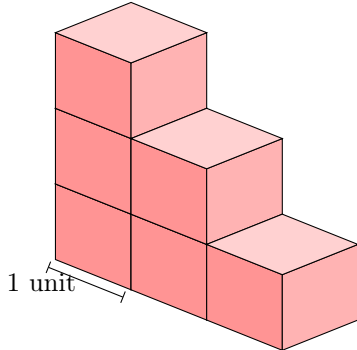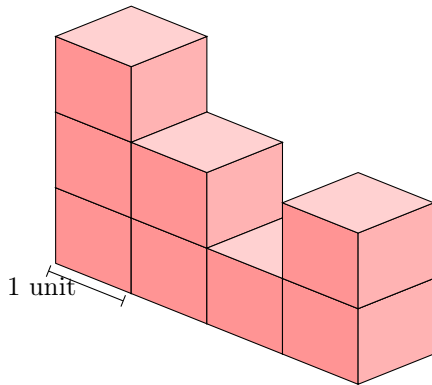# VOLUME

A DEFINITION

A.1 FINDING VOLUME OF A SHAPE

Ex 1: What is the volume of the red figure?
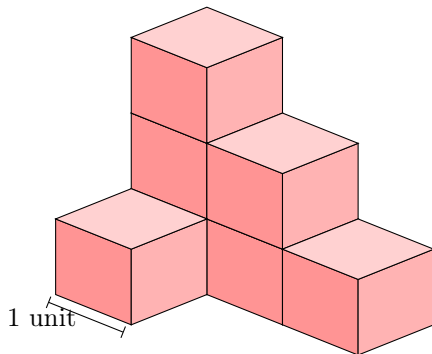
1 unit

[   ] cubic units

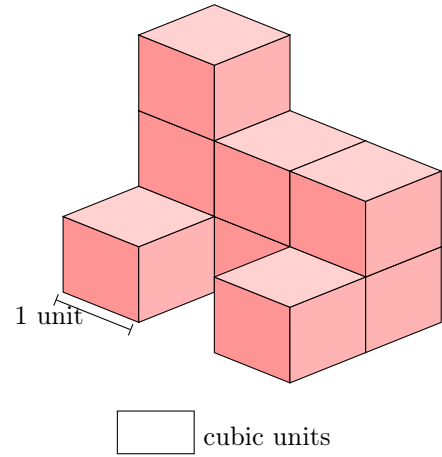**Ex 2:** What is the volume of the red figure?

1 unit

[   ] cubic units

Ex 3: What is the volume of the red figure?

1 unit

[   ] cubic units

Ex 4: What is the volume of the red figure?

1 unit

[   ] cubic units

A.2 FINDING VOLUME OF A RECTANGULAR CUBOID

Ex 5: What is the volume of the red figure?

1 unit

[   ] cubic units

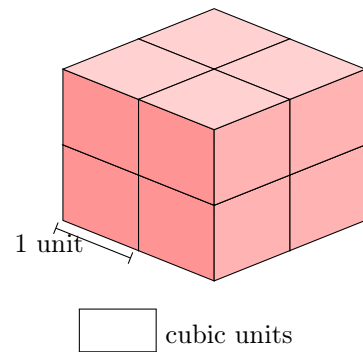**Ex 6:** What is the volume of the red figure?

1 unit

[   ] cubic units

Ex 7: What is the volume of the red figure?

1 unit

[   ] cubic units
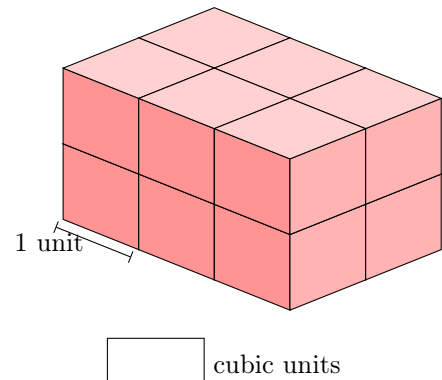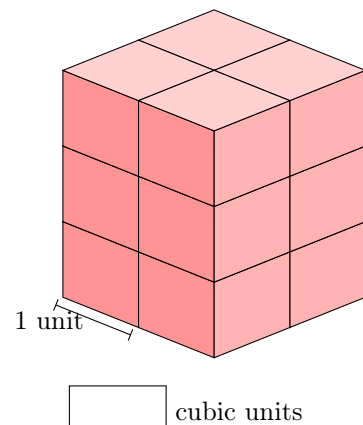
Ex 8: What is the volume of the red figure?

