

2-3-17

NAME _____

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

QUADRATIC FORMULA PRACTICE
& PREVIEW PRACTICE

Solve:

1. $x^2 + 8x + 13 = 0$

$$= -4 \pm 2\sqrt{3}$$

2. $5x^2 = x + 1$

$$= \frac{1 \pm \sqrt{21}}{10}$$

3. $x^2 - 2x - 17 = 0$

$$= 1 \pm 3\sqrt{2}$$

4. $2x^2 - 3x = -2$

$$= \frac{3 \pm i\sqrt{7}}{4}$$

5. $-4x - 11 = -x^2$

$$= 2 \pm \sqrt{15}$$

6. $x^2 - 8x - 17 = 0$

$$= 4 \pm \sqrt{33}$$

7. $2x^2 + 10x = -11$

$$= \frac{-5 \pm \sqrt{3}}{2}$$

8. $8x^2 + 1 = 4x$

$$= \frac{1 \pm i}{4}$$

Preview Practice:

Solve:

$$1: x^2 + 8x + 13 = 0$$

$$a = 1, b = 8, c = 13$$

$$x = \frac{-8 \pm \sqrt{8^2 - 4(1)(13)}}{2(1)}$$

$$= \frac{-8 \pm \sqrt{64 - 52}}{2}$$

$$= \frac{-8 \pm \sqrt{12}}{2} = \frac{-8 \pm 2\sqrt{3}}{2} = -4 \pm 2\sqrt{3}$$

$$2: 5x^2 = x + 1$$

$$5x^2 - x - 1 = 0$$

$$a = 5, b = -1, c = -1$$

$$x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(5)(-1)}}{2(5)} = \frac{1 \pm \sqrt{1 + 20}}{10}$$

$$= \frac{1 \pm \sqrt{21}}{10}$$

$$3: x^2 - 2x - 17 = 0$$

$$a = 1, b = -2, c = -17$$

$$= \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-17)}}{2(1)} = \frac{2 \pm \sqrt{4 + 68}}{2}$$

$$= \frac{2 \pm \sqrt{72}}{2} = \frac{2 \pm 6\sqrt{2}}{2}$$

$$4) \quad 2x^2 - 3x - 2 = 0$$

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

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(-2)}}{2(2)} = \frac{3 \pm \sqrt{9+16}}{4}$$

$$= \frac{3 \pm \sqrt{25}}{4}$$

$$= \frac{3 \pm 5}{4}$$

$\frac{3+5}{4}$	$\frac{3-5}{4}$
$= \frac{8}{4} = 2$	$= \frac{-2}{4} = -\frac{1}{2}$

$$5) \quad -4x - 11 = -x^2$$

$$x^2 - 4x - 11 = 0$$

$$a=1, b=-4, c=-11$$

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(-11)}}{2(1)} = \frac{4 \pm \sqrt{16+44}}{2}$$

$$= \frac{4 \pm \sqrt{60}}{2} = \frac{4 \pm 2\sqrt{15}}{2} = 2 \pm \sqrt{15}$$

$$6) \quad x^2 - 8x - 17 = 0$$

$$a=1, b=-8, c=-17$$

$$x = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(1)(-17)}}{2(1)} = \frac{8 \pm \sqrt{64+68}}{2}$$

$$= \frac{8 \pm \sqrt{132}}{2} = \frac{8 \pm 2\sqrt{33}}{2} = 4 \pm \sqrt{33}$$

$$2x^2 + 10x = -11$$

$$2x^2 + 10x + 11 = 0$$

$$a=2, b=10, c=11$$

$$x = \frac{-10 \pm \sqrt{(10)^2 - 4(2)(11)}}{2(2)} = \frac{-10 \pm \sqrt{100 - 88}}{4}$$

$$= \frac{-10 \pm \sqrt{12}}{4} = \frac{-10 \pm 2\sqrt{3}}{4} = \frac{-5 \pm \sqrt{3}}{2}$$

8. $8x^2 + 1 = 4x$
 $8x^2 - 4x + 1 = 0$
 $a=8, b=-4, c=1$

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(8)(1)}}{2(8)} = \frac{4 \pm \sqrt{16 - 32}}{16}$$

$$= \frac{4 \pm \sqrt{-16}}{16} = \frac{4 \pm 4i}{16} = \frac{1 \pm i}{4}$$

9. $x^2 - 36 = 0$
 $(x^2)^2 - (6)^2 = 0$
 $(x^2 - 6)(x^2 + 6) = 0$

$$x^2 - 6 = 0$$

$$x^2 = 6$$

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

$$x^2 + 6 = 0$$

$$x^2 = -6$$

$$x = \pm\sqrt{-6} = \pm i\sqrt{6}$$

10. $x^2 - 81 = 0$
 $(x^2)^2 - (9)^2 = 0$
 $(x^2 - 9)(x^2 + 9) = 0$
 $(x - 3)(x + 3)(x^2 + 9) = 0$

$$x - 3 = 0$$

$$x = 3$$

$$x + 3 = 0$$

$$x = -3$$

$$x^2 + 9 = 0$$

$$x^2 = -9$$

$$x = \pm\sqrt{-9}$$

$$x = \pm 3i$$