Similar figures worksheet Name _____

This is a picture of Spaceship Earth, an attraction at Epcot in Walt Disney World. Spaceship Earth is 180 feet tall and looks (sort of) like a golf ball.

If it were a golf ball, how tall would be the golfer who hits it?

Assume a 6-foot-tall (or, 72-inch tall) golfer and a ball with diameter 1.68 inches, per USGA rules.

$$\frac{1.68}{180} = \frac{72}{g}$$

Solving this equation for g, you get a golfer who is 7,714 feet tall.

How long would be the club the golfer uses to hit the "ball"?

They will have to know that a 44-inch driver is considered "standard length" for a male golfer.

$$\frac{1.68}{180} = \frac{44}{c}$$

Solving this for c, you get a driver that is approximately 4,714 feet tall.

How wide and how deep would be the hole on the green, in order for this "ball" to drop?

A golf cup is 4.25 inches in diameter and at least 4 inches deep.

For the diameter:

$$\frac{1.68}{180} = \frac{4.25}{d}$$

So the diameter of the hole would be approximately 455 feet, or greater than the length of a football field.

For the depth:

$$\frac{1.68}{180} = \frac{4}{h}$$

The depth of the hole would be approximately 428 feet, or about the height of a 42-story building.

How much dirt would have to be moved in order to make the hole?

The formula to find the volume of a cylinder is $(\pi)(\text{radius}^2)(\text{height})$.

Since the diameter is about 455 feet, the radius would be about 227.5 feet. The height would be 428 feet, so the volume of the cylindrical hole would be approximately 69,591,539 cubic feet.

This is approximately the same amount of dirt that it would take to fill the Hubert H. Humphrey Metrodome in Minneapolis, Minnesota.

What is the scale factor that takes a regulation golf ball to the size of Spaceship Earth?

(1.68 inches)(scale factor) = 180 feet

If f represents the scale factor, then

(1.68 inches)(f) = 180 feet or (1.68 inches)(f) = 2160 inches, and f is approximately 1286, which means Spaceship Earth is approximately 1286 times as tall as a regulation golf ball.

When the golfer is done with the round of golf and gets into the car to drive home, how long is that car?

The 2011 Buick Lucerne is just about 17 feet long (actually 16 feet, 11.2 inches). Seventeen feet is 204 inches, so:

$$\frac{1.68}{180} = \frac{204}{b}$$

Solving for b, we have a car that is 21,857 feet, or more than four miles, long.

If a golfer can hit a regulation golf ball 250 yards with a driver, how far could that golfer hit Spaceship Earth?

250 yards is the same as 9000 inches, so:

$$\frac{1.68}{180} = \frac{9000}{d}$$

Solving for d, we have a drive that is 964,286 feet, or a little more than 182 miles long.