 14}{4}$$

$$\boxed{X=6}$$

$C: 12=12 \checkmark$

$$X = \frac{10 - 14}{4}$$

$$\boxed{X=-1}$$

$C: 12=12 \checkmark$

2) $n^2 + 16 = -8n$

$n^2 + 8n + 16 = 0$

$A=1 \quad B=8 \quad C=16$

$$N = \frac{-8 \pm \sqrt{64 - 4(1)(16)}}{2(1)}$$

$$N = \frac{-8 \pm \sqrt{0}}{2} \leftarrow$$

ONLY 1 SOLUTION

$$N = \frac{-8}{2}$$

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

$C: 32=32 \checkmark$

4) $4v^2 - 64 = 0 \checkmark$

$A=4 \quad B=0 \quad C=-64$

$$V = \frac{0 \pm \sqrt{0 - 4(4)(-64)}}{2(4)}$$

$$V = \frac{0 \pm \sqrt{1024}}{8} \leftarrow \text{psq}$$

$$V = \frac{0 + 32}{8}$$

$$\boxed{V=4}$$

$C: 0=0 \checkmark$

$$V = \frac{0 - 32}{8}$$

$$\boxed{V=-4}$$

$C: 0=0 \checkmark$

$$5) x^2 + 9 = 4x$$

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

$$A = 1 \quad B = -4 \quad C = 9$$

$$X = \frac{4 \pm \sqrt{16 - 4(1)(9)}}{2(1)}$$

$$X = \frac{4 \pm \sqrt{-20}}{2}$$

Cannot take
SQ ROOT OF
NEGATIVE #
↙

$$\boxed{X = \text{NO SOLUTION}}$$

$$6) 2n^2 - 28 = 10n$$

$$2n^2 - 10n - 28 = 0$$

$$A = 2 \quad B = -10 \quad C = -28$$

$$N = \frac{10 \pm \sqrt{100 - 4(2)(-28)}}{2(2)}$$

$$N = \frac{10 \pm \sqrt{324}}{4} \quad \leftarrow \text{PSQ}$$

$$N = \frac{10 + 18}{4}$$

$$\boxed{N = 7}$$

$$C: 70 = 70 \checkmark$$

$$N = \frac{10 - 18}{4}$$

$$\boxed{N = -2}$$

$$C: -20 = -20 \checkmark$$

$$7) 2x^2 = x - 12$$

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

$$A = 2 \quad B = -1 \quad C = 12$$

$$X = \frac{1 \pm \sqrt{1 - 4(2)(12)}}{2(2)}$$

$$X = \frac{1 \pm \sqrt{-95}}{4} \quad \leftarrow$$

SAME
AS #5

$$\boxed{X = \text{NO SOLUTION}}$$

$$8) -2v^2 = 6 + 8v$$

$$0 = 2v^2 + 8v + 6$$

$$A = 2 \quad B = 8 \quad C = 6$$

$$V = \frac{-8 \pm \sqrt{64 - 4(2)(6)}}{2(2)}$$

$$V = \frac{-8 \pm \sqrt{16}}{4} \quad \leftarrow \text{PSQ}$$

$$V = \frac{-8 + 4}{4}$$

$$\boxed{V = -1}$$

$$C: -2 = -2 \checkmark$$

$$V = \frac{-8 - 4}{4}$$

$$\boxed{V = -3}$$

$$C: -18 = -18 \checkmark$$

10.6 Practice C (Decimal Solutions)

ALG.f.3 Solve each equation with the quadratic formula.

(a) Rewrite a quadratic equation into standard form.

(b) Then use the quadratic formula to solve for real solutions.

(c) Clearly show your work!! Round solutions to 2 decimals. Circle your answer.

(d) show last step of check!!

at the end!!

1) $5x^2 - 6x - 17 = 0$

$A = 5 \quad B = -6 \quad C = -17$

$$X = \frac{6 \pm \sqrt{36 - 4(5)(-17)}}{2(5)}$$

$$X = \frac{6 \pm \sqrt{376}}{10}$$

Do NOT ROUND HERE!!

$$X = \frac{6 + \sqrt{376}}{10}$$

$$X = \frac{6 - \sqrt{376}}{10}$$

$X = 2.539\dots$

$X = -1.339\dots$

$X \approx 2.54$

$X \approx -1.34$

$C: 0.018 \approx 0 \checkmark$

$C: 0.018 \approx 0 \checkmark$

ROUND AT THE END!

3) $-2x^2 - 12x - 18 = 0$

$A = -2 \quad B = -12 \quad C = -18$

$$X = \frac{12 \pm \sqrt{144 - 4(-2)(-18)}}{2(-2)}$$

$$X = \frac{12 \pm \sqrt{0}}{-4}$$

$X = \frac{12}{-4}$

$X = -3$

$C: 0 = 0 \checkmark$

2) $-12x^2 - 2x + 21 = 0$

$A = -12 \quad B = -2 \quad C = 21$

$$X = \frac{2 \pm \sqrt{4 - 4(-12)(21)}}{2(-12)}$$

$$X = \frac{2 \pm \sqrt{1,012}}{-24}$$

$$X = \frac{2 + \sqrt{1,012}}{-24}$$

$$X = \frac{2 - \sqrt{1,012}}{-24}$$

$X \approx -1.41$

$X \approx 1.24$

$C: -0.0372 \approx 0 \checkmark$

$C: 0.0688 \approx 0 \checkmark$

$$4) -2x^2 + 2x - 17 = -4x^2 - 2$$

$$\frac{+4x^2 \quad +2 \quad +4x^2 \quad +2}{2x^2 + 2x - 15 = 0}$$

$$A = 2 \quad B = 2 \quad C = -15$$

$$X = \frac{-2 \pm \sqrt{4 - 4(2)(-15)}}{2(2)}$$

$$X = \frac{-2 \pm \sqrt{124}}{4}$$

$$X = \frac{-2 + \sqrt{124}}{4}$$

$$X \approx 2.28$$

$$X = \frac{-2 - \sqrt{124}}{4}$$

$$X \approx -3.28$$

$$C: -22.84 \approx -22.79 \quad C: -45.08 \approx -45.04$$

$$5) -x^2 + 10x + 3 = -5$$

$$-x^2 + 10x + 8 = 0$$

$$A = -1 \quad B = 10 \quad C = 8$$

$$X = \frac{-10 \pm \sqrt{100 - 4(-1)(8)}}{2(-1)}$$

$$X = \frac{-10 \pm \sqrt{132}}{-2}$$

$$X = \frac{-10 + \sqrt{132}}{-2}$$

$$X \approx -0.74$$

$$X = \frac{-10 - \sqrt{132}}{-2}$$

$$X \approx 10.75$$

$$C: -4.95 \approx -5 \quad C: -5.06 \approx -5$$

$$6) 5x^2 + 9x = 4x^2 - 4$$

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

$$A = 1 \quad B = 9 \quad C = 4$$

$$X = \frac{-9 \pm \sqrt{81 - 4(1)(4)}}{2(1)}$$

$$X = \frac{-9 \pm \sqrt{65}}{2}$$

$$X = \frac{-9 + \sqrt{65}}{2}$$

$$X \approx -0.47$$

$$C: -3.13 \approx -3.12 \checkmark$$

$$X = \frac{-9 - \sqrt{65}}{2}$$

$$X \approx -8.53$$

$$C: 287.03 \approx 287.04$$