

The JETS Challenge

Provided by Dave Meredith, Associate Professor,
Penn State University-Fayette

Challenge 72 – The Infestation Challenge

Problem:

It has been estimated that there are 25,000,000 insects per square mile of the earth's land surface (remember it is 4/5 covered with water). The diameter of the earth is 7,856 miles.

How many bugs live on the earth with us?

Solution:

$$S.A. = 4\pi r^2$$

$$S.A. = 4\pi (3,928m)^2$$

$$S.A. = 4\pi (15,429,184)m^2$$

$$S.A. = 61,716,736\pi m^2$$

$$S.A. = 193,888,844.421m^2 \text{ (land and water)}$$

$$S.A. \text{ (land)} = \frac{193,888,844.421}{5} \approx 37,777,768.8842 \text{ miles}^2$$

$$\times 25,000,000$$

answer: 9.69×10^{14} bugs