Name _____ Date _____

Using Density in Real-life Situations - Guided Lesson Explanation

Explanation#1

$$\text{Population Density} = \frac{\text{number of people}}{\text{Square feet}}$$

After input the numbers that we have

$$0.003 = \frac{X}{250{,}000 \text{ square feet}}$$

$(0.003)(250{,}000) = X$

$X = 750$ people

A total of 750 people attended the summer sale offer on that day.

Explanation#2

Volume Requirement:

A volume less than or equal to 10,000 cm^3.

Volume = length x height x width

Volume = 20 cm x 30 cm x 10 cm

Volume = 6000 cm^3

Jenny's bag meets the requirement for volume.

Mass Requirement:

A mass is less than or equal to 7 kg.

Now that we have the volume, we can determine the mass by using the equation:

Mass = Volume x Density

Mass = 6000 cm^3 x 0.001 kg/cm^3

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Mass = 6 kg

Jenny's bag meets the requirement for mass.

Jenny's bag meets both requirements.

Explanation#3

Volume Requirement:

A volume is less than or equal to 17,000 cm^3.

Volume = length x height x width

Volume = 20 cm x 25 cm x 30 cm

Volume = 15000 cm^3

Jenny's luggage meets the requirement for volume.

Step 3) **Mass Requirement:**

A mass is less than or equal to 20 kg.

Now that we have the volume, we can determine the mass by using the equation:

Mass = Volume x Density

Mass = 15000 cm^3 x 0.0015 kg/cm^3

Mass = 22.5 kg

Kitty's luggage bag not meets the requirement for mass.

Kitty's bag met only the first requirement. Therefore it does not fully qualify.