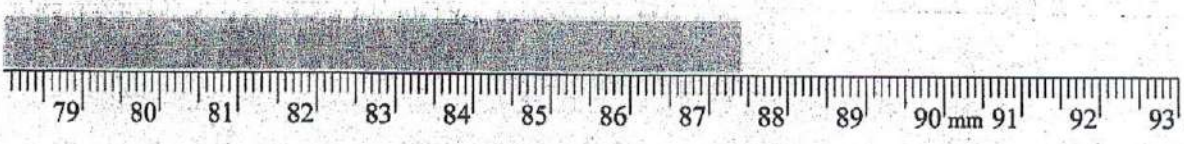
Name _____ Date _____ Period# _____

Physical Science
Reading Scientific Instruments Practice
Mid-term Review

For each of the following instruments write the indicated reading on the line provided. Be sure to include the correct units.

Length - Meter stick



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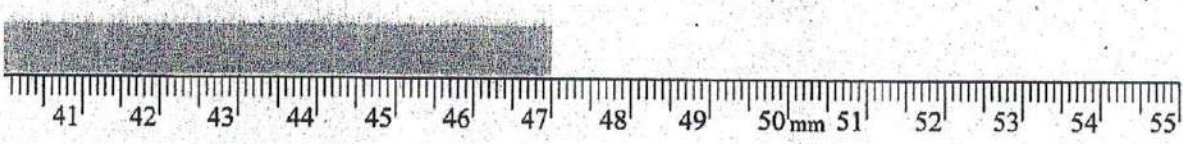

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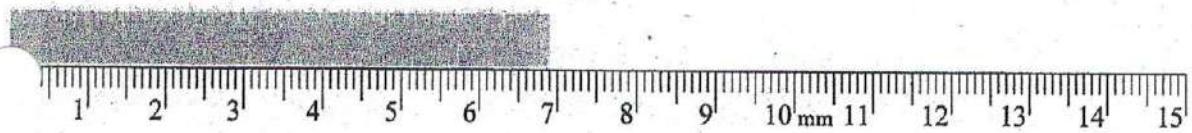

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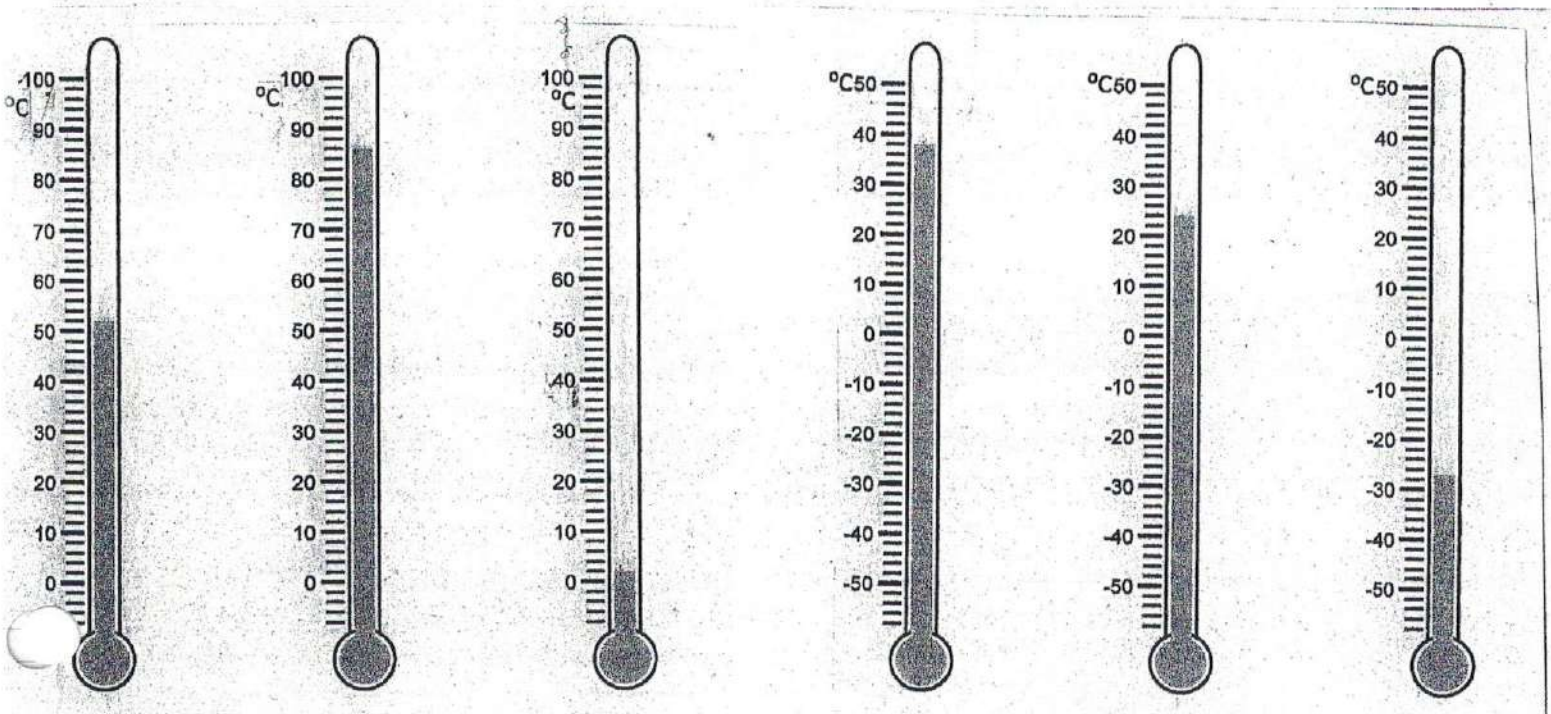
Temperature - Thermometer