1 unit

☐ cubic units
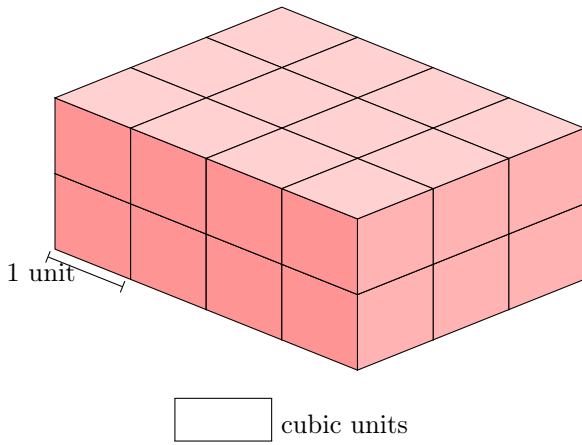
B UNITS OF VOLUME

B.1 CHOOSING UNITS FOR VOLUME

MCQ 9: What unit will be used to measure the volume of your bedroom?
Choose 1 answer:

☐ Cubic millimeters

☐ Cubic centimeters

☐ Cubic meters

MCQ 10: What unit will be used to measure the volume of a small toy block?
Choose 1 answer:

☐ Cubic millimeters

☐ Cubic centimeters

☐ Cubic meters

MCQ 11: What unit will be used to measure the volume of a grain of rice?
Choose 1 answer:

☐ Cubic millimeters

☐ Cubic centimeters

☐ Cubic meters

MCQ 12: What unit will be used to measure the volume of a bottle of milk?
Choose 1 answer:

☐ Cubic millimeters

☐ Cubic centimeters

☐ Cubic meters

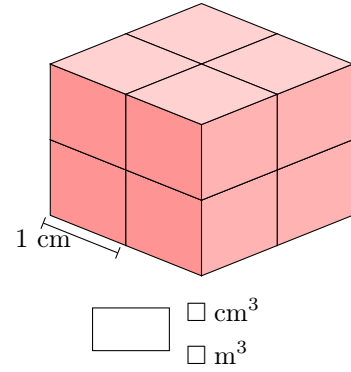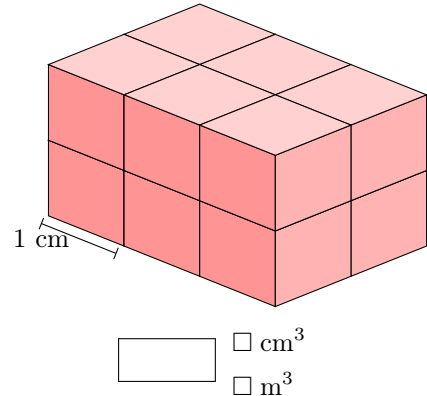**MCQ 13:** What unit will be used to measure the volume of a swimming pool?
Choose 1 answer:

