1)A magic rectangular belt always shrinks its length to 1/2 and width to 1/3 whenever its owner wishes something. After three such wishes, its surface area was 4 cm². What was the original length, if the original width was 9 cm?

Sol:96cm.

2)If u drive half-way to the city at 30 km/hr. How fast do u have to go for the rest of the way to make the average speed for the entire journey of 60 km/hr?

Sol: infinity.

Explaination: let say 120 km distance

½ way 60km at 30km/hr for that 2 hrs.

Actually to make 120 kms in average speed of 60km/hr we need 2 hrs.

But in journey for the way with 30km/hr 2 hrs get over.so ur time up.

3) Measure exactly 2 litres of water if you have: 4 and 5-litre bowls?

Sol: take 5 litre bowl with water and fill it in 4 litre and empty the 4 litre afterwards and pour the remaining 1 litre again in the 4 litre bowl and again refill 5 litre bowl and pour water from it to fill the 4 litre bowl(with already 1 litre in it) that needs 3 litres to full.so remaining 2 litres will be in 5 litre bowl.

4) Three bowls A,B and C

In bowl A (8 litres capacity) are 5 litres of water.
In bowl B (5 litres capacity) are 3 litres of water.
In bowl C (3 litres capacity) are 2 litres of water.
Can you measure exactly 1 litre, pouring only 2 times?

Sol: 1-----pour from bowl A to C(it takes 1 litre to fill C)

2-----pour from bowl C to B(that takes 2 litres to fill B)

So 1 litre remains in C.

5) You have a balance and the following items of which you know the weights: a small coin weights 5g, a pen weights 10g, an eraser weights 20g, a hole-punch weights 40g, and a stapler weights 80g.

How many different possible weights can you measure with these items?

Sol: **32(including 0 gms.).**

6)You have a balance scale with four weights. With these four weights you must balance any whole number load from 1kg all the way up to 40kg. How much should each of the four weights weight? (You may place weights on both sides of the scale at the same time.)

Sol: **1kg, 3kg, 9kg and 27kg.**

Explaination: example take 5kg on side1 , we can place 9kg on side2 and 1kg,3kg on side1 and then bothsides weights equals. This possible with these 4 numbers only.

7) We know very little about the life of the mathematician Diophantus (often known as the 'father of algebra') except that he came from Alexandria and he lived around the year 250 AD.

It says: Diophantus's youth lasted 1/6 of his life. He had the first beard in the next 1/12 of his life. At the end of the following 1/7 of his life Diophantus got married. Five years from then his son was born. His son lived exactly 1/2 of Diophantus's life. Diophantus died 4 years after the death of his son.How long did Diophantus live?

Sol: **84yrs.**

8)You intend to fly non-stop around world. But you can only go halfway around the world on a full tank. However you can arrange many planes exactly like yours to assist with refuelling. Assuming refuelling can be done midair, ignoring refuelling and turning time, and without crashing any plane, what is the minimum number of planes you will need?

Sol: **3**

9)A pool has four taps. The first tap takes two days to fill the pool, the second tap three days, the third four days and the last one only 6 hours.How long will it take to fill the pool using all 4 taps at once?

Sol: **4hrs 43min and 17 seconds.**

10)We have two red, two green and two yellow balls. For each colour, one ball is heavy and the other is light. All heavy balls weight the same. All light balls weight the same. How many weighings on a beam balance are necessary to identify the three heavy balls?
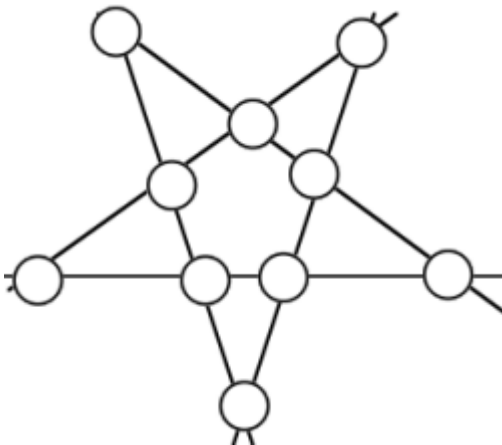
11) The arrangement below shows 10 coins in three rows of four
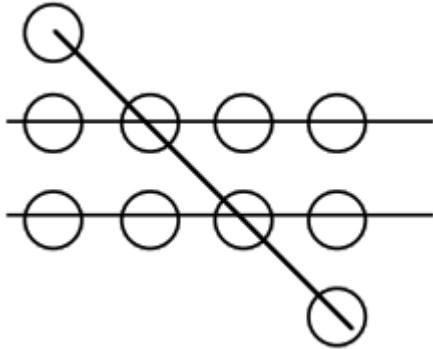
Your task is to re-arrange the same ten coins to make FIVE rows of four.Each line must be straight and must contain exactly four coins.
Sol:

12) Two trains are 200 km apart, and travelling towards each other at 50 km/hour each. From one train a fly takes off, flying straight above the rails to the other train at the speed of 75 km/hour, bounces off it and flies back to the first train. This is repeated till the trains crash together and the fly is smashed (Headline: Fly Dies in Freak Train Crash).What distance is the fly able to fly until its meet its tragic end?

Sol: *150km.*

13) There are three different colour cylindrical vessels: Blue (d=8, h=3), Red(d=6,h=4) and Green(d=4,h= 5) with the sizes, as shown. The Red vessel is put into the Blue one, and the Green vessel into the Red one as shown. Each vessel is full of water. Which vessel

contains the largest quantity of water? You can ignore the thickness of the walls of the vessels.(d=diameter, h=height).

Sol: **BLUE**