
Description: On the Apollo 14 mission to the moon, astronaut Alan Shepard hit a golf ball with a 6 iron. The free-fall acceleration on the moon is 1/6 of its value on earth. Suppose he hits the ball with a speed of v at an angle θ above the horizontal. (a)...

[Constants](#) | [Periodic Table](#)

On the Apollo 14 mission to the moon, astronaut Alan Shepard hit a golf ball with a 6 iron. The free-fall acceleration on the moon is 1/6 of its value on earth. Suppose he hits the ball with a speed of 21 m/s at an angle 40° above the horizontal.

Part A

How much farther did the ball travel on the moon than it would have on earth?

Express your answer to two significant figures and include the appropriate units.

ANSWER:

$$L = \frac{5(v^2) \sin(2\theta)}{9.8} = 220 \text{ m}$$

Part B

For how much more time was the ball in flight?

Express your answer to two significant figures and include the appropriate units.

ANSWER:

$$t = \frac{10v \sin(\theta)}{9.8} = 14 \text{ s}$$