TY Maths Quiz

March 2020

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1. **Pay Rise, Pay Cut**

   Stephen earned €15,000 per year two years ago. His salary increased by ¼ last year and then fell by ⅕ this year. **How much does he earn now?**

2. **Missing Number**
   What is the next number in the following pattern?

   ## 7, 10, 8, 11, 9, 12

3. **Watson's Dilema**
   Dr Watson is doing a stocktake. At the start of the year, his bottle of rubbing alcohol weighted 5kg. Now it is half-full and weighs 3kg.
   How much does the empty bottle weigh ?

4. THE MONTY HALL PROBLEM

(*This is a famous maths puzzle, can you solve it ......?*)

A game show contestant stands on a stage in front of three closed doors, numbered 1, 2 and 3. The host tells her that **behind two of the doors is a goat**, but **behind one of the doors is a brand new car**. The contestant is asked to choose a door, and goes for door number 1. The host opens door number 3 to reveal that there is a goat standing behind it munching on some grass. He now gives the contestant a choice: she can stick with door number 1 or she can change to door number 2.

What should the contestant do to give her the best chance of winning the car? ...and why?

5. Problem Pills

Dr Fisher has a problem. He has **12 containers of pills** on the shelf marked 'aspirin', but the labels on the containers have been muddled up. One of Dr Fisher's containers of arsenic has gone missing, and he is worried that one of these 12 containers contains deadly arsenic pills instead of the harmless aspirin. He does not know how many pills there are in each container, but he does know that one arsenic pill weighs **9 grams** while an aspirin pill weighs **10 grams**. Otherwise they look identical. He has a set of very accurate scales but the batteries in them are nearly dead, so he may only be able to use the scales once.

How can Dr Fisher work out which container, if any, contains the arsenic by making just one measurement with the scales?

6. Gem Collection

Four jewellers had respectively 8 rubies, 10 sapphires, 100 pearls and 5 diamonds.

Each gave one gem from their collection to each of the rest.

Afterwards they noticed that they all had collections of gems of precisely equal value.

(a) Work out the relative values of each gem?

(b) Then work out how much each jeweller gained/lost?

7. Ladybird Squad

The 6 member squad for the Ladybirds five-a-side team consists of a 2-spot ladybird, a 10-spot, a 14-spot, an 18-spot, a 24-spot and a pine ladybird (on the bench).

The average number of spots for members of the squad is 12.

How many spots does the pine ladybird have ?

8. Cheryl's Birthday

Albert and Bernard just became friends with Cheryl, and they want to know when her birthday is. Cheryl gives them a list of 10 possible dates.

May 15	May 16	May 19
June 17	June 18	
July 14	July 16	
August 14	August 15	August 17

Cheryl then tells Albert and Bernard separately the month and day of her birthday respectively:

Albert: I don't know when Cheryl's birthday is, but I know that Bernard does not know too.

Bernard: At first I did not know when Cheryl's birthday is, but I know now.

Albert: Then I also know when Cheryl's birthday is.

So…when is Cheryl's birthday?

How well do you know your area …?

9.	10.	11.
12.	13. my_____	14. **2….**
15. ……..	16.	17.
18.	19. **Oh…** Vera	20.