Unit 2B Day 05 HW: Solving Quadratics Using the Quadratic Formula Name Master C

Date ____ Block ____

1-9: Solve each quadratic using the best method. Write irrational answers in simplified radical form.

1. $7x^2 - 5x = 0$

$x(7x-5)=0$

$x=0$ $7x-5=0$

$7x=5$

$x=\frac{5}{7}$

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

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

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

$2x=-3$ $2x=3$

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

3. $3x^2 + 8x = 3$

$3x^2+8x-3=0$ $a=3$ $b=8$ $c=-3$

$x=\frac{-8\pm\sqrt{64-4(-9)}}{6}$

$\frac{-8\pm\sqrt{100}}{6}$

$\frac{-8+10}{6}, \frac{-8-10}{6} = \frac{2}{6}, \frac{-18}{6}$

$\frac{1}{3}, -3$

4. $25x^2 - 20x - 6 = 0$ $a=25$ $b=-20$ $c=-6$

$x=\frac{20\pm\sqrt{400-4(-150)}}{50}$

$\frac{20\pm\sqrt{1000}}{50}$

$\frac{20\pm\sqrt{100\cdot10}}{50}$

$\frac{20\pm10\sqrt{10}}{50}$

$\frac{2\pm\sqrt{10}}{5}$

5. $x^2 = 4x - 15$ $a=1$ $b=-4$ $c=15$

$x^2-4x+15=0$

$\frac{4\pm\sqrt{16-4(15)}}{2}$

$\frac{4\pm\sqrt{-44}}{2}$

$\frac{4\pm\sqrt{-4\cdot11}}{2}$

$\frac{4\pm2i\sqrt{11}}{2}$

$2\pm i\sqrt{11}$

6. $7x^2 + 6x + 2 = 0$ $a=7$ $b=6$ $c=2$

$\frac{-6\pm\sqrt{36-4(14)}}{14}$

$\frac{-6\pm\sqrt{-20}}{14}$

$\frac{-6\pm\sqrt{-4\cdot5}}{14}$

$\frac{-6\pm2i\sqrt{5}}{14}$

$\frac{-3\pm i\sqrt{5}}{7}$

7. $6x^2 - 2x = 1$ $a=6$ $b=-2$ $c=-1$

$6x^2-2x-1=0$

$\frac{2\pm\sqrt{4-4(-6)}}{12}$

$\frac{2\pm\sqrt{28}}{12}$

$\frac{2\pm\sqrt{4\cdot7}}{12}$

$\frac{2\pm2\sqrt{7}}{12}$

$\frac{1\pm\sqrt{7}}{6}$

8. $16x^2 - 8x + 1 = 0$ $a=16$ $b=-8$ $c=1$

$\frac{8\pm\sqrt{64-4(16)}}{32}$

$\frac{8\pm\sqrt{0}}{32}$

$\frac{8}{32} = \frac{1}{4}$ double root

9. $3x^2 + 36 = 0$

$3x^2 = -36$

$x^2 = -12$

$x = \pm\sqrt{-12}$

$x = \pm\sqrt{4\cdot3}$

$x = \pm 2i\sqrt{3}$

10-13: Find the value of the discriminant and describe the number and type of roots. DO NOT SOLVE!

10. $9x^2 - 6x + 1 = 0$

$36-4(9)=0$

real rational, double root

11. $x^2 + 12x = -4$

$x^2+12x+4=0$

$144-4(4)$

$144-16$

128

2 real irrational

12. $4x^2 - 4x + 11 = 0$

$16-4(44)$

-160

2 complex

13. $2x^2 - 7x - 4 = 0$

$49-4(-8)$

81

2 real rational