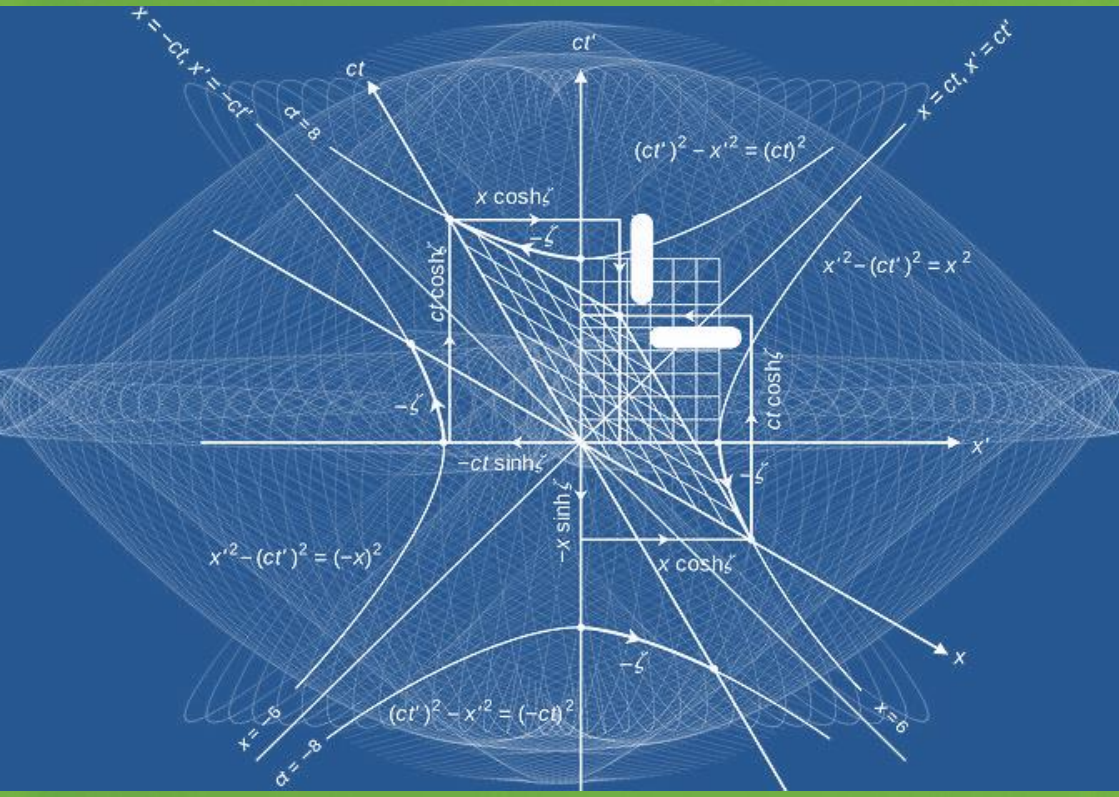
Math Quest



2019 - 2020

Vol II

Its my pleasure to present this second issue of Math Quest, Our Department's annual magazine. This volume includes an Article on Vedic Mathematics, Real life uses of Pythagorean Theorem. One article mentions the method of calculating birth date and age. It also includes Math Puzzles, Poems, Sudoku, Riddles and Cross Words. Contents provide some interesting facts about Mathematics, funny questions related to Mathematics and a Colloquium of Mathematical symbols. We strongly believe this issue contents will enrich your Mathematical Knowledge.

