



Math Study Strategies

Nursing Math

Diluent for IM administration



A physician **orders** 3,500,000 units of Penicillin. The **label on the vial** of the **ordered drug** reads 5,000,000 units. How many **cc's** of diluent would the nurse add to provide 3,500,000 units in 1.0 cc ?

Follow the steps below to solve the problem:

1. What is prescribed by the physician?

▶ 3,500,000 units.

2. How is **the vial of powered drug** on hand labeled?

▶ 5,000,000 units

3. What is the problem asking?

▶ How many cc's of diluent would the nurse add to provide 3,500,000 units in 1 cc?

▶ If 3,500,000 units corresponds to 1cc, then what amount of diluent corresponds to 5,000,000?

$$\frac{1cc}{diluent} = \frac{3,500,000units}{5,000,000units}$$

4. This is a proportion where we can make the two cross-products equal

$$3,500,000 \times diluent = 1cc \times 5,000,000$$

Dividing both sides by 3,500,000 gives:

$$diluent = \frac{5,000,000units}{3,500,000units} \times 1cc$$
$$diluent = 1.42851 \approx 1.43cc$$

▶ To carry out the physician's order, you need to add **1.43cc** diluent to the dry powder.

