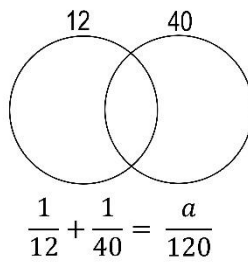


Prime Vault Act 4– Crypta Multipla

You have made it to the Crypta Multipla. Venn diagrams hold even more secrets, in the chamber of multiples we use them to find the lowest common multiple of two numbers. The lowest common multiple can help with the addition of fractions. If you study the distribution of factors in the Venn diagram you will also notice another use for them when it comes to adding fractions! Now it's time to use these new powers to decrypt the next video link.

Clue 4

Question 1



Prime Factorisation:

$$12 = \underline{\hspace{2cm}}$$

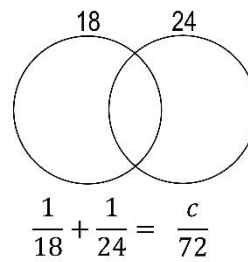
$$40 = \underline{\hspace{2cm}}$$

Common Prime Factors:

Lowest Common Multiple:

$$b = \underline{\hspace{2cm}}$$

Question 2



Prime Factorisation:

$$18 = \underline{\hspace{2cm}}$$

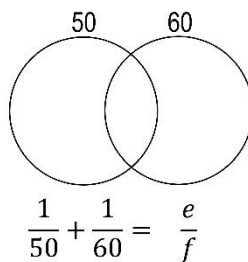
$$24 = \underline{\hspace{2cm}}$$

Common Prime Factors:

Lowest Common Multiple:

$$d = \underline{\hspace{2cm}}$$

Question 3



Prime Factorisation:

$$50 = \underline{\hspace{2cm}}$$

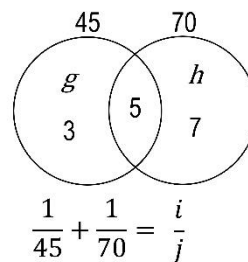
$$60 = \underline{\hspace{2cm}}$$

Common Prime Factors:

Lowest Common Multiple:

$$\underline{\hspace{2cm}}$$

Question 4



Prime Factorisation:

$$45 = \underline{\hspace{2cm}}$$

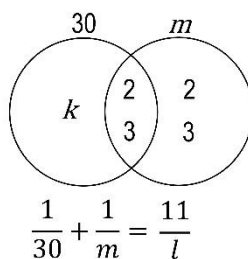
$$70 = \underline{\hspace{2cm}}$$

Common Prime Factors:

Lowest Common Multiple:

$$\underline{\hspace{2cm}}$$

Question 5



Prime Factorisation:

$$30 = \underline{\hspace{2cm}}$$

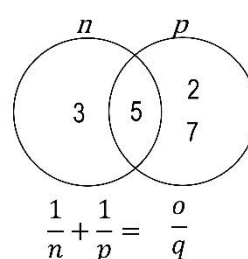
$$m = \underline{\hspace{2cm}}$$

Common Prime Factors:

Lowest Common Multiple:

$$\underline{\hspace{2cm}}$$

Question 6



Prime Factorisation:

$$n = \underline{\hspace{2cm}}$$

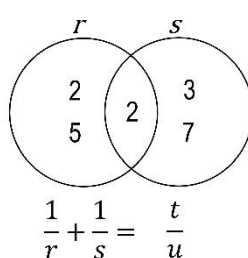
$$p = \underline{\hspace{2cm}}$$

Common Prime Factors:

Lowest Common Multiple:

$$\underline{\hspace{2cm}}$$

Question 7



Prime Factorisation:

$$r = \underline{\hspace{2cm}}$$

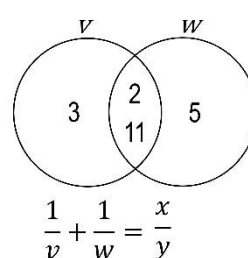
$$s = \underline{\hspace{2cm}}$$

Common Prime Factors:

Lowest Common Multiple:

$$\underline{\hspace{2cm}}$$

Question 8



Prime Factorisation:

$$v = \underline{\hspace{2cm}}$$

$$w = \underline{\hspace{2cm}}$$

Common Prime Factors:

Lowest Common Multiple:

$$z = \underline{\hspace{2cm}}$$

Use the results from the Venn diagrams to populate the table.

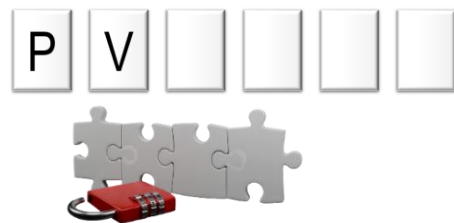
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
13	120	7	72	11	300	3	2	23	630	5	180	36	15	17
p	q	r	s	t	u	v	w	x	y	z				
70	210	20	42	31	420	66	110	4	65	330				

Use the table above to decrypt the code below and **complete** the link for the next video: <https://youtu.be/>

5	300	42*	5*	7	420	13	17*	65	300	42
k	f	S	K	c	u	a	O	y	f	s

*Numbers in bold require their corresponding code to be capitalised.

The final room is close at hand,
Perfect numbers will be scanned.
The number will be repeated
So the task can be completed.



Each successive document requires a code to open. Each video contains a riddle to solve. The solution to the riddle completes the code: "P V # # # #".

Riddle:

A perfect number you need to find;
When the proper parts are all combined.
A digit sum of ten is it;
Repeat the number to make it fit.

A *perfect number* is one where the sum of the 'proper factors' is equal to the number itself.
Example: Factors of 6 = {1, 2, 3, 6} Proper Factors of 6 = {1, 2, 3}.

The second line of the clue reinforces this by "proper parts are all combined".

The first four perfect numbers are: 6, 28, 496, 8128. The third line advises that the digit sum is 10, which isolates 28.

The final line says to 'repeat' the number to make it fit. 2828

Therefore, final code is:

P V 2 8 2 8