☐ Cubic millimeters

☐ Cubic centimeters

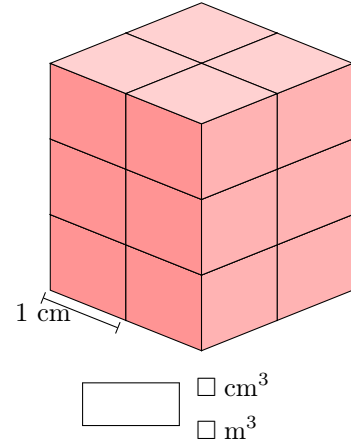☐ Cubic meters

B.2 FINDING VOLUME OF A RECTANGULAR CUBOID
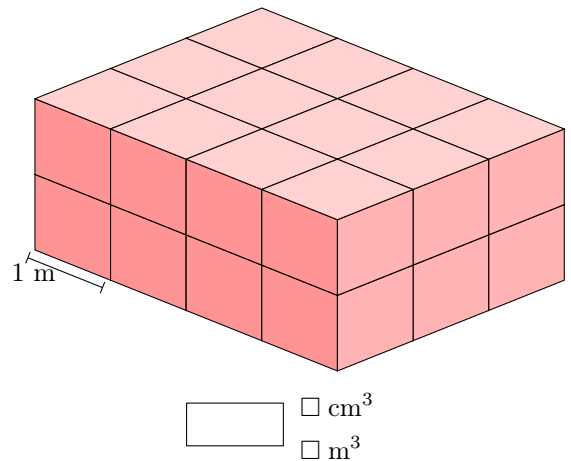
Ex 14: What is the volume of the red figure?

1 cm

☐ cm^3
☐ m^3

Ex 15: What is the volume of the red figure?

1 cm

☐ cm^3
☐ m^3

Ex 16: What is the volume of the red figure?

1 cm

☐ cm^3
☐ m^3

Ex 17: What is the volume of the red figure?

1 m

☐ cm^3
☐ m^3

C CONVERSION OF VOLUME UNITS

C.1 CONVERTING VOLUME UNITS

Ex 18: Convert:

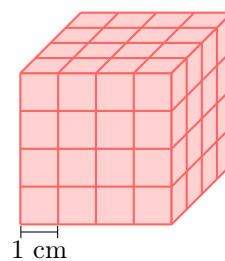$$3\,\text{cm}^3 = \boxed{}\ \text{mm}^3.$$

Ex 19: Convert:

$$12\,000\,\text{mm}^3 = \boxed{}\ \text{cm}^3.$$

Ex 20: Convert:

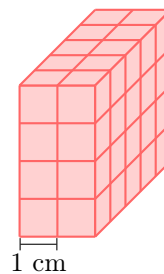$$4\,\text{m}^3 = \boxed{}\ \text{cm}^3.$$

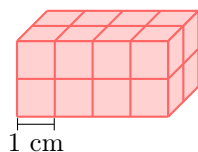**Ex 21:** Convert:

$$15\,000\,000\,\text{cm}^3 = \boxed{}\ \text{m}^3.$$

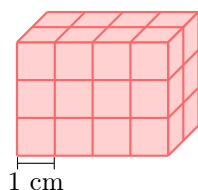# D VOLUME OF A RECTANGULAR CUBOID

D.1 FINDING VOLUMES OF A RECTANGULAR CUBOIDS
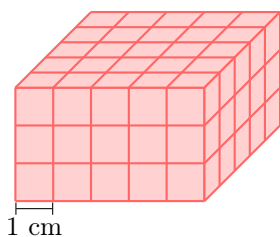
Ex 22: What is the volume of the red figure?

1 cm

$$\boxed{}\ \text{cm}^3$$

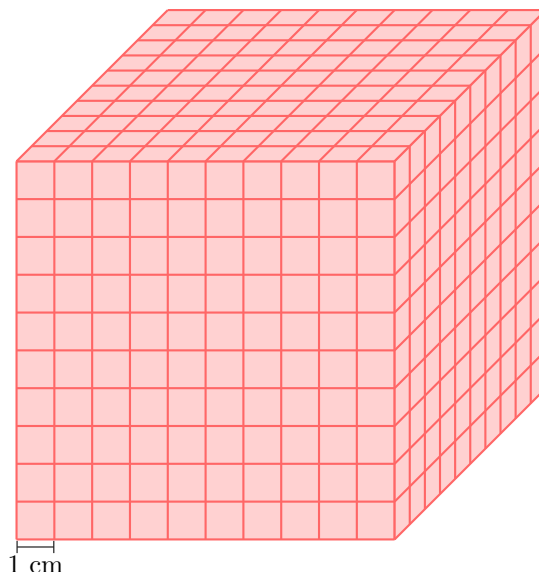**Ex 23:** What is the volume of the red figure?

