Density

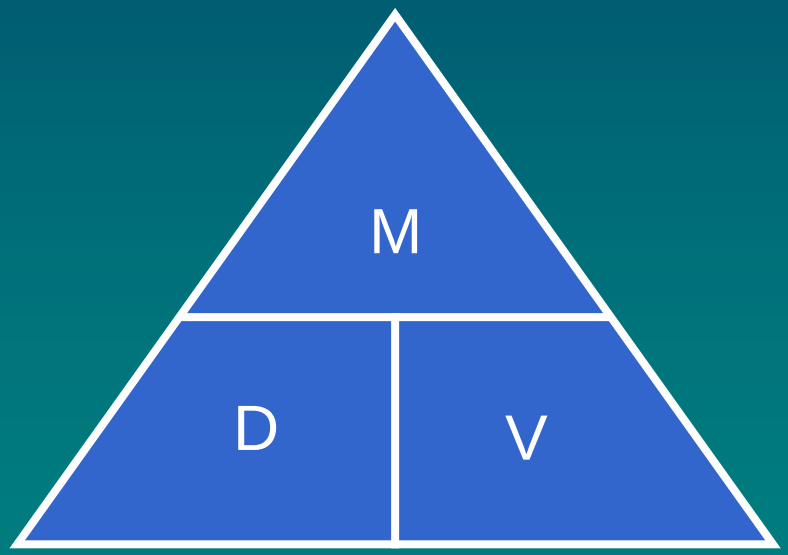
What is Density

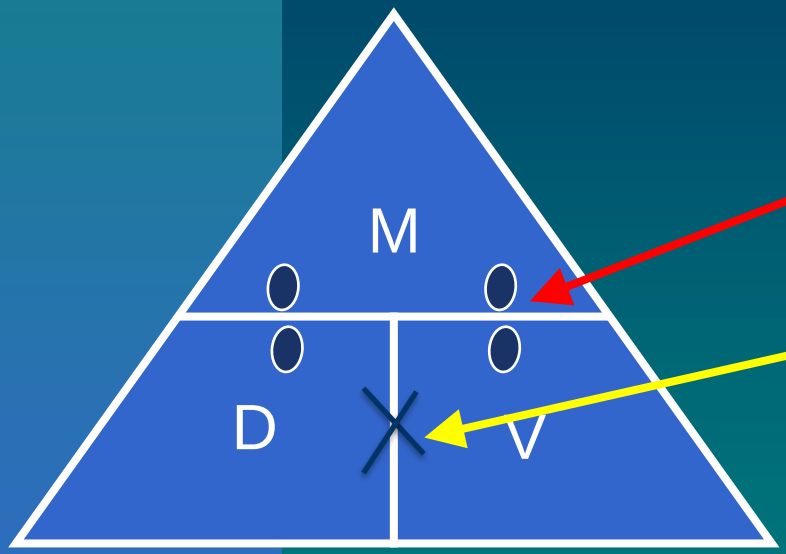
- **Density is a characteristic property of an object that describes the relationship between the object's mass and volume**
- **The formula to calculate density is:**

Density = Mass ÷ Volume

The Density Triangle of Science

- To remember the formula for density use the density triangle:





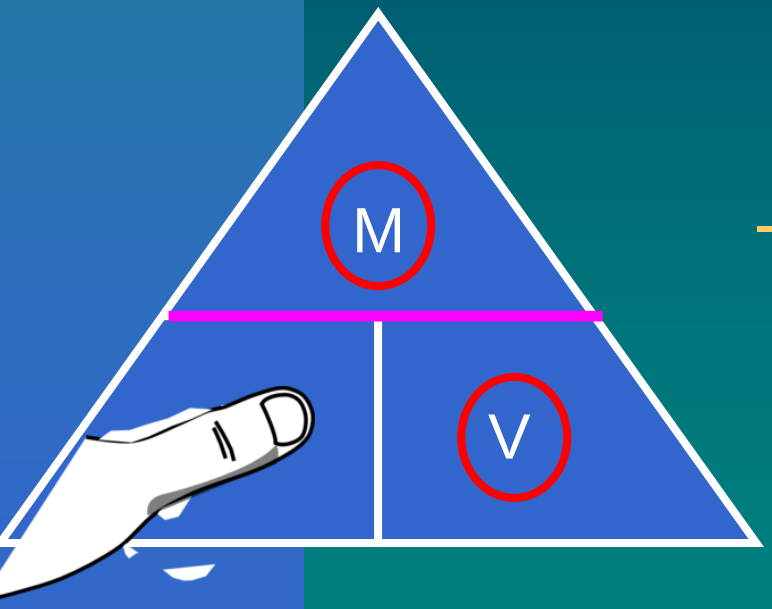
- This line represents ÷
- This line represents x