Printed and Published

By

PG & Research Department of Mathematics

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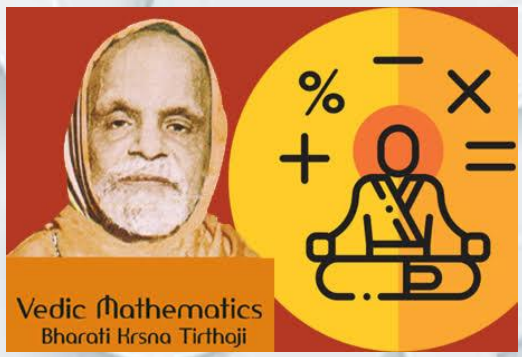
Content

Vedic Mathematics

As the title convenes, the article is about the ***Mathematics*** *that existed in* ***India*** *during the* ***Vedic period*** *1500 - 500 BCE, which is the late Bronze Age and early Iron Age. The life and culture during this period could be traced from* ***Vedas****, composed of liturgical texts, orally transmitted with precision. Coming to Vedic Mathematics, it is a collection of techniques in the form of* ***Sutras*** *to solve mathematical arithmetic in a faster way. It is seen that it consists of* ***16 Sutras*** *and* ***13 sub-Sutras*** *which can be used for problems involved in Arithmetic algebra, Geometry, Calculus and in other branches of Mathematics. A book written by* ***Swami Bharati Krishna Tirtha****, an ancient Indian monk contains all these sutras. One practising these methods will gain the talent to do seemingly difficult calculations in split seconds which lead to a remarkable difference to his / her confidence and self esteem towards Mathematics. In short Vedic Mathematics eradicates the fear of mathematics in learners.*



By

Dr.N.Meenakumari, Principal &
Dr.K.Palani, Head & Associate Professor

.....About Mathematics

- *Pure Mathematics is, in its way, the poetry of logical ideas. -* ***Albert Einstein.***
- *The mathematician's patterns, like the painter's or the poet's must be beautiful; the ideas, like the colours or the words must fit together in a harmonious way. -* ***Godfrey H. Hardy.***
- *One of the endlessly alluring aspects of mathematics is that its thomiest paradoxes have a way of blooming in to beautiful theories. -* ***Philip J. Davis.***
- *The essence of mathematics lies in its freedom. -* ***George Cantor.***
- *The combination of these four things: beauty, exactness, simplicity and crazy ideas is just the heart of mathematics. -* ***Israel M. Gelfand.***
- *As are the crests on the heads of Peacocks, as the jewels on the hoods of cobras, so is mathematics at the top of all Sciences. -* ***The Yajurveda, 600 BCE.***

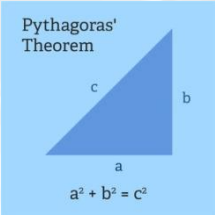
By
Dr.V.Mahalakshmi, Assistant Professor

Real Life Uses of Pythagorean Theorem

Pythagorean Theorem *is named after a* ***Greek Philosopher*** *and Mathematician* ***Pythagoras.*** *It is used as a base for various mathematical problems. You must have heard in your Maths class every now and then. But many fail to realize that this theorem finds application in various real life situations.*

Pythagorean Theorem:

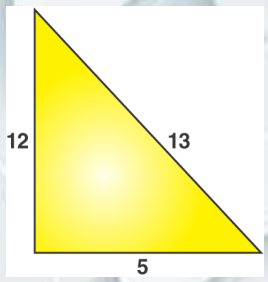
According to Pythagoras Theorem the sum of squares of two sides of a right angled triangle is equal to the square of the hypotenuse. Let one side of triangle be a*, the other side be* b *and hypotenuse is* $a^2 + b^2 = c^2$.



Some real life applications of Pythagoras theorem are discussed below:

Square Angles in Buildings:

To make sure that the buildings are in square shape, Pythagorean Theorem is used. A set of Pythagorean triplets are used to construct square corners between two walls. For example a 5 foot by 12 foot by 13 foot triangle will always be a right angled triangle. The workers will set out a triangle with these lengths to construct a square corner between the two walls. A builder will know whether they are working on a right track if the proper lengths of the strings are used during construction of the right angled triangle.



Surveying In Topological Sheets:

This theorem finds huge application in the field of geography for the construction of various topographical sheets. In the process of surveying, cartographers are able to calculate the numerical distances and heights between points while creating a map. During the calculation of the steepness of slope of a hill or a mountain, Pythagoras Theorem is used. Surveyor looks through the telescope towards the measuring stick which is at a fixed distance; so that the telescope's line of sight and the measuring stick form a right angle.