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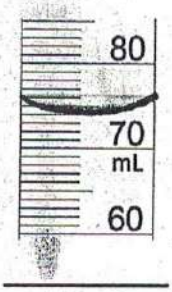
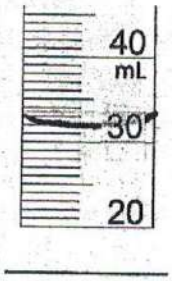
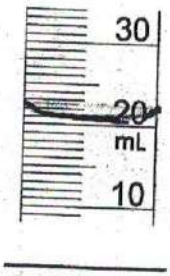
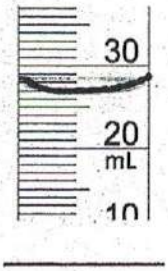
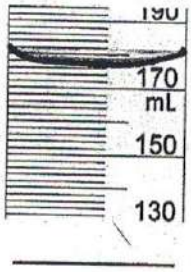
Volume – Graduated Cylinder



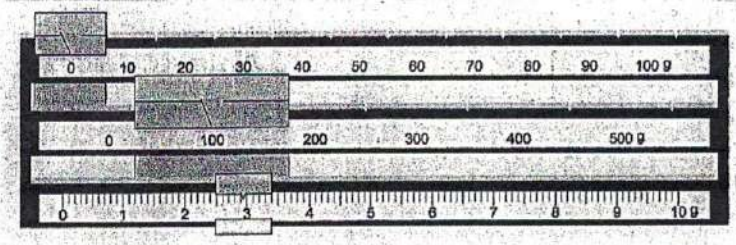


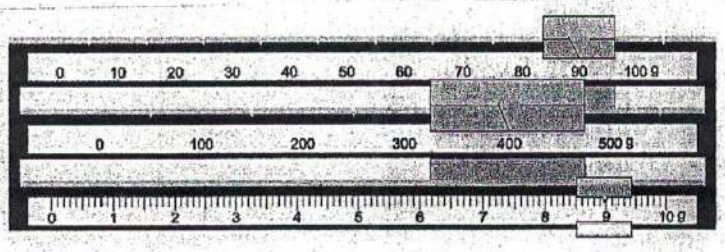


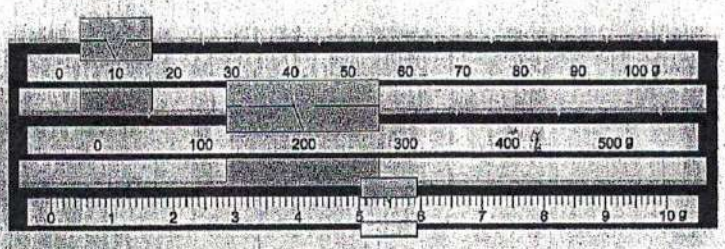


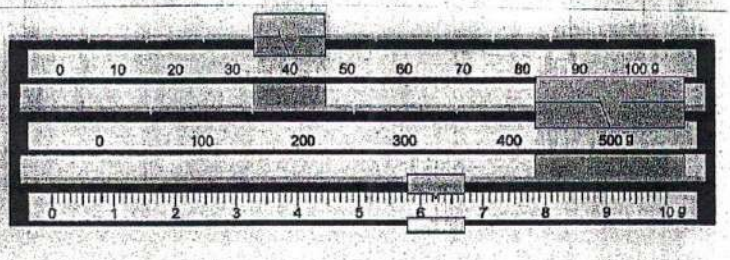


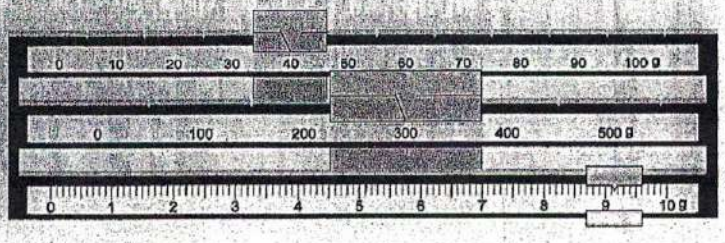
Mass – Triple Beam Balance

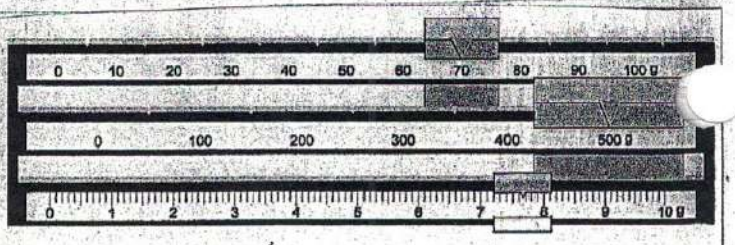












Name _____ Date _____ Period# _____

Physical Science
Density Practice Problems
Mid-term Review

Directions: Solve each problem below. Show your work and circle your answers.

Example: A student has a sample of aluminum that has a mass of 27 g and a volume of 10 cm^3. What is the density of aluminum?

Density = mass/volume

Density = 27 g / 10 cm^3

Density = 2.7 g/cm^3

1. A loaf of bread has a mass of 500 g and volume of 2500 cm^3. What is the density of the bread?

2. A block of wood has a mass of 6.0 g and a volume of 12.0 cm3. What is the density of the block of wood?