Using the Density Triangle to Find …

- To find density:
  - You need mass and volume
  - Write your formula starting with what you are looking for:

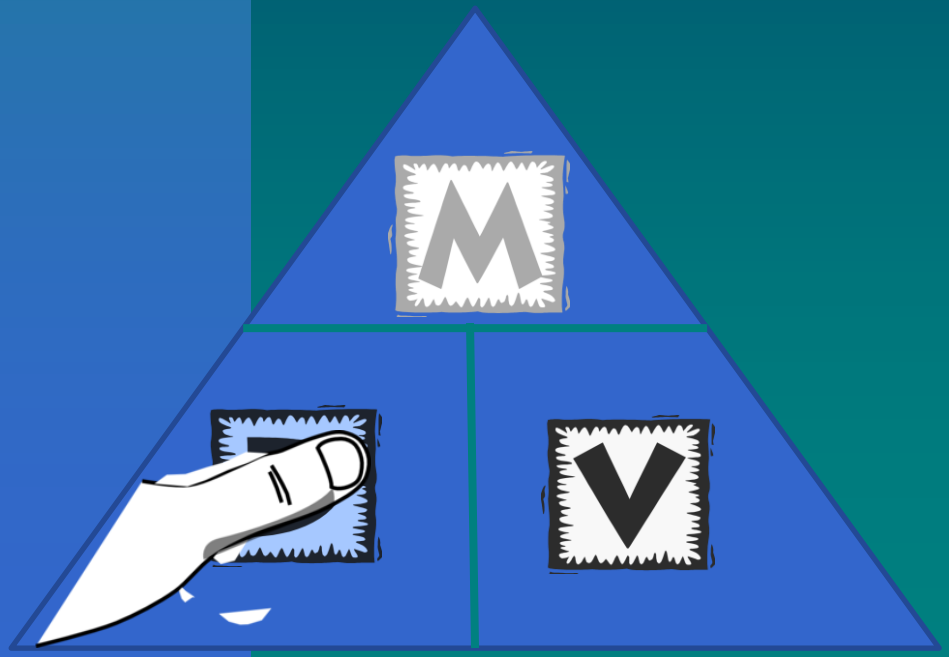
    D =
  - Now read your triangle:

$$D = M \div V$$



Density Problems

- What is the density of a pebble with a mass of 25 grams and a volume of 5 mL?



