1. Suppose a hunter and a monkey are both in trees 20 m off the ground and 10 m apart. The hunter fires a blowgun at a monkey, and at the same instant, the monkey lets go of a tree branch and falls freely. Assuming, the dart leaves the gun with a velocity of 20 m/s, at what angle should the gun be aimed to hit the monkey?

1. A monkey is standing on the ground flinging elephant droppings. If he throws the droppings with a maximum velocity of 15 m/s and an angle of 30 degrees above the horizontal, can he hit another monkey 25 m away horizontally? If he increases his angle to 45 degrees, at what speed should he throw them?

**15.65 m/s**

1. If a monkey is in a tree 45 m off the ground and throws bananas with a velocity of 12 m/s. Can she throw bananas further with an angle of 30 degrees above the horizontal or 55 degrees above the horizontal? Would the answer change if the tree were shorter or taller?
2. A monkey stands on a seaside cliff and lobs a coconut into the ocean with an initial velocity of 8 m/s at an angle of 20 degrees above the horizontal. How far away from the cliff is the coconut when it reaches its maximum height? What are the horizontal and vertical components of the coconut’s velocity when it passes by the monkey on its way down?

**2.1 m, <7.5,-2.7>**