3. The density of a substance is 4.0 g/cm3. If a sample of the substance has a volume of 25 cm3, then what is its mass?

4. A bottle of water has a volume of 560 mL and a mass of 1250 g. What is the density?

5. You have a lead ball with a mass of 420 g. The density of lead is 10.5 g/cm3. What is the volume of the ball?

6. A student has a rectangular block. It is 2 cm wide, 3 cm tall, and 25 cm long. It has a mass of 600 g. First, calculate the volume of the block:

   Then, use that answer to determine the density of the block:

Use the data below to calculate the density of each unknown substance. The use the density chart to the right to determine the identity of each substance.

Substance	Density (g/cm^3)
Gold	19.3
Mercury	13.5
Lead	11.4
Iron	7.87
Aluminum	3.7
Bone	1.7-2.0
Gasoline	0.66-0.69
Air (dry)	0.00119

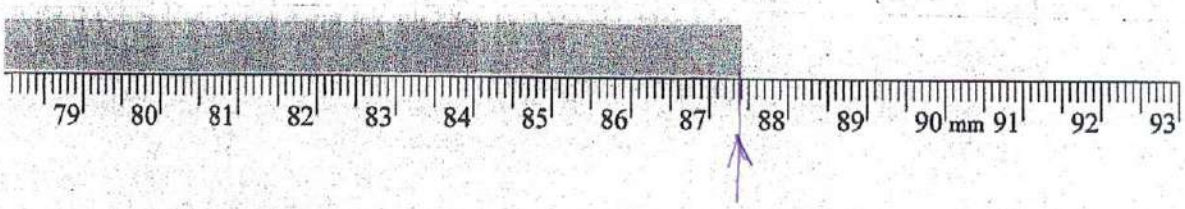
Mass (g)	Volume (cm^3)	D= m/V	Density (g/cm^3)	Substance
4725 g	350 cm^3	$D=\frac{4725\ g}{350\ cm^3}$	D= 13.5 g/cm^3	
171 g	15 cm^3			
148 g	40 cm^3			
475 g	250 cm^3			
680 g	1000 cm^3			

