GSE Algebra 2 1B.6 – Review #2

Name: Key Date: _____

Unit #1B Review #2

Solve each quadratic equation using the indicated method.

1. *Quadratic Formula*: $6x^2 = +3x - 2$

$6x^2 - 3x + 2$ $\quad -3x + 2$

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

$\frac{3 \pm \sqrt{-39}}{12}$

$\frac{3}{12} \pm \frac{i\sqrt{39}}{12} = \boxed{\frac{1}{4} \pm \frac{\sqrt{39}}{12} i}$

2. *Completing The Square*: $x^2 + 8x - 36 = 0$

$x^2 + 8x - 36 = 0$

$x^2 + 8x = 36$

$x^2 + 8x + 16 = 36 + 16$

$(x+4)^2 = 52$

$x + 4 = \pm 2\sqrt{13}$

$\boxed{x = -4 \pm 2\sqrt{13}}$

Solve each quadratic equation using the indicated method.

3. *Factoring*: $4x^2 + 24x + 35 = 0$

$(2x + 7)(2x + 5) = 0$

$2x + 7 = 0$; $2x + 5 = 0$

$2x = -7$; $2x = -5$

$\boxed{x = \frac{-7}{2}, \quad x = \frac{-5}{2}}$

4. *Square Roots*: $2(x + 4)^2 - 10 = 24$

$2(x+4)^2 - 10 = 24$

$2(x+4)^2 = 34$

$(x+4)^2 = 17$

$x + 4 = \pm\sqrt{17}$

$\boxed{x = -4 \pm \sqrt{17}}$

Find the discriminant of each quadratic equation then state the number and type of solutions.

5. $x^2 + 9 = -5x$

$x^2 + 5x + 9 = 0$

$(5)^2 - 4(1)(9) = \boxed{-11}$ 2 imaginary

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

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

$(5)^2 - 4(2)(-3) = \boxed{49}$ 2 real

7. $2x^2 + 5x = -7$

$2x^2 + 5x + 7 = 0$

$(5)^2 - 4(2)(7) = \boxed{-31}$ 2 imaginary

8. $2x^2 = 6x$

$2x^2 - 6x = 0$

$(-6)^2 - 4(2)(0) = \boxed{36}$ 2 real

Simplify the following expressions.

9. $\frac{-8 \pm \sqrt{32}}{4}$

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

10. $\frac{-6 \pm \sqrt{-75}}{12}$

$\frac{-6}{12} \pm \frac{5i\sqrt{3}}{12} = \boxed{-\frac{1}{2} \pm \frac{5\sqrt{3}}{12}i}$

Solve each equation using the best method.

11. $2x^2 + 24 = 4$

$2x^2 = -20$

$x^2 = -10$

$\boxed{x = \pm i\sqrt{10}}$

12. $(x+2)^2 - 30 = 15$

$(x+2)^2 = 45$

$x+2 = \pm 3\sqrt{5}$

$\boxed{x = -2 \pm 3\sqrt{5}}$

13. $x^2 + 10x = -4$

$x^2 + 10x + 25 = -4 + 25$

$(x+5)^2 = 21$

$x+5 = \pm\sqrt{21}$

$\boxed{x = -5 \pm \sqrt{21}}$

14. $x^2 + 8x - 9 = 0$

$(x+9)(x-1) = 0$

$x+9=0$; $x-1=0$

$\boxed{x = -9 \text{ ; } x = 1}$

15. $5x^2 + 6x + 1 = 0$

$(5x+1)(x+1) = 0$

$5x+1=0$; $x+1=0$

$5x = -1$; $x = -1$

$\boxed{x = -\frac{1}{5}}$

16. $x^2 - 6x + 10 = 2$

$x^2 - 6x + 8 = 0$

$(x-4)(x-2) = 0$

$x-4=0$; $x-2=0$

$\boxed{x = 4 \text{ ; } x = 2}$

17. $4x^2 - 2x = 5$

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

$\frac{-(-2) \pm \sqrt{(-2)^2 - 4(4)(-5)}}{2(4)}$

$\frac{2 \pm \sqrt{84}}{8} = \frac{2}{8} \pm \frac{2\sqrt{21}}{8} = \boxed{\frac{1}{4} \pm \frac{\sqrt{21}}{4}}$

18. $\frac{2}{5}x^2 + 53 = 13$

$\frac{2}{5}x^2 = -40$

$2x^2 = -200$

$x^2 = -100$

$\boxed{x = \pm 10i}$