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Construct free-body diagrams for the objects described below.

a. When throwing a ball vertically upward, my hand moves through a distance of about 1.0 m before the ball leaves my hand. The 0.80 kg ball reaches a maximum height of about 20 m above my hand.

while the ball is in my hand

after the ball leaves my hand



b. To practice falling, a 55 kg pole-vaulter falls off of a wall 6.0 m above a 2.0 m thick foam cushion resting on the ground. However, he misses the cushion.

while falling through the air

while being stopped by the ground



c. A decorative light fixture in an elevator consists of a 2.0 kg light suspended by a cable from the ceiling of the elevator. From this light, a separate cable suspends a second 0.80 kg light.

the top light

the bottom light



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