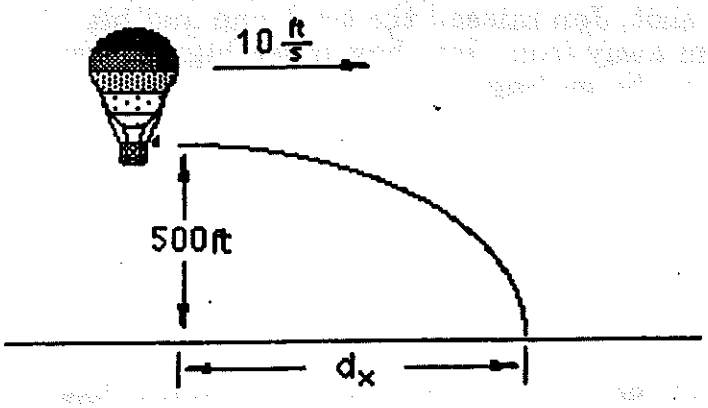
# Horizontal Projectile Problems #1 (How Far) RWS.....Physics FH044

*Neglect air resistance in all problems:*

1. A girl fires a rifle at a paper target on a rifle range. Assuming the rifle is pointed exactly horizontal (1.75 m above the ground) when the bullet is fired (at 900 m/s), how far from the girl will the bullet land ? (assume that the paper target won't slow the bullet down)

2. A kid's marble rolls off a 63 cm tall table at a speed of 30 cm/s. How far from the base of the table will the ball land ?

3. The pilot of a hot air balloon and his girlfriend are having a [redacted] good time floating along 500 ft above the ground. The wind is pushing them sideways at 10 ft/s. If they accidently knock a champagne bottle overboard, how far forward of the place it was dropped will the bottle land (solve for $d_H$) ?




4. An American Indian fires an arrow perfectly horizontal (1.5 m above the ground) at a speed of 35 m/s. If it hits the ground, how far in front of her will the arrow land ?

Answers (in mixed up order):

56 ft; 537.9 m; 10.76 cm; 19.4 m

# Horizontal Projectile Problems #2 (How High) RWS.....Physics FH045

*Neglect air resistance in all problems:*

1. A plane flying at 120 m/s drops a huge canister containing C.A.R.E. packages to a village below. If the plane needs to drop the canister 1200 m before it flies over the village (in order to hit the target) how high is the plane ?

2. A careless mountain climber drops an unopened can of soup on some ice. The can rolls along on the ice at a constant speed of 5 m/s. Assuming the can left the top of a cliff, and landed 3.9 m away from the base of the cliff:

   a. How tall was the cliff ?

   b. How adventurous is this mountain climber ?

3. Jennifer tried to throw a piece of garbage into the trash can. She threw it perfectly horizontal at a speed of 4 m/s, but being an awful shot, Jen missed the trash can and hit the teacher's foot. Assuming the teacher was 2 m away from Jen, how much higher than the teacher's foot was Jen's hand when she let go of the garbage ?

4. A ball rolls off a table at 1.45 m/s. Assuming it lands 80 cm from the base of the table, how tall is the table (in meters) ?

Answers (in mixed up order):

3 m; 1.225 m; not very; 490 m; 1.48 m