

5.MD.C.5 Estimate Volume

5.MD.C.5 Relate volume to the operations of multiplication and addition

1. Write TRUE if the unit of measure is a valid unit to measure volume.

Otherwise, write FALSE.

- a. cubic inches
- b. cm^2
- c. miles
- d. m^3

Solution:

- a.
- b.
- c.
- d.

2. Estimate the volume of each rectangular prism with the given measurements.

- a. $11 \text{ in} \times 10 \text{ in} \times 10 \text{ in}$
- b. $6.3 \text{ m} \times 5.1 \text{ m} \times 2.4 \text{ m}$
- c. $3.2 \text{ cm} \times 9.8 \text{ cm} \times 7.5 \text{ cm}$
- d. $31 \text{ ft} \times 19 \text{ ft} \times 62 \text{ ft}$
- e. $94 \text{ mm} \times 16 \text{ mm} \times 86 \text{ mm}$
- f. $7.8 \text{ yd} \times 16.3 \text{ yd} \times 4.9 \text{ yd}$

Solution: Round the numbers first and then find the product

- a.
- b.
- c.
- d.
- e.
- f.

3. Explain how you can estimate the volume of a bedroom if the bedroom is a rectangular prism and dimensions of the room are 10 m, 9.5 m, and 8.2 m. Estimate the volume of the room.

Solution:

4. Leo has a box with the dimensions of $12 \text{ in} \times 6 \text{ in} \times 11 \text{ in}$. He has a rectangular prism-shaped oven whose volume is 800 cubic inches. Does the oven fit in the box?

Solution:

5. Ashley has two boxes labeled A and B. Box A with dimensions of $9.1 \text{ cm} \times 13.7 \text{ cm} \times 24.9 \text{ cm}$. Box B measures $4.7 \text{ cm} \times 21.6 \text{ cm} \times 18.3 \text{ cm}$. Which box has the greater volume?

Solution:

6. Mary has a cabinet whose volume is 72 cubic feet. The length and width of the cabinet are 4 ft and 3 ft respectively. Estimate the height of the cabinet.

Solution:

5.MD.C.5 Estimate Volume

Answer Key

5.MD.C.5 Relate volume to the operations of multiplication and addition

1. Write TRUE if the unit of measure is a valid unit to measure volume. Otherwise, write FALSE.

- a. cubic inches
- b. cm^2
- c. miles
- d. m^3

Solution:

- a. **TRUE**
- b. **FALSE**
- c. **FALSE**
- d. **TRUE**

2. Estimate the volume of each rectangular prism with the given measurements.

- a. $11 \text{ in} \times 10 \text{ in} \times 10 \text{ in}$
- b. $6.3 \text{ m} \times 5.1 \text{ m} \times 2.4 \text{ m}$
- c. $3.2 \text{ cm} \times 9.8 \text{ cm} \times 7.5 \text{ cm}$
- d. $31 \text{ ft} \times 19 \text{ ft} \times 62 \text{ ft}$
- e. $94 \text{ mm} \times 16 \text{ mm} \times 86 \text{ mm}$
- f. $7.8 \text{ yd} \times 16.3 \text{ yd} \times 4.9 \text{ yd}$

Solution: Round the numbers first and then find the product

- a. **1,000 cubic inches**
- b. **60 cubic meters**
- c. **240 cubic centimeters**
- d. **36,000 cubic feet**
- e. **162,000 cubic millimetres**
- f. **640 cubic yards**

3. Explain how you can estimate the volume of a bedroom if the bedroom is a rectangular prism and dimensions of the room are 10 m, 9.5 m, and 8.2 m. Estimate the volume of the room.

Solution:

$$V = 10 \text{ m} \times 9.5 \text{ m} \times 8.2 \text{ m estimated to } V = 10 \text{ m} \times 10 \text{ m} \times 8 \text{ m} = 800 \text{ cubic meters}$$

4. Leo has a box with the dimensions of $12 \text{ in} \times 6 \text{ in} \times 11 \text{ in}$. He has a rectangular prism-shaped oven whose volume is 800 cubic inches. Does the oven fit in the box?

Solution:

No

5. Ashley has two boxes labeled A and B. Box A with dimensions of $9.1 \text{ cm} \times 13.7 \text{ cm} \times 24.9 \text{ cm}$. Box B measures $4.7 \text{ cm} \times 21.6 \text{ cm} \times 18.3 \text{ cm}$. Which box has the greater volume?

Solution:

A

6. Mary has a cabinet whose volume is 72 cubic feet. The length and width of the cabinet are 4 ft and 3 ft respectively. Estimate the height of the cabinet.

Solution:

6 ft