Name Key Date _____ Period# _____

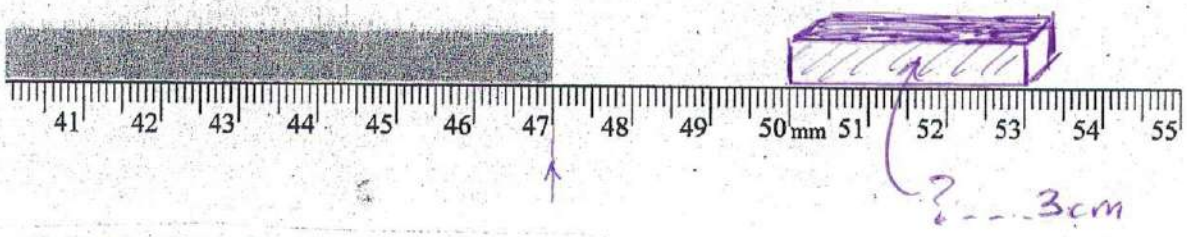
Physical Science
Reading Scientific Instruments Practice
Mid-term Review

For each of the following instruments write the indicated reading on the line provided. Be sure to include the correct units.

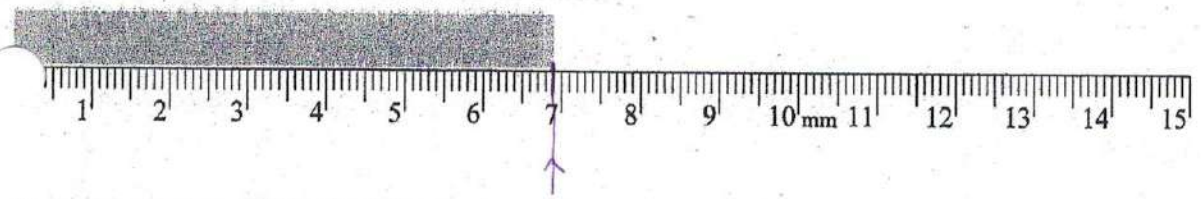
Length - Meter stick



874 mm
87.4 cm

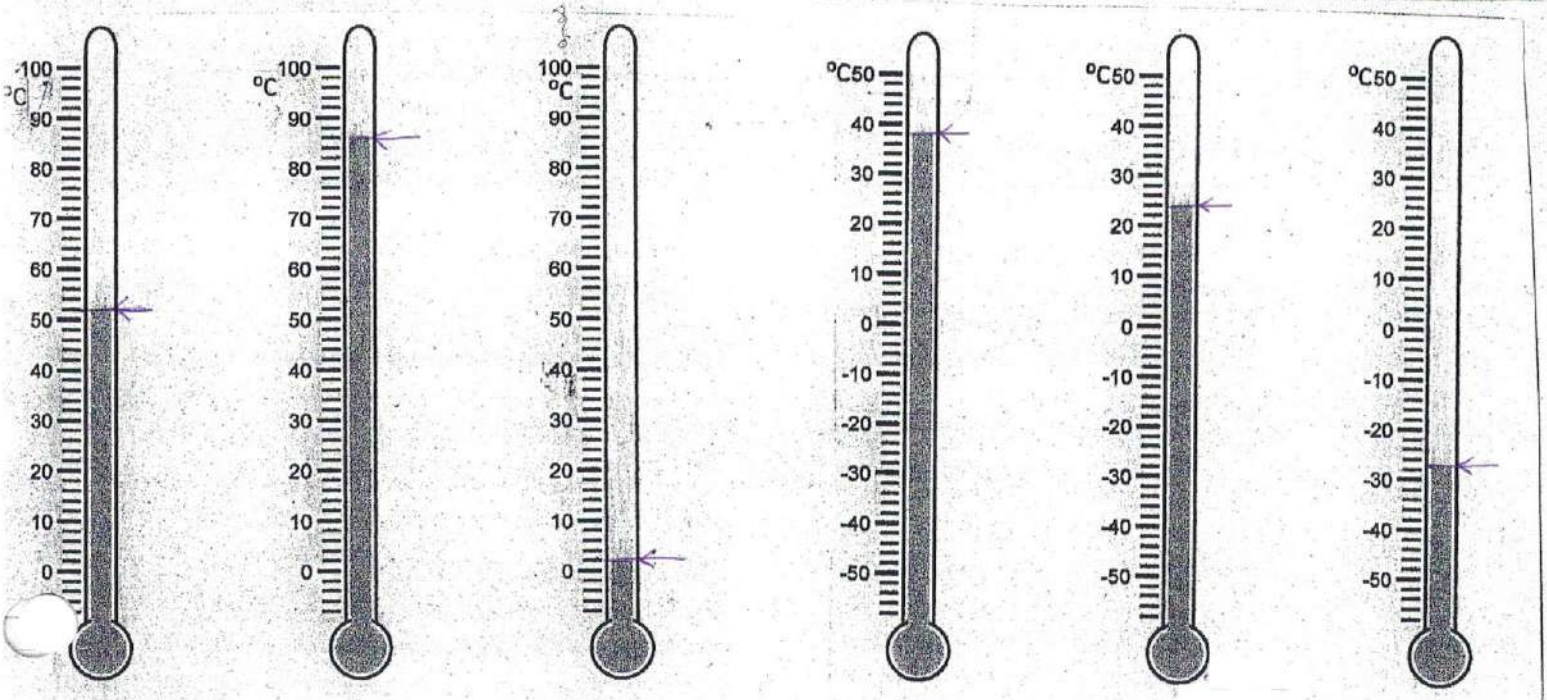


470 mm
47 cm



6.9 cm or 69 mm

Temperature - Thermometer



52°C

86°C

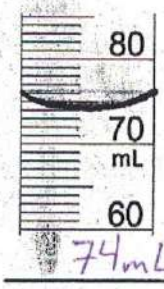
2°C

39°C

24°C

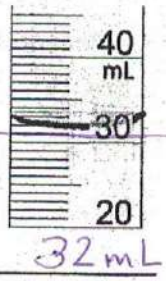
-27°C

Volume – Graduated Cylinder



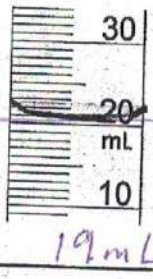
by 10's

74mL

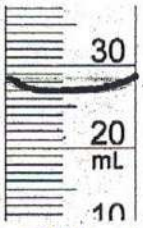


by 10's

32mL



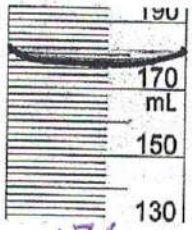
19mL



27mL

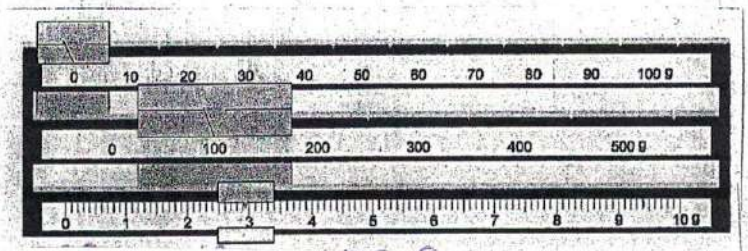
50mL

by 2's

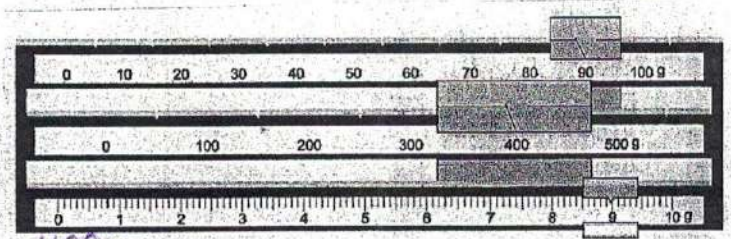


176mL

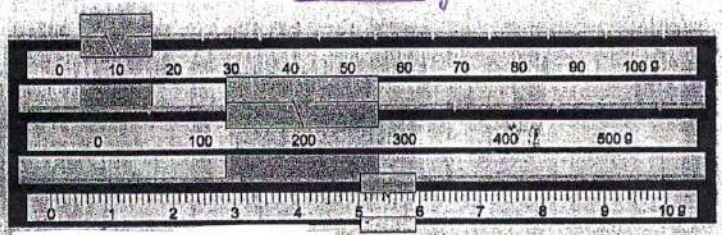
Mass – Triple Beam Balance



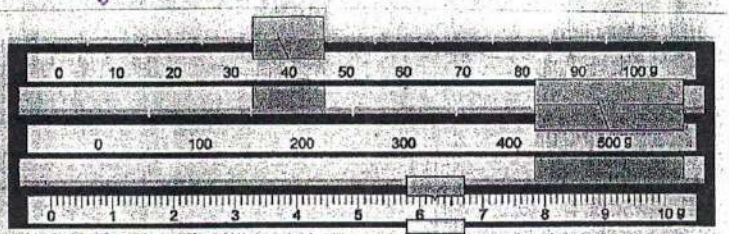
102.9g



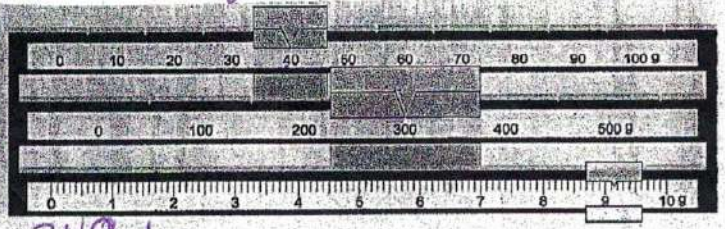
499g



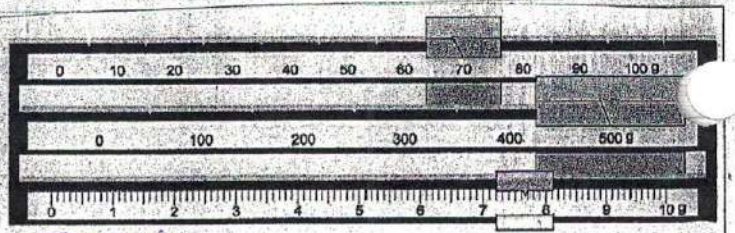
215.5g



546.2g



349.1g



577.6g

Name _____ Date _____ Period# _____

Department of Motor Vehicles

