

The JETS Challenge

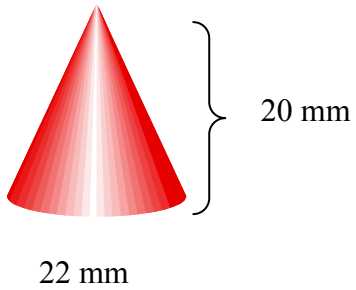
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Challenge 79 – The Hershey Kiss Challenge

Problem:

The shape of Hershey Kiss chocolates can be modeled as a cone measuring 22 mm diameter by 20 mm tall. The aluminum foil around each Kiss is 60 mm square, which is cut from a 60 mm wide roll. For quality control, each vat of chocolate is mixed in a 0.8 cubic meter batch. You want a roll of foil to be just long enough for one batch of chocolate so that both changes can be made at the same down time.

How long is the roll of foil in meters?

Solution:

$$V = \frac{\pi R^2 H}{3}$$

$$= \frac{\pi \cdot (11)^2 \cdot 20}{3}$$

$$= 806.6\pi \text{ mm}^3$$

$$\text{volume vat} = .8 \text{ m}^3$$

$$= 800,000,000 \text{ mm}^3$$

$$\# \text{ Kisses in a vat} = \frac{800,000,000}{806.6\pi}$$

$$= 315,679 \text{ kisses}$$

length of role:

$$= \# \text{ kisses} \times \text{length for 1 Kiss}$$

$$= 315.679 \times 60 \text{ mm}$$

$$= 18,940,790 \text{ mm}$$

$$= 18,940.79 \text{ m}$$