

1. **(T2.7, R, CA)** A ball is thrown vertically in the air with a velocity of 160 ft/sec. Using the formula $h(t) = -16t^2 + v_0t$, *(Oxford, 2.1 p.34)*
 - a. Determine when the ball will be 384 feet from the ground (Round to the nearest tenth of a second)
 - b. Write down the maximum height achieved by the ball.
 - c. Jana bets Omar that the ball will stay in the air for less than 6 seconds before hitting the ground. Is she right? Justify your answer.

 2. **(T1.4, R, CA)** Sarah invests \$5,000 in an account with annual interest of 4.2% compounded quarterly.
 - a. How much money would she have after three years? *(Oxford, 4.3 p.109)*
 - b. How much *profit* would she have after 6 years?
 - c. Show that the value of Sarah's account after ten years would be \$7593.
 - i. Look up the definition of the term "*Return on Investment*."
 - ii. What is Sarah's *Return on Investment* (ROI)?

 3. **(T1.1, R, CA)** The mass of the earth is approximately $5.972 \times 10^{24} \text{ kg}$. The mass of the moon is $7.348 \times 10^{22} \text{ kg}$. *(Oxford, 18.1 p.650)*
 - a. What is the ratio of the mass of the Earth to the mass of the Moon (that is, how many "Moons" would it take to make the mass of the Earth)
 - b. The great pyramid of Khufu weighs 5,216,308,000 kg. Write that number in correct scientific notation (rounding to three decimal places).
 - c. How many Great pyramids would it take to equal the weight of the moon?
 - d. *(extension)* What is the difference between **weight** and **mass**?

 4. **(T3.3, R, CA)** While Nada visited Dubai she naturally wanted to see the Burj Khalifa. *(Oxford, 11.2 p.369)*
 - a. As she approached the building from the ground she stops 200 meters from the base and looks up to the very top of the tower. Having done her research she knows that the Burj Khalifa is 830 meters tall. She needs to look up at what angle of elevation in order to see the top of the building?
 - b. She goes up to the top of the building to look out across the city. She notices a Ferrari parked in the distance. She estimates that she is looking down at an angle of depression of 30 degrees. How far away from the tower is the car?

 5. **(T4.6, R, CI)** Daniel has a bag containing Hersey's Kiss candies. There are four dark chocolate, three white chocolate, and 5 swirl in the bag. He offers Salma two candies, she takes one, and then another. *(Oxford, 3.5 p.89)*
 - a. What is the probability that Salma got two swirls?
 - b. What is the probability that Salma got two different types of chocolate?
 - c. After Salma got her candy, Daniel offered one to Mo. If Salma got two swirls, what is the probability that Mo does not get a swirl?
-