



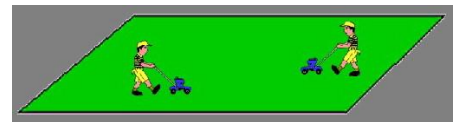
## Logic and Maths Puzzles # 63 October 2017

- Five teams in a competition play each other twice. The top two teams then play best of seven for the premiership. What is the minimum number of games required to get a winner?
- 2!** is called 2 shriek or 2 factorial and is  $2 \times 1 = 2$   
**3!** is called 3 shriek or 3 factorial and is  $3 \times 2 \times 1 = 6$   
What is the value of **6!** minus **4!** ?
- When representing a fraction in the form  $\frac{a}{b}$  "a" is the numerator, "b" is the denominator. What is the line separating numerator and denominator called?
- What is two fifths of three quarters written as a percentage?
- Using Australian legal tender coins, (5c, 10c, 20c & 50c) how many different ways can you make the sum of 50 cents?

**NOTE:** the order is not important;

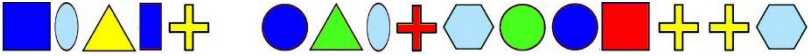
[20 cents + 20 cents + 10 cents] is the same as [20 cents + 10 cents + 20 cents.]

- It takes two gardeners 8 hours to mow a lawn. One is lazy and one is energetic. The energetic one would only take 12 hours to mow it on his own. How many hours would the lazy gardener take to mow the lawn on his own?

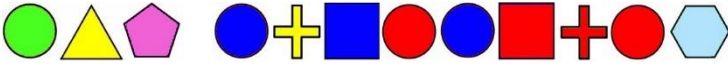



- If  is **ABBA**,

 is **BUDDY HOLLY**

and  is **BRUCE SPRINGSTEEN:**

Who are

(a) 

(b) 

and

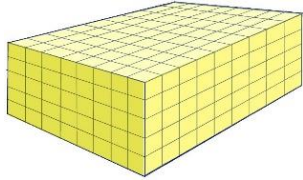
(c)  ?

8. Mr. Red, Mr. Blue, and Mr. White meet for lunch. Each is wearing either a red, blue, or white shirt.

Mr. Blue says, "Hey, did you notice we are all wearing different coloured shirts from our names?" The man wearing the white shirt says, "Wow, Mr. Blue, that's right!"

Can you tell who is wearing what colour shirt?

9. A block of wood 9 cm X 8 cm X 5cm is sprayed all over with varnish.



When dry, it is cut into 1 cm cubes.

How many of these 1 cm cubes will have no varnish on them?

10.

There are three cards from a standard deck face down.

To the left of the queen are one or two jacks.

To the right of the jack are one or two jacks.

To the right of the club, are one or two diamonds.

To the left of the diamond, are one or two diamonds.

Identify the three cards Left to Right.



## Solutions:

1. 24

For 5 teams to play each other twice requires 20 games to be played.

	A	B	C	D	E
A	X				
B		X			
C			X		
D				X	
E					X

If either of the two top teams then has 4 straight wins, no further games are required.

2.  $720 - 24 = \mathbf{696}$

3. The **SOLIDUS**. You may see the answer as VINCULUM in some places but the word vinculum is a more general term referring to any horizontal line used in mathematical representation, including (for example) the line above a recurring decimal.

4. **30%**

5. **13**

6. **24 hours**

The energetic gardener can mow the lawn in 12 hours. He can therefore mow  $\frac{1}{12}$  of the lawn in one hour, so his contribution to mowing the whole lawn in 8 hours is  $\frac{8}{12}$  or  $\frac{2}{3}$  of the lawn mowed.

In 8 hours the lazy gardener has therefore mowed the remaining  $\frac{1}{3}$  of the lawn. He is therefore mowing at the rate of  $\frac{1}{24}$  of the lawn per hour. It would take him 24 hours to mow the entire lawn by himself.

7. (a) **Guy Sebastian** (b) **Neil Young** (c) **Ringo Starr**

8. **Mr Blue – red shirt**    **Mr White – blue shirt**    **Mr Red – white shirt**

9. **126** (and that's the unvarnished truth.)

All the surface cubes will have varnish on them. There will be

$(9 - 2) \times (8 - 2) \times (5 - 2) = 7 \times 6 \times 3$  cubes = 126 which are not on the surface.

10. Left to right: **jack of clubs, jack of diamonds, queen of diamonds.**