1 cm

$$\boxed{}\ \text{cm}^3$$

Ex 24: What is the volume of the red figure?

1 cm

$$\boxed{}\ \text{cm}^3$$

Ex 25: What is the volume of the red figure?

1 cm

$$\boxed{}\ \text{cm}^3$$

Ex 26: What is the volume of the red figure?

1 cm

$$\boxed{}\ \text{cm}^3$$

Ex 27: What is the volume of the red figure?

1 cm

$$\boxed{}\ \text{cm}^3$$

D.2 SOLVING PROBLEMS

Ex 28: A rectangular swimming pool is 8 m long, 5 m wide, and 2 m deep. The water costs 10 dollars per cubic meter. What is the volume of the swimming pool?

$$\boxed{}\ \text{m}^3$$

What is the cost to fill the swimming pool with water?

$$\boxed{}\ \text{dollars}$$

Ex 29: A container has a volume of $20\,\text{m}^3$. A box is $2\,\text{m}$ long, $1\,\text{m}$ wide, and $0.5\,\text{m}$ high.
What is the volume of the box?

$\boxed{}\ \text{m}^3$

How many boxes can fit inside the container?

$\boxed{}$ boxes

Ex 30: A storage room has a volume of $150\,\text{m}^3$. A water tank is $5\,\text{m}$ long, $2\,\text{m}$ wide, and $3\,\text{m}$ high.
What is the volume of the water tank?

$\boxed{}\ \text{m}^3$

How many water tanks can fit inside the storage room?

$\boxed{}$ water tanks

Ex 31: A rectangular fish tank is $2\,\text{m}$ long, $1\,\text{m}$ wide, and $1\,\text{m}$ deep. The water costs 15 dollars per cubic meter.
What is the volume of the fish tank?

$\boxed{}\ \text{m}^3$

What is the cost to fill the fish tank with water?

$\boxed{}$ dollars
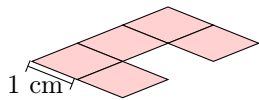
E VOLUMES OF SOLIDS WITH UNIFORM CROSS-SECTION

E.1 CALCULATING VOLUMES STEP-BY-STEP

Ex 32:

1. Calculate the area of this figure :

1 cm

Area of base $= \boxed{}\ \text{cm}^2$

2. Calculate the volume of this solid:

1 cm
1 cm

Volume $= \boxed{}\ \text{cm}^3$

3. Calculate the volume of this solid:

2 cm
1 cm

Volume $= \boxed{}\ \text{cm}^3$

4. Calculate the volume of this solid:

3 cm
1 cm
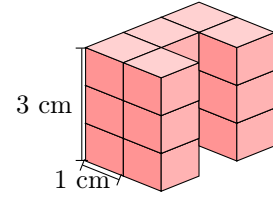
Volume $= \boxed{}\ \text{cm}^3$

Ex 33:

1. Calculate the area of this figure:

1 cm

Area of base $= \boxed{}\ \text{cm}^2$

2. Calculate the volume of this solid:

Volume $= \boxed{}\ \text{cm}^3$

3. Calculate the volume of this solid:

Volume $= \boxed{}\ \text{cm}^3$

4. Calculate the volume of this solid:

Volume $= \boxed{}\ \text{cm}^3$

Ex 34:

1. Calculate the area of this figure :

Area of base $= \boxed{}\ \text{cm}^2$

2. Calculate the volume of this solid:

Volume = ☐ cm³

3. Calculate the volume of this solid:

Volume = ☐ cm³

4. Calculate the volume of this solid:

Volume = ☐ cm³
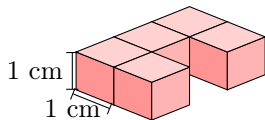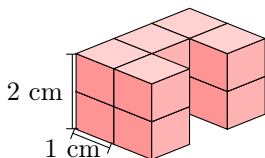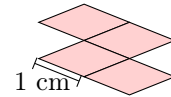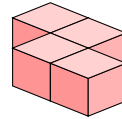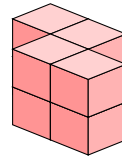
Ex 35:

