**Algebra 2 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**4.6 Homework #2**

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| **1. A coyote is standing on a cliff 254 feet above a roadrunner. If the coyote drops a boulder from the cliff, how much time does the roadrunner have to move out of its way?** |
| **2. Fireworks are shot upward with an initial velocity of 115 feet per second from a platform that is 3 feet above the ground. How long will it take the fireworks to hit the ground?** |
| **3. A person steps off a 12-foot high diving board. How many seconds does it take the person to hit the water?** |
| **4. A person springs off a 12-foot high diving board with an initial upward velocity of 15 feet per second. How many seconds does it take the person to hit the water?** |
| **5. A ball is thrown upward from a height of 15 ft. with an initial upward velocity of 5 ft/s. How long it will take for the ball to hit the ground?** |

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| **6. A golf ball is hit with an initial velocity of 100 feet per second. How long will it take for it to hit the ground?** |
| **7. A baseball is hit with an initial velocity of 55 feet per second. Given the ball is hit from a height of 4 feet off the ground, how long does it take for the ball to hit the ground?** |
| **8. A projectile is launches on a parabolic arc at an upward velocity of 70 feet per second. Determine when the projectile will first reach a height of 60 feet, and how many seconds later it will again be 60 feet.**  |
| **9. You are throwing a water balloon downward with a velocity of 12 feet per second from the top of a building that is 180 feet tall. How long will it take for the water balloon to reach the ground?** |

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| **22. discriminant:** **describe number & type of roots:****exact solutions:**  | **25. discriminant:** **describe number & type of roots:****exact solutions:** |

**Key:**

1. **3.98 seconds**
2. **7.21 seconds**
3. **0.87 seconds**
4. **1.45 seconds**
5. **1.14 seconds**
6. **6.25 seconds**
7. **3.51 seconds**
8. **1.17 & 3.20 seconds**
9. **3 seconds**

**22. 4, 2 rational, {1/2, 1}**

**25. -87, 2 complex,** $\left\{\frac{3\pm i\sqrt{87}}{6}\right\}$