Architecture and Construction:

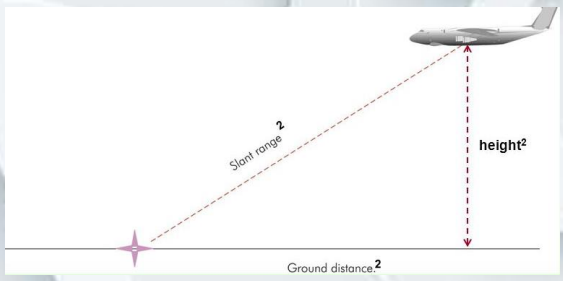
If you are given a set of straight lines then Pythagoras Theorem can be used to calculate the diagonal connecting them. This finds application in various architectural fields, mechanical labs, during the construction of roofs, etc.

Painting on a Wall:

The painter needs to determine how tall a ladder should be, as it will help to safely determine the distance at which the base needs to be placed away from the wall so that it won't tip over.

Navigation:

In case of two-dimensional navigation, Pythagoras Theorem can be used to calculate the shortest distance between 2 points. For example, if you are in the middle of a desert and you want to navigate to a point which is 200 kilometers south and 300 kilometers east, you can use the theorem to find out how many degrees east of south you need to travel to reach your desired point. The east and south will be the two legs of the triangle and the shortest line connecting them will be the diagonal. Air navigation can also use this principle to find out the proper place to begin the descent of plane, to land to a particular airport.



By
Dr.R.Rajeswari, Assistant Professor

How Corona Virus Grows ?

(Mathematical Concept)

If one person is confirmed COVID-19 positive with lab tests in India, he may contact minimum 3 persons in that days.

The symptoms can be seen within 14 days.

If that is the case, to how many persons he can spread in 14 days,

a =1, r =3, n = 14.

Therefore the total number of people going to affect,

$$S_n = \frac{a(r^n - 1)}{r - 1}$$

$$= \frac{1(3^{14} - 1)}{3 - 1}$$

$$= \frac{4782969 - 1}{2}$$

$$= 23,91,484$$

If the number of cases registered are 562, then in 14 days,

$$S_n = \frac{562(3^{14} - 1)}{3 - 1}$$

$$= 134,40,14,008$$

By

S.Ragha, M.Phil Scholar

FIND YOUR BIRTHDAY DATE

1. 4 X Your Birthday Date = Answer
2. Answer +13 = Answer
3. Answer X 25 = Answer
4. Answer - 200 = Answer
5. Answer + Your Birthday Month = Answer
6. Answer X 2 =Answer
7. Answer - 40 = Answer
8. Answer X 50 = Answer
9. Answer + last two digit of your birthday year = Answer
10. Answer - 10500 = Your Date of Birth.

Result is very interesting try it.

1. 4 X 14 = 56
2. 56 + 13 =69
3. 69 X 25 = 1725
4. 1725 - 200 = 1525
5. 1525 + 08 =1533
6. 1533 X 2 =3066
7. 3066 - 40 = 3026
8. 3026 X 50 = 151300
9. 151300 + 01 = 151301
10. 151301 - 10500 = 140801

Actually my Date of Birth is 14.08.2001

By S.Lakshmi Buvaneswari
I B.Sc (UA)

GUESS YOUR AGE

STEP 1:

- *Choose a number from 1 to 9.*
- *The number you have picked will be X.*

STEP 2:

- *Multiply your number by 2 (X x 2)*

STEP 3:

- *Add 5 to your result [(X x 2) + 5]*

STEP 4:

- *Multiply the result by 50 [(X x 2) + 5] x 50.*

STEP 5:

- *If you have already had your birthday this year, add 1767.*
- *If not, add 1766.*

STEP 6:

- *Got a four - figure number ?*

  Now subtract the year of your birth from the result.
- *You should get a three - figure number.*
- *The first figure is the number you choose initially.*
- *The two others are your age.*

Example :

- *X = 7.*
- *Multiply by 2. (7 x 2 =14)*
- *Add by 5. (14 + 5 = 19)*
- *Multiply by 50. (19 x 50 = 950)*
- *I have celebrated my birthday yet, so it seems I should add 1767. (950 + 1767 = 2717)*
- *My birth year is 2001. (2717 - 2001 = 716)*
- *I think the Number 7 and my age is 16*

By V.Karpagavalli
II B.Sc (VA)

SHOES TELL THE AGE!