1. Calculate the area of this figure:

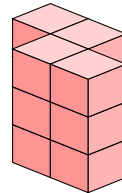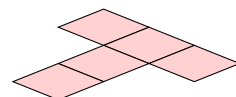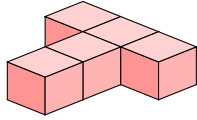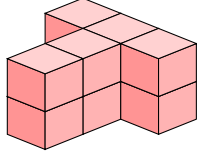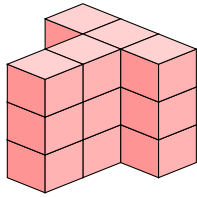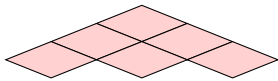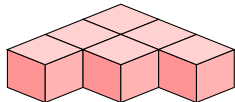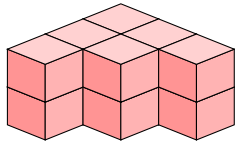Area of base = ☐ cm²
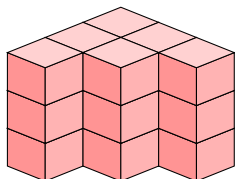
2. Calculate the volume of this solid:

Volume = ☐ cm³
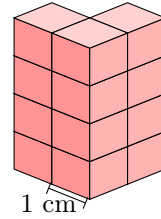
3. Calculate the volume of this solid:

Volume = ☐ cm³
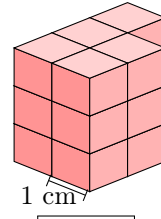
4. Calculate the volume of this solid:

Volume = ☐ cm³

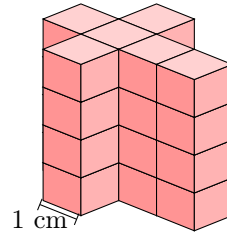**Ex 36:** Find the volume of the solid:

1 cm

$V =$ ☐ cm³

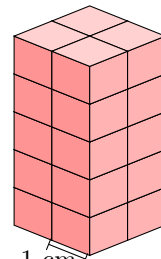**Ex 37:** Find the volume of the solid:

1 cm

$V =$ ☐ cm³

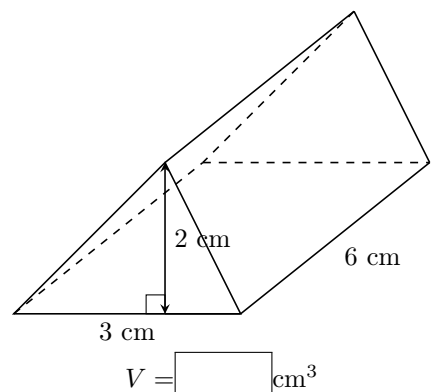**Ex 38:** Find the volume of the solid:

1 cm

$V =$ ☐ cm³

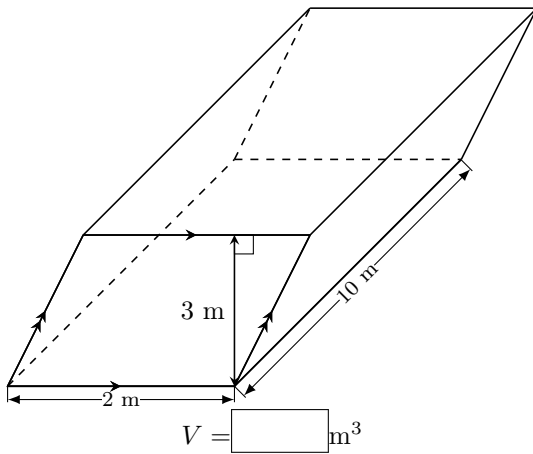**Ex 39:** Find the volume of the solid:

1 cm

$V =$ ☐ cm³

E.3 FINDING VOLUMES OF SOLIDS WITH UNIFORM CROSS-SECTION

Ex 40: Find the volume of the solid:

2 cm

6 cm

3 cm

$V =$ ☐ cm³

Ex 41: Find the volume of the solid:

