

5.MD.C.5 Estimating the Volume

5.MD.C.5: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

Give what is asked in each item and write your answers on the space provided.

1. Estimate the volume of each of the rectangular prism with the given measurements.
(Hint: Round each dimension measurement to the nearest whole number.)

a. $33\text{ m} \times 5.2\text{ m} \times 13\text{ m}$

b. $26.7\text{ cm} \times 11.5\text{ cm} \times 34\text{ cm}$

c. $45.2\text{ in} \times 37.2\text{ in} \times 5.5\text{ in}$

d. $15.2\text{ ft} \times 11.4\text{ ft} \times 5.9\text{ ft}$

e. $5.6\text{ yd} \times 7.2\text{ yd} \times 5.5\text{ yd}$

f. $47.2\text{ mm} \times 57.1\text{ mm} \times 60.4\text{ yd}$

2. Miguel has a water tank with dimensions $33\text{ m} \times 5.2\text{ m} \times 13\text{ m}$. Flowing water can fill in a total volume of 8 m^3 in 1 minute. How many minutes does it take to fully fill Miguel's water tank?

Answer:

3. Andrei measured the rectangular-shaped gas tank of their neighbor. It measured 33 ft long, 25 ft wide, and 17 ft high. About how much volume of gas can the tank hold in a full capacity?

Answer:

4. The dimensions of a cargo container are $45\text{ in} \times 37\text{ in} \times 55\text{ in}$. The container is loaded with cartons each having dimensions of $5\text{ in} \times 2\text{ in} \times 2\text{ in}$. About how many cartons are loaded in the container?

Answer:

5. Jessa needs to install air conditioning units in her house. The area of the house is 3456 sq. ft. The house stands at approximately 20 ft tall. If one air conditioning unit is sufficient to cool $12,000\text{ ft}^3$, about how many units are required to be installed to cool the whole house?

Answer:

6. Which of the following is a reasonable estimate for the volume of a cube whose surface area is 582ft^2 ? _____

a. $1,000\text{ ft}^3$

b. 100 ft^3

c. 10 ft^3

d. 97 ft^3

5.MD.C.5 Estimating the Volume

Answer Key

5.MD.C.5: Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

Give what is asked in each item and write your answers on the space provided.

1. Estimate the volume of each of the rectangular prism with the given measurements.
(Hint: Round each dimension measurement to the nearest whole number.)

a. $33\text{ m} \times 5.2\text{ m} \times 13\text{ m}$	<u>2,145 m³</u>
b. $26.7\text{ cm} \times 11.5\text{ cm} \times 34\text{ cm}$	<u>11,016 cm³</u>
c. $45.2\text{ in} \times 37.2\text{ in} \times 5.5\text{ in}$	<u>9,990 in³</u>
d. $15.2\text{ ft} \times 11.4\text{ ft} \times 5.9\text{ ft}$	<u>1,022 ft³</u>
e. $5.6\text{ yd} \times 7.2\text{ yd} \times 5.5\text{ yd}$	<u>252 yd³</u>
f. $47.2\text{ mm} \times 57.1\text{ mm} \times 60.4\text{ yd}$	<u>162,785 mm³</u>

2. Miguel has a water tank with dimensions $33\text{ m} \times 5.2\text{ m} \times 13\text{ m}$. Flowing water can fill in a total volume of 8 m^3 in 1 minute. How many minutes does it take to fully fill Miguel's water tank?

Answer:

278.85 minutes

3. Andrei measured the rectangular-shaped gas tank of their neighbor. It measured 33 ft long, 25 ft wide, and 17 ft high. About how much volume of gas can the tank hold in a full capacity?

Answer:

14,025 ft³

4. The dimensions of a cargo container are $45\text{ in} \times 37\text{ in} \times 55\text{ in}$. The container is loaded with cartons each having dimensions of $5\text{ in} \times 2\text{ in} \times 2\text{ in}$. About how many cartons are loaded in the container?

Answer:

4,578 cartons

5. Jessa needs to install air conditioning units in her house. The area of the house is 3456 sq. ft. The house stands at approximately 20 ft tall. If one air conditioning unit is sufficient to cool $12,000\text{ ft}^3$, about how many units are required to be installed to cool the whole house?

Answer:

6 units

6. Which of the following is a reasonable estimate for the volume of a cube whose surface area is 582 ft^2 ? a.

a. $1,000\text{ ft}^3$

b. 100 ft^3

c. 10 ft^3

d. 97 ft^3