NAME:

DATE: Key

A2.Q2.BERMELLEMBO: SOLVING QUADRATIC EQUATIONS BY FORMULA

DAY EQ2
(EQUATIONS)

NOTES

THE QUADRATIC FORMULA FOR EQUATIONS OF THE FORM: $ax^2+bx+c=0$

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

PART I. Solve each equation by using the **quadratic formula**. BOX YOUR ANSWER

1. $4x^2+7x-2=0$ $\quad a=4 \quad b=7 \quad c=-2$

$$x=\frac{-(7)\pm\sqrt{(7)^2-4(4)(-2)}}{2(4)}$$

$$x=\frac{-7\pm\sqrt{81}}{8}$$

$$x=\frac{-7+9}{8} \quad \text{OR} \quad x=\frac{-7-9}{8}$$

$$x=\frac{2}{8} \qquad x=\frac{-16}{8}$$

$$\boxed{x=\frac{1}{4} \quad \text{OR} \quad x=-2}$$

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2. $9x^2+6x+1=0$ $\quad a=9 \quad b=6 \quad c=1$

$$x=\frac{-(6)\pm\sqrt{(6)^2-4(9)(1)}}{2(9)}$$

$$x=\frac{-6\pm\sqrt{0}}{18}$$ ★ This means there is going to be ONLY one solution

$$x=\frac{-6}{18}$$

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

$2x^2 - 9x = -1$

$+1 \quad +1$

$a = 2 \quad b = -9 \quad c = 1$

3. $2x^2 - 9x + 1 = 0$

$$x = \frac{-(-9) \pm \sqrt{(-9)^2 - 4(2)(1)}}{2(2)}$$

$$x = \frac{9 \pm \sqrt{73}}{4}$$

$$x = \frac{9 + \sqrt{73}}{4} \quad \text{OR} \quad x = \frac{9 - \sqrt{73}}{4}$$

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4. $6x^2 + 3 = 5x$

$-5x \quad -5x$

$a = 6 \quad b = -5 \quad c = 3$

$6x^2 - 5x + 3 = 0$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(6)(3)}}{2(6)}$$

$$x = \frac{5 \pm \sqrt{-48}}{12}$$

* This means there is no REAL solution

No REAL solutions

REVIEW: Solve the equation using **factoring:** $7x^2 - 19x = 6$

$-6 \quad -6$

0

$7x^2 - 19x - 6 = 0$

$7x \quad x$

$+1 \quad -6$

$-6 \quad +1$

$+2 \quad -3$

$-3 \quad +2$

$(7x+1)(x-6)$

$+1x$

$-42x$ NO

$(7x-6)(x+1)$

$-6x$

$+7x$ NO

$(7x+2)(x-3)$

$+2x$

$-21x$ YES

$(7x-3)(x+2)$

$-3x$

$+14x$ NO

$(7x+2)(x-3) = 0$

FACTOR

$7x+2=0 \quad -2 \quad -2$

$\frac{7x}{7} = \frac{-2}{7}$

$x-3=0 \quad +3 \quad +3$

Solve

$x = -\frac{2}{7}$ OR $x = 3$