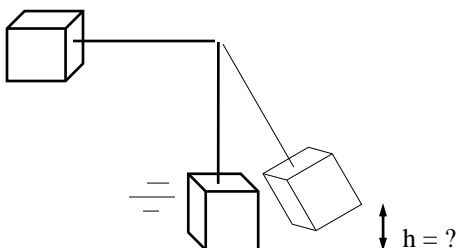


1. A baseball player throws a baseball straight up into the air with an initial speed of 20 m/s. Find the maximum height to which the ball rises.

2. A ball is dropped from a height of 20 meters. How fast is it going the instant before hitting the ground?

3. Tarzan ($m = 75 \text{ kg}$) is running at 9 m/s when he grabs a 10 meter long hanging vine. What is the maximum height he reaches as he swings?

4. A 20 kg box which is connected to a 10 meter cable is released from the horizontal. How fast is it going when the cable is vertical? How high is the box when it has swung to its highest point? How fast is it moving at this point?



5. A 4 kg ball is dropped from 32 meters above the ground. How fast is it going when it is 7 meters above the ground?

6. A gazelle is launched from a cannon off a cliff with an initial velocity of 25 m/s at a 28 degree angle to the horizontal. If the cliff is 50 m high, how fast is the gazelle traveling when he hits the ground?

7. An arrow with a mass of 80 grams is fired from a bow whose string exerts a force of 75 N on the arrow over a distance of 80 cm. What is the speed of the arrow as it leaves the bow?

8. You exert a force of 30 N on the box for 3 meters on the frictionless surface. How fast is the box going when it hits the ground? The cliff is 5 meters high.

