Algebra 2 Ch 3 Review Name: KEY Hr_____

**For all problems solve over the complex numbers (a + bi). Simplify all answers when possible for full credit.**

**WORK is required and graded. List your answers separately as two distinct answers.**

1. **Solve by factoring:** $x^2 - 9x - 36 = 0$

$(x+3)(x-12)=0$

$x+3=0 \quad x=12$

$x=-3$

1. x = $-3$

x = $12$

2. **Solve by using square roots:** $100x^2 - 56 = 0$

$100x^2 = 56$

$x^2 = \frac{56}{100}$

$x = \pm\frac{\sqrt{56}}{10} = \pm\frac{2\sqrt{14}}{10} = \pm\frac{\sqrt{14}}{5}$

56 → 4 · 14 → 2 · 2 · 2 · 7

2. x = $\frac{\sqrt{14}}{5}$

x = $-\frac{\sqrt{14}}{5}$

3. **Solve using any method:** $x^2 + 18x + 81 = 16$

ALT METHOD:

$x^2+18x+81=16$

$(x+9)(x+9)=16$

$(x+9)^2=16$

$x+9=\pm 4$

$x=-9\pm 4 \rightarrow -13, -5$

$-16 \quad -16$

$x^2+18x+65=0$

$(x+5)(x+13)=0$

$x=-5 \quad x=-13$

3. x = $-5$

x = $-13$

4. **Solve using any method:** $6x^2 - 13x - 8 = 0$

$(6x+3)(6x-16)=0$

$\frac{3}{3} \quad \frac{6}{2} \quad \frac{16}{2}$

$(2x+1)(3x-8)=0$

$2x+1=0 \quad 3x=8$

$2x=-1 \quad x=8/3$

$x=-1/2$

$-48$

$S=-48$

$3 \quad -16 \quad +=-13$

4. x = $-\frac{1}{2}$

x = $\frac{8}{3}$

5. **Solve using any method:** $100x^2 + 9 = 0$

$-9 \quad -9$

$\frac{100x^2}{100} = \frac{-9}{100}$

$\sqrt{x^2} = \sqrt{\frac{-9}{100}} \rightarrow x = \pm\frac{\sqrt{-9}}{\sqrt{100}} = \pm\frac{-3i}{10}$

5. x = $\frac{-3i}{10}$

x = $\frac{3i}{10}$

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$a=6 \quad b=2 \quad c=5$

6. **Solve using the quadratic Formula:** $6x^2 + 2x + 5 = 0$

6. x = $\frac{-1}{6} + \frac{i\sqrt{29}}{6}$

x = $\frac{-1}{6} - \frac{i\sqrt{29}}{6}$

116 = 2 · 58 = 2 · 2 · 29

$\Delta = b^2 - 4ac$

$= (2)^2 - 4(6)(5)$

$= 4 - 120$

$= -116$

$x = \frac{-b \pm \sqrt{\Delta}}{2a}$

$= \frac{-2 \pm \sqrt{-116}}{2(6)}$

$= \frac{-2 \pm i\sqrt{116}}{12} = \frac{-2 \pm 2i\sqrt{29}}{12} = -\frac{2}{12} \pm \frac{2i\sqrt{29}}{12}$

$-\frac{2}{12} = -\frac{1}{6}$, $\frac{2}{12} = \frac{1}{6}$

7. If $A = 8 - 6i$ and $B = 10 - 20i$ **find the following:**

7. A + B = $18 - 26i$

a. A + B

$8 - 6i + 10 - 20i$

$18 - 26i$

b. (A)(B)

$(8 - 6i)(10 - 20i)$

$= 80 - 160i - 60i + 120i^2 \quad i^2 = -1$

$= 80 - 220i - 120 \quad 120 \cdot i^2 = -120$

$= -40 - 220i$

(A)(B) = $-40 - 220i$

8. **Write the quadratic equation in its factored form:** $4x^2 - 8x - 21$

8. $(2x+3)(2x-7)$

$\left(\frac{4x}{2} + \frac{6}{2}\right)\left(\frac{4x}{2} - \frac{14}{2}\right)$

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

a·c = −84

6 | −14 + = −8

9. **Determine the DISCRIMINANT and state the type (imaginary or real) and number of solutions the quadratic equation:** $6x^2 + 4x - 8 = 0$

9. Discriminant(Δ) = 208

Type and number of solutions:

2 Real Sol.

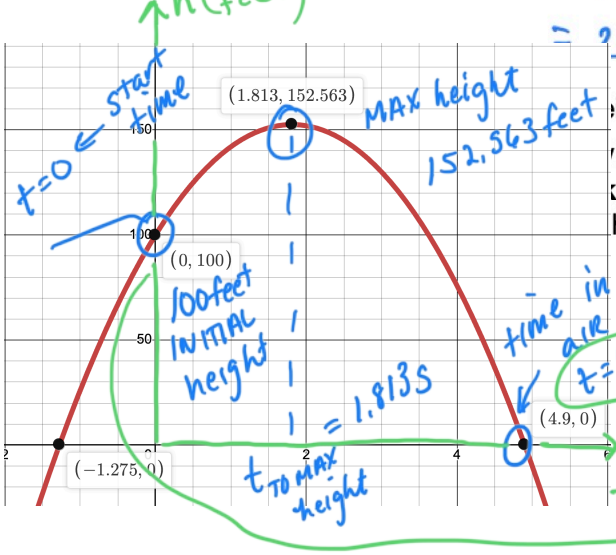
$\Delta = b^2 - 4ac$

$= (4)^2 - 4(6)(-8)$

$= 16 + 192$

$= 208$

3 | 24 | 8 | 19 | 2




ight from the ground can be modeled by the

here $h(t)$ represents the height (in feet) of the ball t

**e for the golf ball to land? (Round to the nearest**

height of the ball?

10. t = 4.9 seconds

Initial height = 100 ft