

Quiz #24

Name: Key*You must show your work to get full credit.*

A bluefin tuna which is 108 cm long, weighs 20.6kg. Predict the weight is bluefin tuna that is 400 cm long.

Let  $l$  = length of the tuna. The weight should be proportional to the cube of the length, that is

$$W(l) = cl^3$$

Then

$$W(108) = c(108)^3 = 20.6 \text{ kg.}$$

so

$$c = \frac{20.6}{(108)^3} = 1.6353 \times 10^{-5}$$

and thus

$$W(l) = 1.6353 \times 10^{-5} l^3$$

Then

$$W(400) = 1.6353 \times 10^{-5} (400)^3 = 1046.6$$