3 m

10 m

2 m

$V =$ ☐ m³

Ex 42: Find the volume of the solid (round to 1 decimal place):
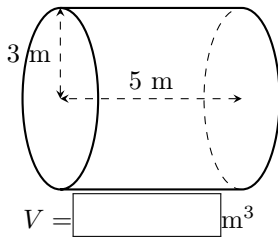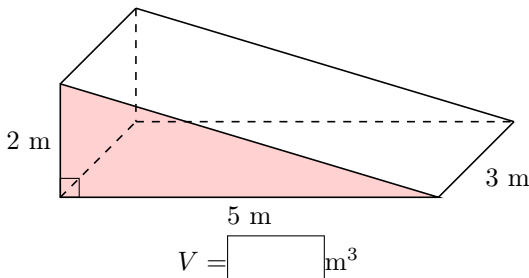
3 m

5 m

$V =$ ☐ m³

Ex 43: Find the volume of the solid:

2 m

3 m

5 m

$V =$ ☐ m³

Ex 44: Find the volume of the solid (round to 1 decimal place):

2 m

10 m

$V =$ ☐ m³
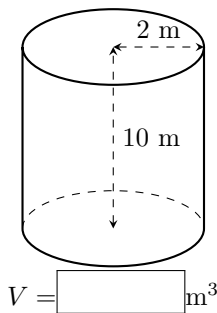
Ex 45: Find the volume of the solid (round to 1 decimal place):

4 m

2.5 m

$V =$ ☐ m³
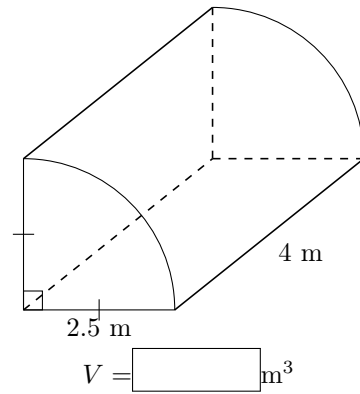
F CAPACITY

F.1 CHOOSING UNITS FOR CAPACITY

MCQ 46: What unit best measures the capacity of a bathtub?
Choose 1 answer:

☐ 220 mL

☐ 2 200 mL

☐ 220 L

MCQ 47: What unit best measures the capacity of a dosage of medicine?
Choose 1 answer:

☐ 5 mL

☐ 0.5 L

☐ 5 L

MCQ 48: What unit best measures the capacity of a wine glass?
Choose 1 answer:

☐ 150 L

☐ 15 cL

☐ 1.5 L

MCQ 49: What unit best measures the capacity of a soup bowl?
Choose 1 answer:

☐ 40 cL

☐ 40 mL

☐ 40 L

MCQ 50: What unit best measures the capacity of a car's fuel tank?
Choose 1 answer:

☐ 60 mL

☐ 60 L

☐ 600 L

MCQ 51: What unit best measures the capacity of a pitcher?
Choose 1 answer:

☐ 2.5 mL

☐ 2.5 L

☐ 25 L

F.2 CONVERTING CAPACITY UNITS

Ex 52: Convert:

$$3\,\text{L} = \boxed{}\ \text{cL}.$$

Ex 53: Convert:

$$1.5\,\text{L} = \boxed{}\ \text{cL}.$$

Ex 54: Convert:

$$20\,\text{cL} = \boxed{}\ \text{L}.$$

Ex 55: Convert:

$$250\,\text{cL} = \boxed{}\ \text{L}.$$

Ex 56: Convert:

$$2\,\text{L} = \boxed{}\ \text{mL}.$$

Ex 57: Convert:

$$30\,\text{mL} = \boxed{}\ \text{cL}.$$

F.3 CONVERTING BETWEEN METRIC VOLUME AND CAPACITY UNITS

Ex 58: Convert:

$$5\,\text{m}^3 = \boxed{}\ \text{L}.$$

Ex 59: Convert:

$$500\,\text{L} = \boxed{}\ \text{m}^3.$$

Ex 60: Convert:

$$3.4\,\text{m}^3 = \boxed{}\ \text{L}.$$

Ex 61: Convert:

$$2\,\text{L} = \boxed{}\ \text{m}^3.$$