Mass= 25g

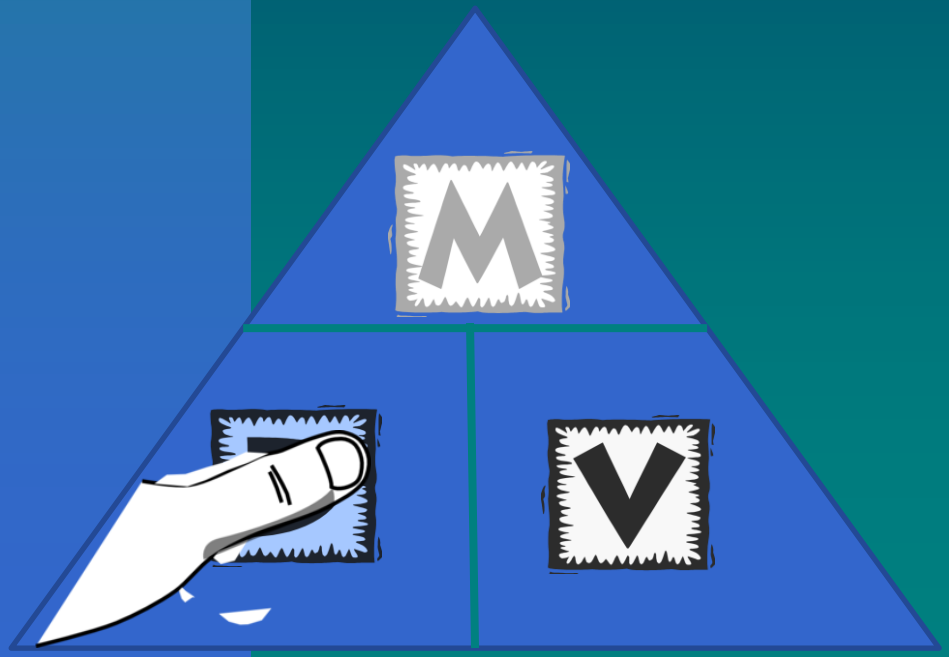
Volume= 5 mL

Mass/Volume= 25g/ 5 mL

Answer = 5 g/mL

Density Problems

- What is the density of a rectangular piece of wood with a mass of 80 grams and measures 2 cm by 5 cm by 4 cm?



Mass= 80g

Volume= 40 cm^3

Mass/Volume= 80g/ 40 cm^3

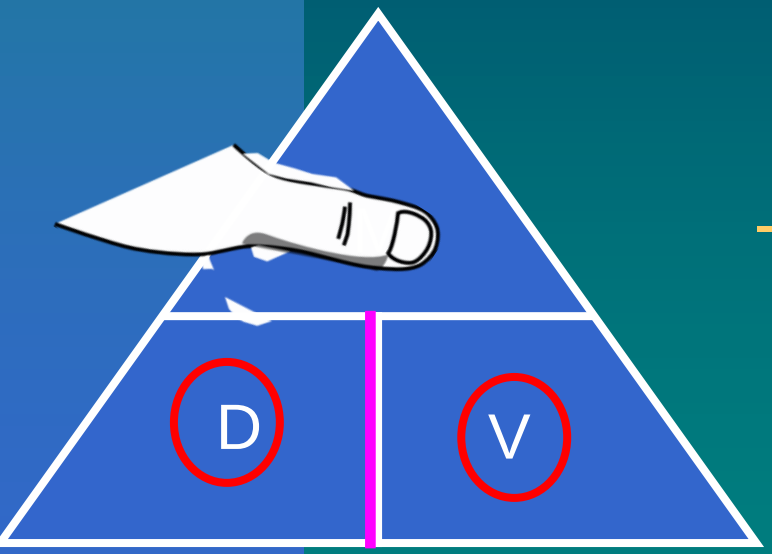
Answer = 2 g/cm^3

Using the Density Triangle to Find …

- To find Mass:
  - You need density and volume
  - Write your formula starting with what you are looking for:

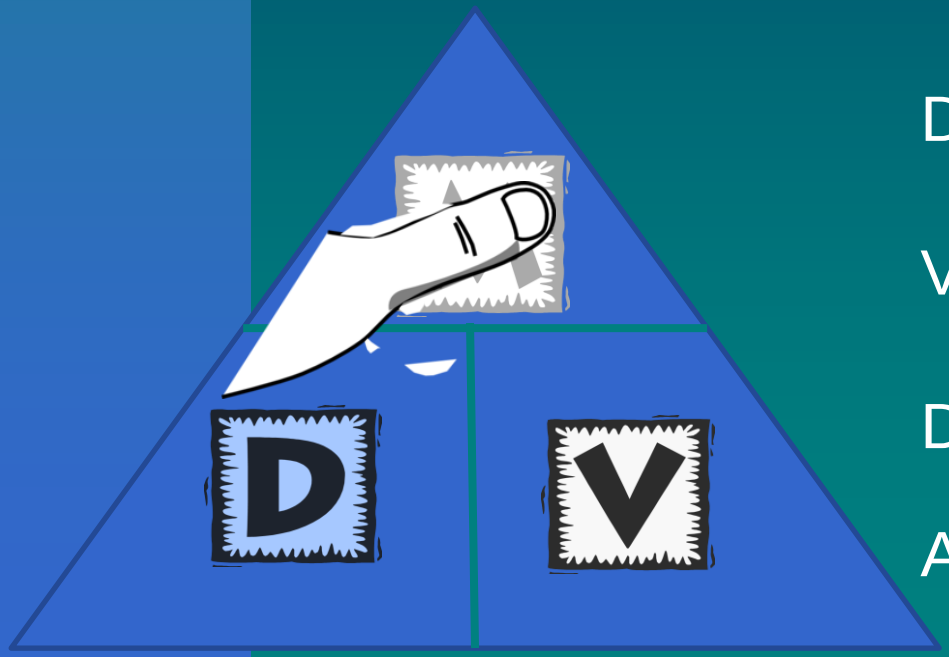
    M =
  - Now read your triangle:

$$M = D \times V$$



Density Problems

Water has a density of 1 g/ml. What is the mass of the water if it fills a 10 ml container?



Density= 1 g/ml

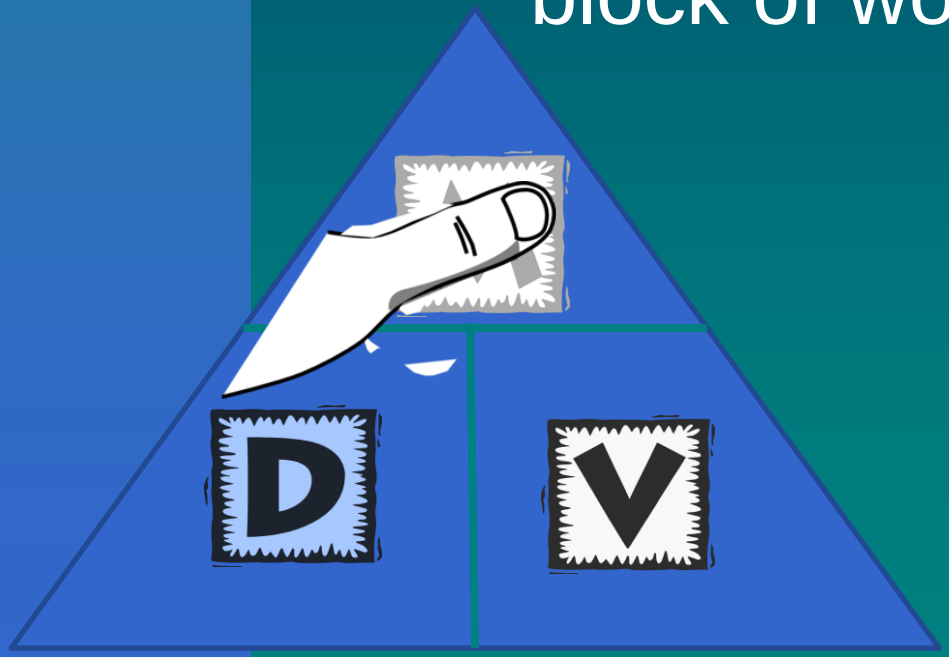
Volume= 10ml

Density x Volume= 1 g/ml x 10ml

Answer = 10g

Density Problems

A block of wood has a density of 0.6 g/cm3 and a volume of 1.2 cm3 . What is the mass of the block of wood?