- *Take your shoe size.*
- *Multiply it by 5.*
- *Add 50.*
- *Multiply by 20.*
- *Add 1014.*
- *Subtract the year you were born*

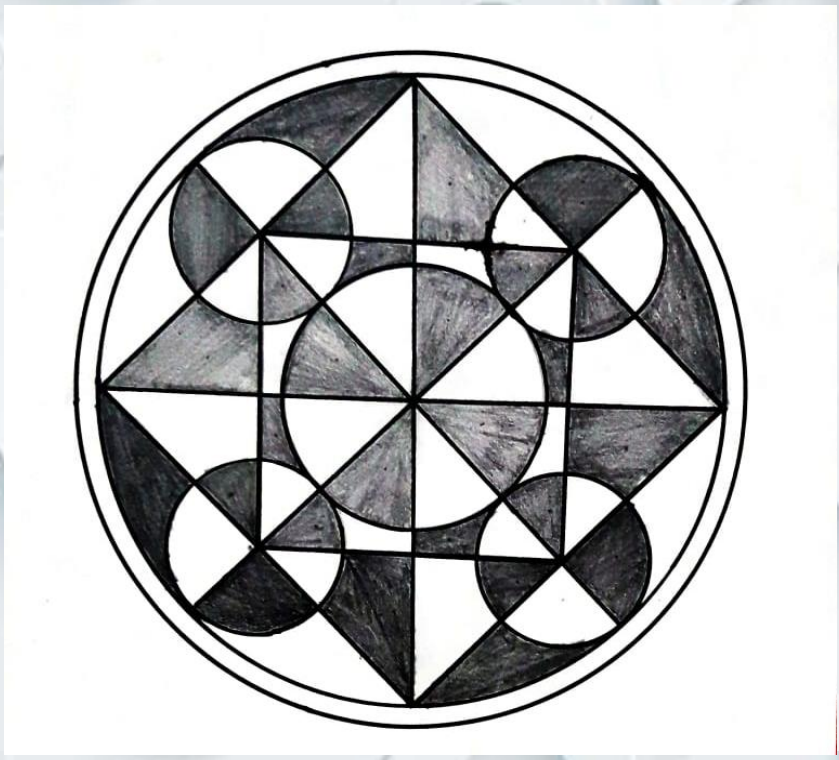
The First digit (s) are your shoe size and the last 2 digits are your age !

Its Shoe ..... magic!

By B.Valarmathi

II B.Sc (UA)

SHAPES OF MATHS



By M.Aswini

II B.Sc

SUDOKU

French newspaper featured variations of the Sudoku puzzles in the 19th Century, and the puzzle has appeared since 1979 in puzzle books under the name number place. However, the modern Sudoku only started to become mainstream in 1986 by the Japanese puzzle company Nikoli, under the name Sudoku, meaning "Single number"

5	3	4	6	7	8	9	1	2
6	7	2	1	9	5	3	4	8
1	9	8	3	4	2	5	6	7
8	5	9	7	6	1	4	2	3
4	2	6	8	5	3	7	9	1
7	1	3	9	2	4	8	5	6
9	6	1	5	3	7	2	8	4
2	8	7	4	1	9	6	3	5
3	4	5	2	8	6	1	7	9

