Worth Its Weight in Gold!

Name_____

In the movie, *Raiders of the Lost Ark*, professor and archeologist Indiana Jones ventures into the jungles in South America to search for a golden statue.

1. The volume of the solid gold statue, also referred to as the Golden Idol, is equivalent to the volume of a rectangular solid measuring 18 cm. high, by 12 cm. across, and 8 cm deep

a) Estimate the statue's volume, in cubic **inches.** (1 cm = 0.39 in) Round answer to the *nearest tenth of a cubic inch.*

b) One cubic inch of gold weighs approximately 0.697 pounds. Find the weight of the Golden Idol in pounds. Round answer to the *nearest tenth of a pound.*

c) In the movie, Indiana Jones is seen grabbing the statue in one hand while holding a bag of sand in the other hand. Explain why this was, or was not, a realistic depiction?

2. In the movie, the statue is found in an abandoned temple where it sits atop a booby-trapped pedestal. The statue's weight precisely counterbalances the temple's ancient self-destruct mechanism. Indiana Jones, knowing of the booby trap, tries to replace the idol with a bag of sand. Unfortunately, his attempt fails when he incorrectly estimates the weight of the statue.

a) The average weight of sand is 100 pounds per cubic foot. What will one cubic inch of sand weigh? Round answer to the *nearest hundredth pounds per cubic inch.*

b) How many cubic inches of sand will be needed to offset the weight of the statue?

c) The volume of Indiana's bag (to hold the sand) is equivalent to the volume of a rectangular solid measuring 4 inches high, by 5 inches across, and 4 inches deep. What is the weight, in pounds, of Indy's bag of sand?

d) How many bags of sand would Indiana have needed to offset the weight of the statue and not trigger the self-destruct mechanism?

3. 

Some viewers of the movie suggest that the eyes of the statue, as it sat on the pedestal, appeared to be human and to follow Indiana's movements. The average adult human eye is equivalent to a sphere with a diameter of 1 inch, and weights approximately one ounce.

a) The volume of a sphere is given by the formula $V = \frac{4}{3}\pi r^3$. Find the volume of the human eyeball to the *nearest tenth of a cubic inch*.

b) If the eyes of the statue were human, instead of gold, what would have been the weight of the statue? Round answer to the *nearest tenth of a pound.*

4. One reviewer of the movie *Raiders of the Lost Ark* said that actor Harrison Ford was "worth his weight in gold", implying that his portrayal of the adventurer Indiana Jones was superb. Mr. Ford stands 6'1" and weighs 218 pounds. Based upon the current price of gold, gold is worth $16,026.72 per pound. If Mr. Ford was actually "worth his weight in gold", how much was he worth?