TOPIC 1.3.4: Density

1. Study the diagram below.

Step L
Measuring the new volume
of water after adding the pebble

Step M
Measuring the mass
of the cylinder
70 g

Step N
Measuring the mass of
the pebble
12 g

Step O
Measuring the mass of
the cylinder with water
120 g

Step P
Calculating the volume of
the pebble

Step Q
Measuring the volume
of water
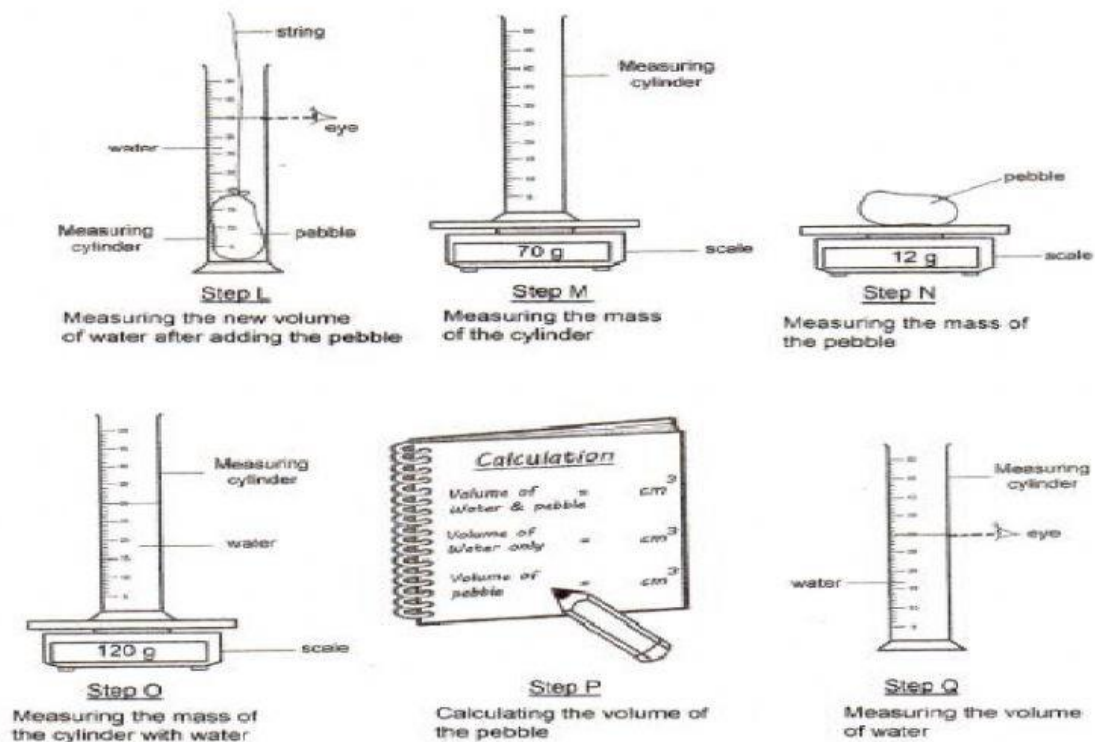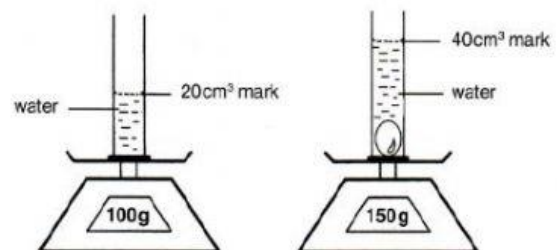
Azim wants to find out the density of the pebble. Which of the following is the correct series of steps he should take?
(SPE/2017/Q8)

A. Step M → Step N → Step O → Step L
B. Step N → Step O → Step M → Step L
C. Step N → Step Q → Step L → Step P
D. Step O → Step N → Step L → Step P