By M.Sudalaimari

II B.Sc

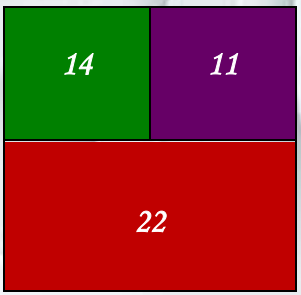
MATHS A CHALLENGE

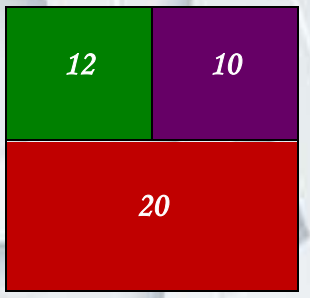
Try, try and try,
the more I try,
the more I try,
I Practice maths with my heart and soul,
Yet I am not able to achieve my goal,
I never get marks in marks,
inspite of my great endeavours
fate is never in my favour,
I really want to improve my maths,
because I love this subject,
and for this I am trying my level best,
I am candid so I confess,
in mathematics examination I always create a mess,
all the answers I guess,
and ultimately the marks I get are quite less
I believe that if I do ample practice,
I'll one day probably achieve my goal,
and I seriously have to improve
because in our lives maths play a very significant role.,

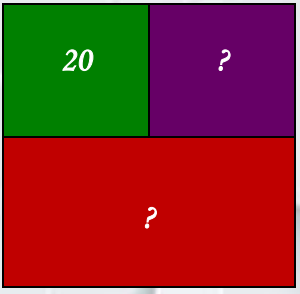
- Shreeya Katyal

By M.Aswini
II B.Sc

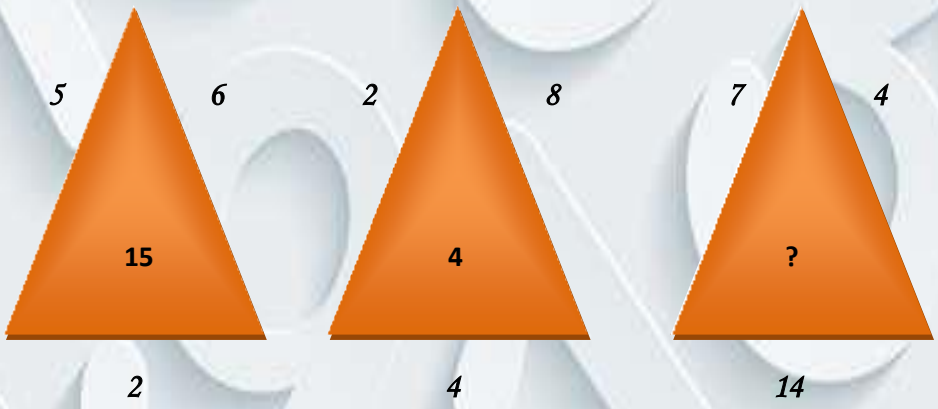
PUZZLES



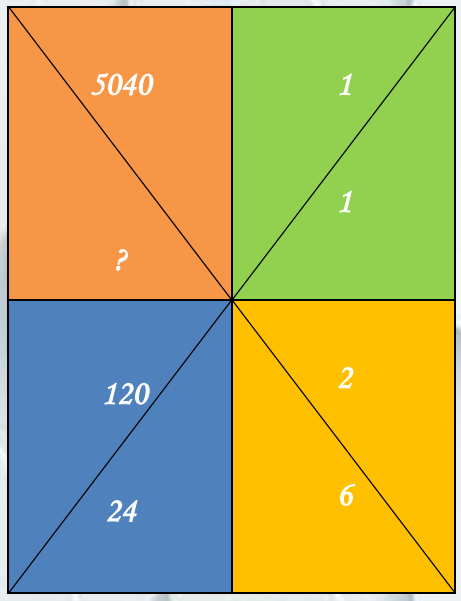




Answer : 14, 28



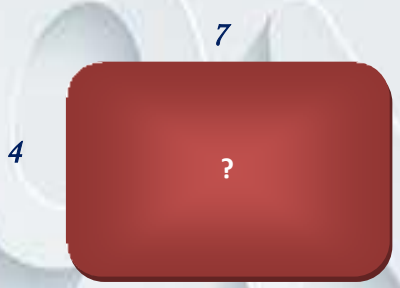
Answer : 2



1	2	3
4	5	6
7	8	9
28	80	?