Physical Science
Density Practice Problems
Mid-term Review

$D = m/V$

Directions: Solve each problem below. Show your work and circle your answers.

Example: A student has a sample of aluminum that has a mass of 27 g and a volume of 10 cm^3. What is the density of aluminum?

Density = mass/volume

Density = 27 g / 10 cm^3

Density = 2.7 g/cm^3 ✓

1. A loaf of bread has a mass of 500 g and volume of 2500 cm^3. What is the density of the bread?

$D = m / V$

$D = 500g / 2500cm^3$

$\boxed{D = 0.2\ g/cm^3}$

2. A block of wood has a mass of 6.0 g and a volume of 12.0 cm3. What is the density of the block of wood?

$D = m / V$

$D = 6.0g / 12.0\ cm^3$

$\boxed{D = 0.5\ g/cm^3}$

3. The density of a substance is 4.0 g/cm3. If a sample of the substance has a volume of 25 cm3, then what is its mass?

$D = \frac{m}{V} \rightarrow \left(\frac{V}{1}\right) D = \frac{m}{\cancel{V}}\left(\frac{\cancel{V}}{1}\right) \rightarrow m = DV$

$m = (4.0g/cm^3)(25cm^3)$

$\boxed{m = 100\ grams}$

4. A bottle of water has a volume of 560 mL and a mass of 1250 g. What is the density?

$D = m/V \quad D = 1250g / 560mL \quad \boxed{D = 2.23\ g/mL}$

5. You have a lead ball with a mass of 420 g. The density of lead is 10.5 g/cm3. What is the volume of the ball?