2. Figure below shows the steps taken to find the density of an iron ball. Which calculation is suitable to find its density?
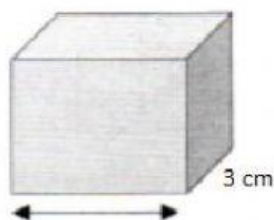(SPE/2013/Q6)

| A.	Density = 150 g / 40 cm^3
B.	Density = (150 – 100) g / 40 cm^3
C.	Density = 150 g / (40 – 20) cm^3
D.	Density = (150 – 100) g / (40 – 20) cm^3

3. Figure below shows a cube of wood. The length on each side is 3 cm and the mass of the cube is 16.2 g. Calculate the density of the cube? (SPE/2009/Q3)

   A. 0.6 g/cm³
   B. 1.7 g/cm³
   C. 1.8 g/cm³
   D. 25.2 g/cm³

   3 cm

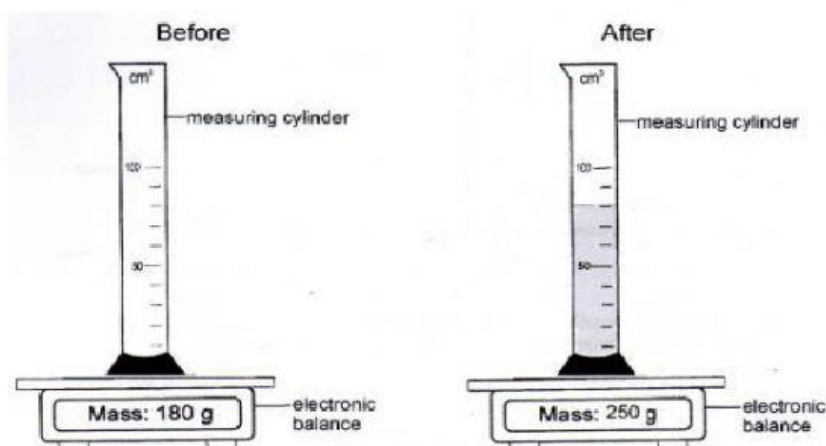4. Figure below shows the steps taken to measure the volume of a stone with a density of 3.5 g/cm³. What is the mass of the stone? (SPE/2011/Q8)

   A. 280 g
   B. 28 g
   C. 23 g
   D. 0.04 g

   Eureka can

   80 cm³
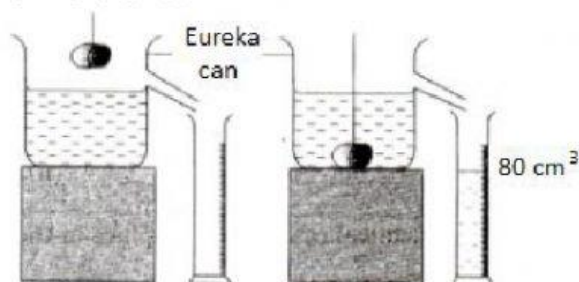
5. Figure below shows the mass of a measuring cylinder taken before and after some liquid are poured into it. What is the density of the liquid? (SPE/2017/Q7)

   A. 0.50 g/cm³
   B. 0.88 g/cm³
   C. 1.14 g/cm³
   D. 3.13 g/cm³

   Before

   cm³
   measuring cylinder
   100
   50
   Mass: 180 g — electronic balance

   After

   cm³
   measuring cylinder
   100
   50
   Mass: 250 g — electronic balance

6. Figure below shows an electronic balance measuring the mass of a beaker before and after adding liquid into it. Which of the following best describes the density of the liquid? (SPE/2018/Q3)

   A. 0.75 g/cm³
   B. 62.5 g/cm³
   C. 84.5 g/cm³
   D. 1.35 g/cm³
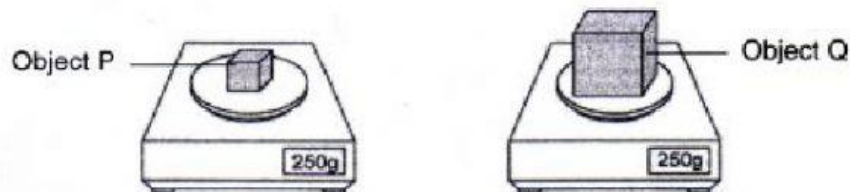
   250 cm³
   44.48g
   Before