Answer : 720

Answer : 162



Answer : 46

Can you solve this Math Puzzle

$2 + 4 + 6 = 19$

$3 + 6 + 9 = 43$

$4 + 6 + 8 = 53$

then

$9 + 5 + 3 = ?$

Answer :

$\Longrightarrow X + Y + Z = X[Y + (Z - 1)] + 1$

For an example

$2 + 4 + 6 = 19$

Solution :

$X = 2$

$Y = 4$

$Z = 6$

$2 + 4 + 6 = 2[4 + (6 - 1)] + 1$

$= 2[4 + 5] + 1$

$= 2[9] + 1$

$= 18 + 1$

$= 19$

(i.e) $2 + 4 + 6 = 19$

So, $9 + 5 + 3 = 9[5 + (3 - 1)] + 1$

$= 9[5 + 2] + 1$

$= 9[7] + 1$

= 63 + 1

= 64

Therefore 9 + 5 + 3 = 64

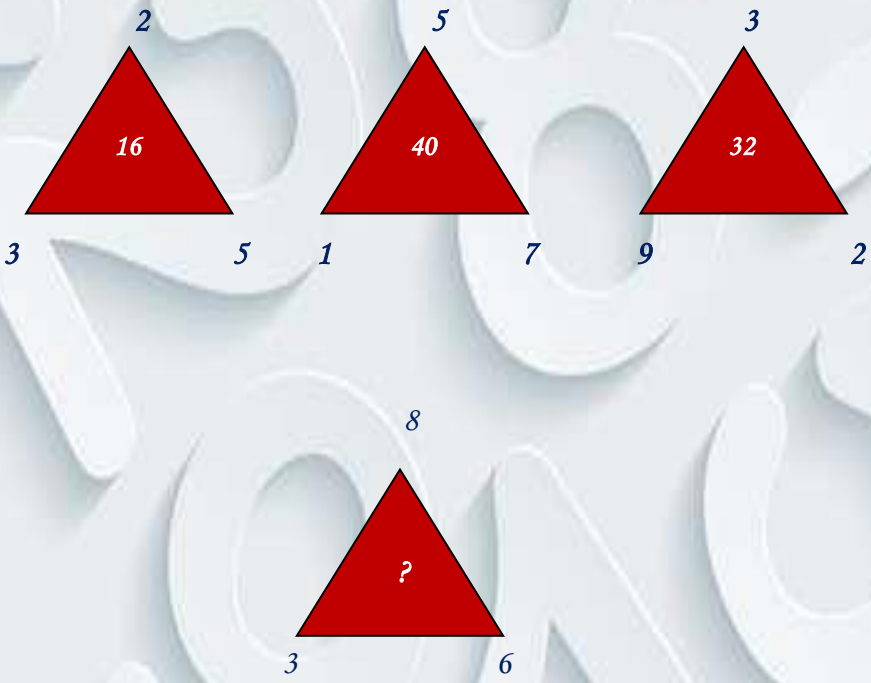
What is unique about 8549176320 ?

It is the digits 0 to 9 in alphabetical order.

Note:

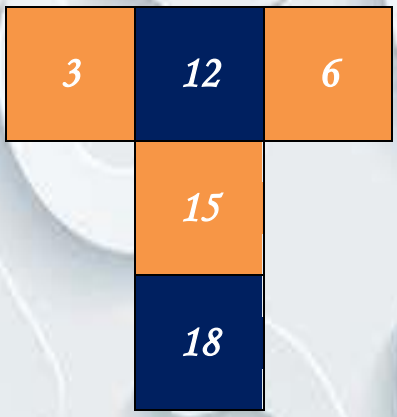
It can also be exactly divided by all of the digits 1 - 9 except 7.