$D = m/V \longrightarrow M = D(V) \longrightarrow V = m/D$

$\left(\frac{V}{1}\right)D = \frac{m}{V}\left(\frac{V}{1}\right) \longrightarrow \frac{m}{D} = \frac{D(V)}{D}$

Solve for Vol.

$V = 420g / 10.5 g/cm^3$ → $V = 40 cm^3$

6. A student has a rectangular block. It is 2 cm wide, 3 cm tall, and 25 cm long. It has a mass of 600 g. First, calculate the volume of the block:

$V = l \times W \times h$

$V = 2cm \times 3cm \times 25cm$ $V = 150 cm^3$

Then, use that answer to determine the density of the block:

$D = m/V$

$D = 600g / 150cm^3$ $D = 4 g/cm^3$

Use the data below to calculate the density of each unknown substance. The use the density chart to the right to determine the identity of each substance.

Substance	Density (g/cm^3)
Gold	19.3
Mercury	13.5
Lead	11.4
Iron	7.87
Aluminum	3.7
Bone	1.7-2.0
Gasoline	0.66-0.69
Air (dry)	0.00119

Mass (g)	Volume (cm^3)	D= m/V	Density (g/cm^3)	Substance
4725 g	350 cm^3	D= 4725 g / 350 cm^3	D= 13.5 g/cm^3	Mercury
171 g	15 cm^3	171/15	11.4 g/cm^3	Lead
148 g	40 cm^3	148g/40cm^3	3.7 g/cm^3	Aluminum
475 g	250 cm^3	475g/250cm^3	1.9 g/cm^3	Bone
680 g	1000 cm^3	680g/1000cm^3	0.68 g/cm^3	Gasoline