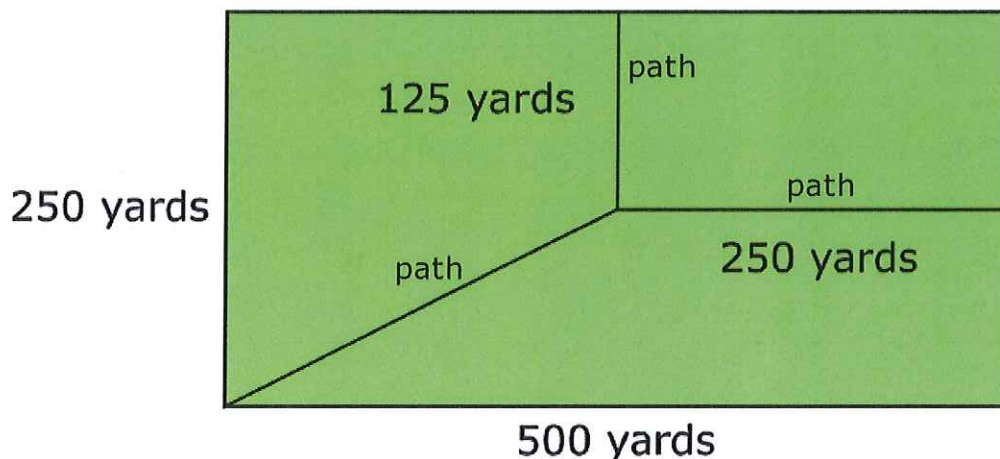**Smarter Balanced**
Assessment Consortium

Session 1

Simpson Park

The town of Simpson received a grant of $1,550,000 to develop a park.

- The park will be developed on an open rectangular plot of land that is 500 yards long by 250 yards wide.
- Three paths will be built in the park.

The layout of the park and the paths are shown in the diagram below.


The grant includes the following requirements:

- Three benches must be placed where the three paths intersect in the center of the park. Additional benches must be placed 25 yards apart along the paths in the park (or as close to 25 yards as possible).
- A light (lamppost) must be installed next to each bench in the park.
- Two buildings that each contain men's and women's restrooms must be built in the park.
- At least 45% of the park must remain undeveloped.

Sample 1 continued:

A baker is designing a cake, represented below, to be delivered to a convention.
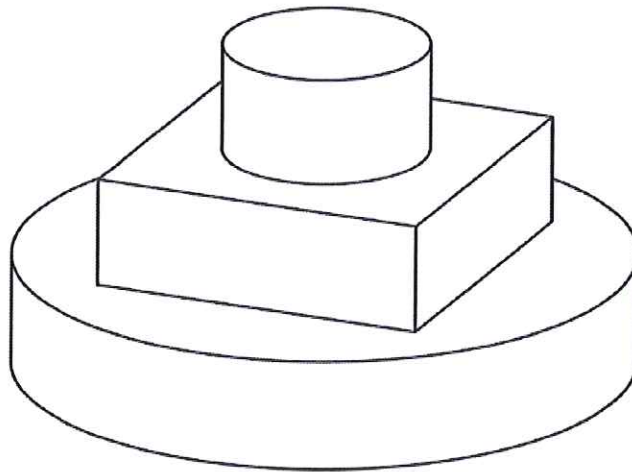
The cake is designed to meet the following conditions:

- The cake has 3 layers.
- Each layer is 4 inches deep.
- The top and bottom layers are shaped like right circular cylinders.
- The radii of the top and bottom layers are 4 inches and 12 inches, respectively.
- The middle layer is in the shape of a square prism.
- Viewed from above, the minimum distance between the outer edges of the bottom and middle layers is the same as the minimum distance between the outer edges of the top and middle layers. These distances are represented as x in the diagram below.
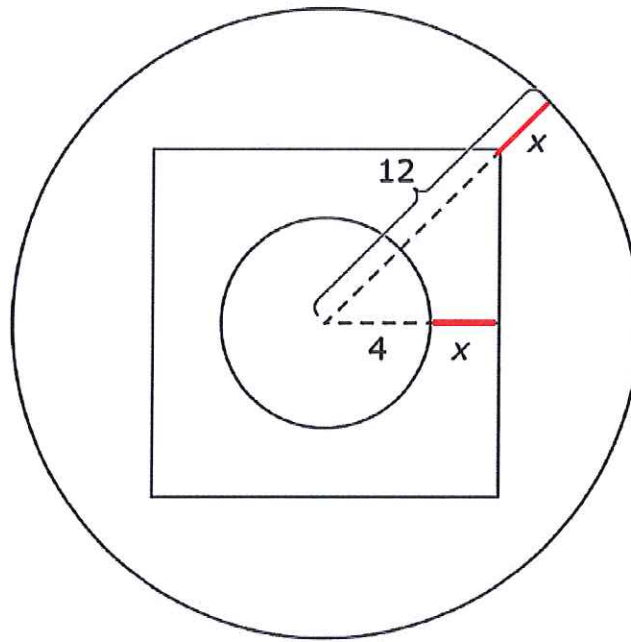
The baker wants to estimate the mass of the cake in order to obtain packaging that will allow for the cake to be transported successfully. The density of the cake is approximately 8 grams per cubic inch.

Based on this density, what is the best estimate for the total mass of the cake, rounded to the nearest kilogram? Use drawings and formulas to help explain how you found your answer.