   250 cm³
   128.98g
   After
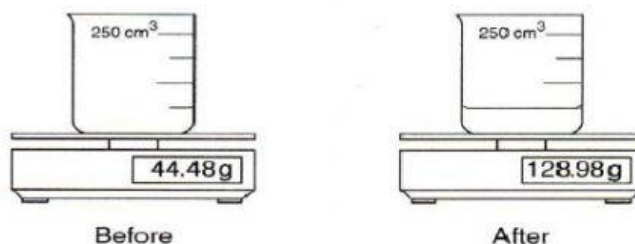
7. A cube of mass 128 g has a density of 2 g/cm³. What is the length of each side of the cube?
(SPE/2018/Q6)

A. 4 cm
B. 8 cm
C. 64 cm
D. 256 cm

8. Study the diagram in the figure below.

Which of the following correctly describes the mass, volume and density of objects P and Q?
(SPE/2016/Q4)

	Mass of objects P and Q	Volume of objects P and Q	Density of objects P and Q
A.	Different	Same	Different
B.	Different	Same	Same
C.	Same	Different	Different
D.	Same	Different	Same

9. The beakers in Figure below contain three different liquids. Which statement about the densities of the liquids is correct?
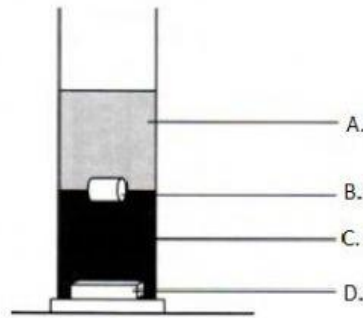(SPE/2015/Q4)
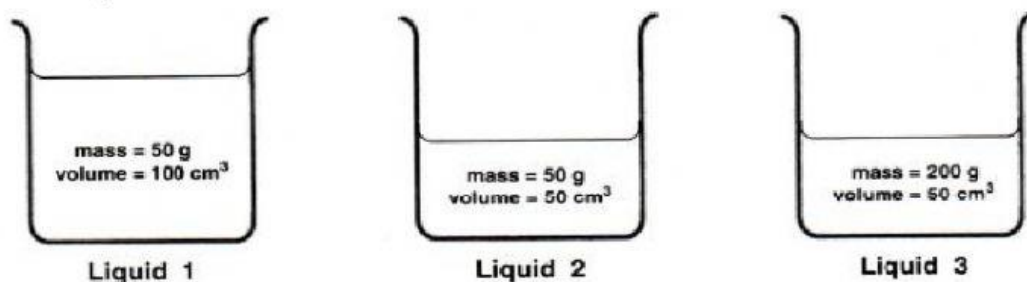
A. Liquid 1 is denser than Liquid 2.
B. Liquid 2 is denser than Liquid 3.
C. Liquid 3 is denser than Liquid 1.
D. Liquid 2 and 3 have the same density.

10. Figure below shows substances of various densities. Which substance, labeled A, B, C and D has the highest density? (SPE/2012/Q6)

A.
B.
C.
D.

11. A fresh egg will sink to the bottom of a saucepan of water, while a stale egg will rise to the surface of the water as shown in figure below. Which of the following best explains the behaviour of the stale egg? (SPE/2018/Q5)

Fresh Egg   Stale Egg
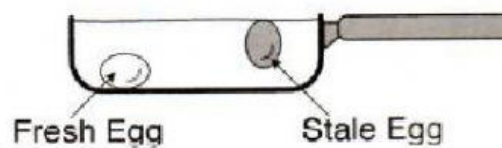
A. Some of the contents of the egg escape which makes it lighter.
B. The density of the egg increases as it goes stale.
C. The density of the egg decreases as it goes stale.
D. Some of the egg shell falls off which makes it lighter.