Name: $\qquad$

## /42

1. How long does it take for a $5.0-\mathrm{kg}$ object to reach its maximum height if it was thrown with initially velocity of $120 \mathrm{~m} / \mathrm{s} 62^{\circ}$ above horizontal?
2. How much time will a projectile spend above ground if its landing level is identical with its launching level, and it was ejected with $95 \mathrm{~m} / \mathrm{s} 85^{\circ}$ above horizontal?
3. Consider a projectile with initial velocity of $58 \mathrm{~m} / \mathrm{s} 49^{\circ}$ above horizontal. How much time will it spend in the air if it lands 450 m below its launching level?
4. Find the final velocity of a projectile that was thrown with $82 \mathrm{~m} / \mathrm{s}$ [R39${ }^{\circ} \mathrm{U}$ ] and landed 135 m below its launching level. Express this velocity in vector notation, find its magnitude and direction.
5. A $11-\mathrm{kg}$ object is thrown with velocity of $105 \mathrm{~m} / \mathrm{s} 75^{\circ}$ above horizontal. Provided that it lands at the same level it was thrown from, what is its range?
6. A ball is kicked of a 68 m cliff. If its initially velocity was $17 \mathrm{~m} / \mathrm{s}$ [L]. How far does it land measured from the bottom of the cliff? Assume no obstacles in its path.