Density= 0.6 g/cm3

Volume= 1.2 cm3

Density x Volume=
0.6g/cm3 x 1.2 cm3

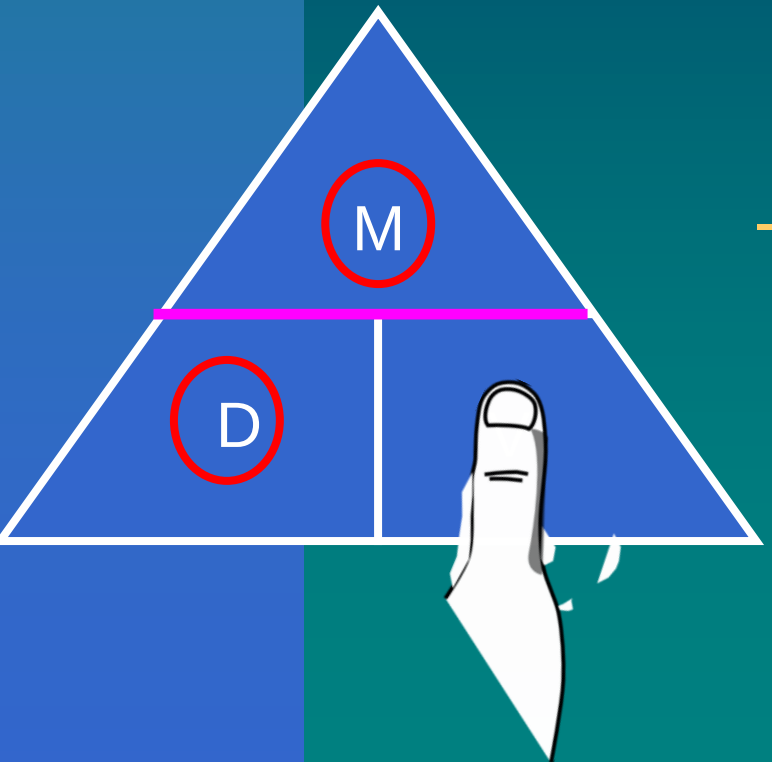
Answer = 0.72 g

Using the Density Triangle to Find …

- To find Volume:
  - You need density and mass
  - Write your formula starting with what you are looking for:

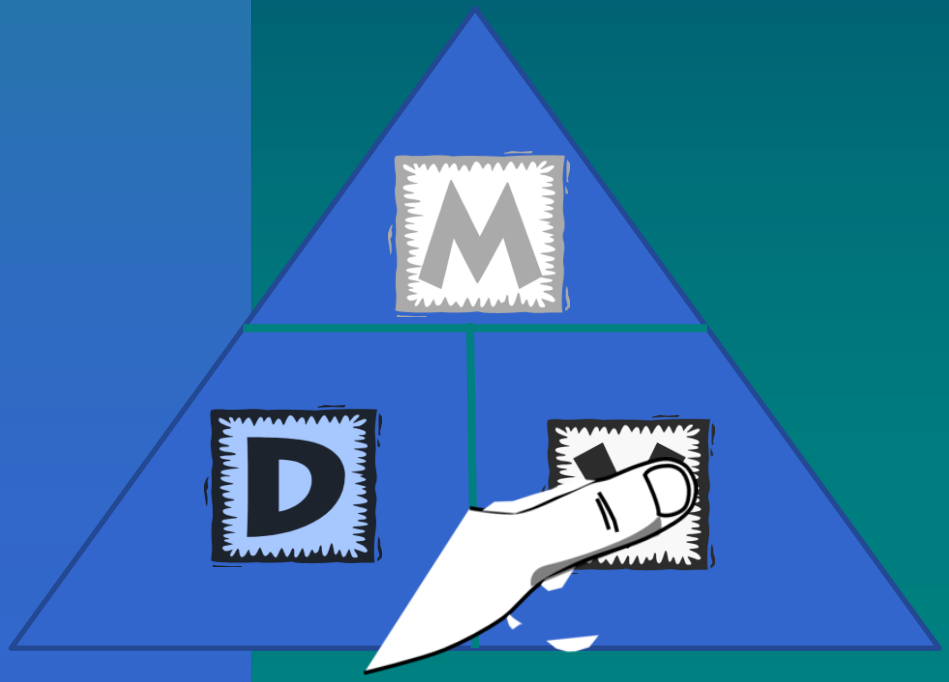
    V =
  - Now read your triangle:

$$V = M \div D$$



Density Problems

What is the volume of a marble that has a mass of 3 g and d density of 2.7 g/ml?



