

Task:

After a release at one of the chemical plants, warnings were sent out to all areas within the 3.2 mile radius to "shelter in place." How many square miles had to "shelter in place"? How many square kilometers had to "shelter in place"? (1 mile = 1.61 kilometers)

Solution:

The area of territory on that warnings were sent is equal to the area of circle with radius 3.2 mile.

$$A = \pi R^2$$

$$A = \pi \cdot 3.2^2 = \pi \cdot 10.24 \approx 32.27 \text{ (mi}^2\text{)}$$

$$1 \text{ mile} = 1.61 \text{ kilometers} \Rightarrow 1 \text{ mile}^2 = 1.61 \cdot 1.61 \text{ kilometers}^2 = 2.5921 \text{ kilometers}^2$$

$$A = 32.27 \text{ mi}^2 = \frac{32.27}{2.5921} \text{ km}^2 \approx 12.45 \text{ km}^2$$

Answer: 32.27 (mi²) and 12.45 (km²)