Density= 2.7 g/ml

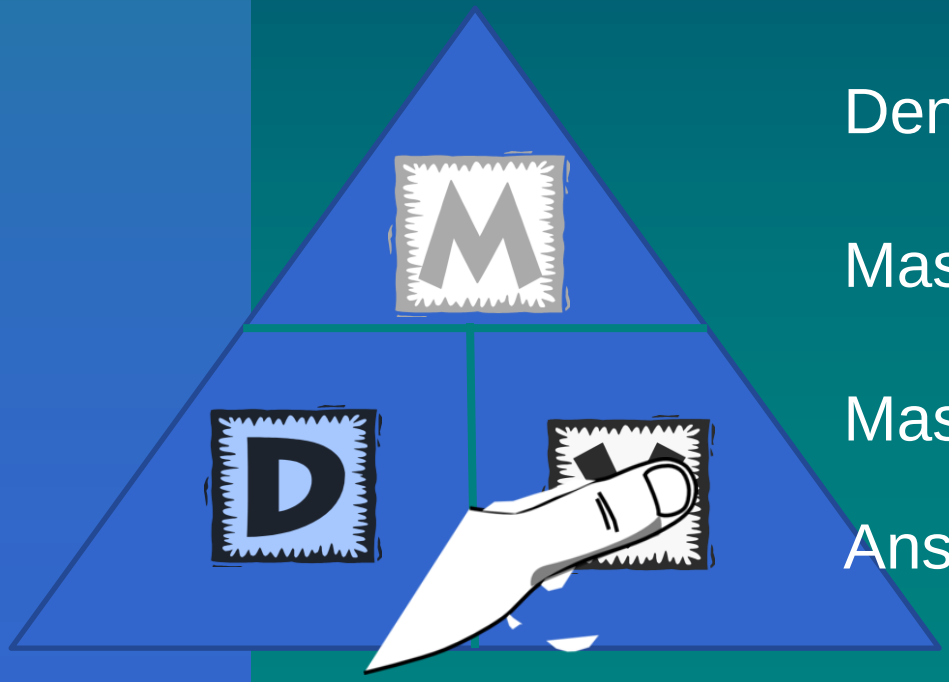
Mass= 3g

Mass /Density= 3g x 2.7 g/ml

Answer = 1.11 ml

Density Problems

What volume of silver metal will weigh exactly 2500.0 g. The density of silver is 10.5 g/cm3.



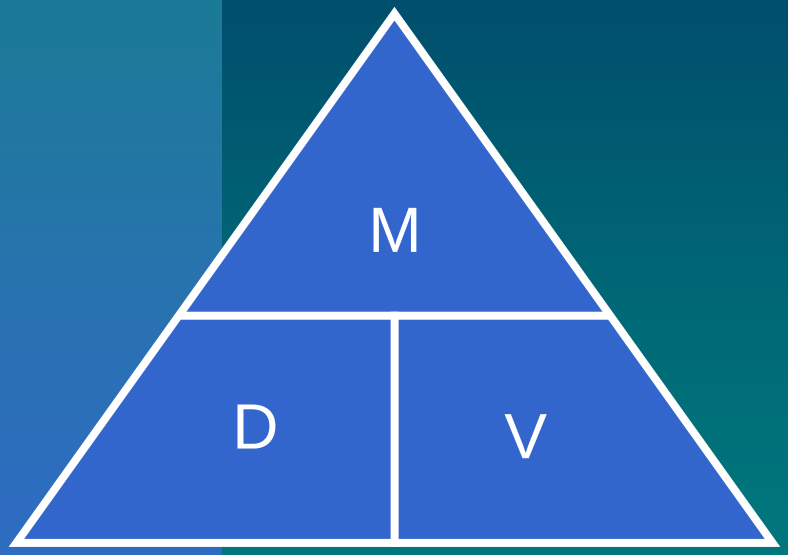
Density= 10.5 g/cm3

Mass= 2500g

Mass /Density= 2500g / 10.5 g/cm3

Answer = 238.1 cm3

Complete the Formula



a) $D = \frac{\_\_\_\_\_}{V}$.

b) M = _____

c) _____ $= \frac{M}{V}$

d) _____ ÷ V = D