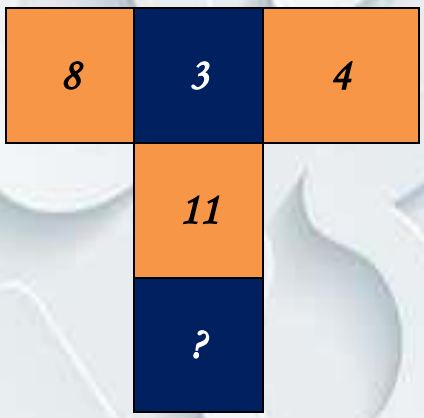
Which number should replace the question mark ?



Answer : 72

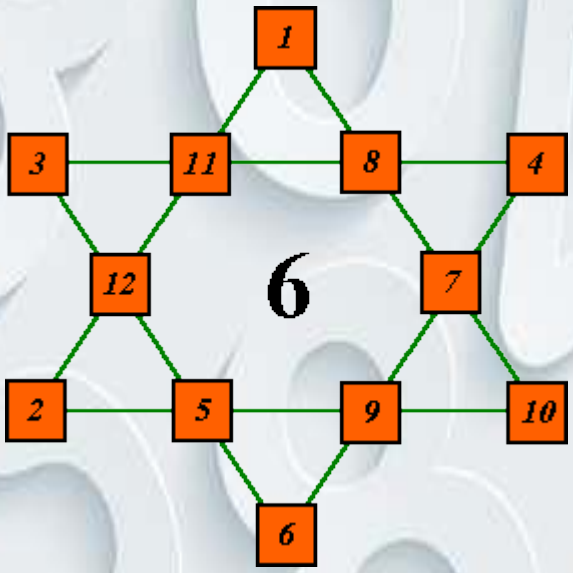
Which number replaces the question mark ?





Answer : 7

Use the numbers 1 through 12 once. Place the numbers in the squares so that the sum of each line is equal to 26.



This is called ***STAR OF DAVID***

The sum of each line is equal to twenty six.

By

R.Pon Esakki (II B.Sc)

T.Anantha Divya (II M.Sc)

T.Mariya Jesu Jerophin (II M.Sc)

K.Selva Lakshmi (II M.Sc)

E.Dharini (II M.Sc)

Shape Poems

Cindy Circle

Cindy Circle is my name
Round and Round I Play my game.
Start at the top and around the bend.
Up we go, there is no end.

Trisha Triangle

Trisha Triangle is the name for me
Tap my sides, one, two, three
Flip me, slide me, you will see.....
A kind of triangle I'll always be.

Sammy Square

Sammy Square is my name
My four sides and angles are just the same.
Slide me or flip me, I don't care
I'm always the same. I'm a square!

Ricky Rectangle

Ricky Rectangle is my name
My four sides are not the same
Two are short and two are long
Hear me sing my happy song

By M.Maheswari
II B.sc (UA)

Cool Facts about Mathematics

- October 14^{th} is celebrated as World Maths Day
- Father of Mathematics : Archimedes
- Maths is not a skill or a formula. It is more of a way of viewing the world through creativity and different patterns.
- Mathematics originated from the Greek word Mathema, which signifies study, learning or science.
- Gauss referred to mathematics as " the Queen of the Sciences".
- The equal sign (=) was invested in 1557 by a Welsh Mathematician named Robert Recorde.
- Mathematics is an anagram of ' me asthmatic'.
- The largest prime number ever found is more than 22 million digits long.
- 555 is used by some in Thailand as slang for 'hahaha', because the word for 'five' is pronounced 'ha'.
- Abacus is considered the origin of the calculator.
- Plus (+) and Minus (-) sign symbols were used as early as 1489 A.D.
- Almost 50% of adults in England can't do basic maths.
- The spiral shapes of sunflowers follow a Fibonacci sequence.
- There are 177, 147 ways to tie a tie, according to mathematicians.
- The word **hundred** is derived from the word " **hundrath** " which actually means 120 and not 100.
- Zero is the only number that can't be represented in Roman numerals.
- 2,520 is the smaller number that can be exactly divided by all the numbers 1 to 10.
- Students who chew gum have better math test scores than those who do not, a study found.
- A " Jiffy" is an actual unit of time for $1/100^{th}$ of a second.

- *" Forty " is the only number that is spelt with letters arranged in alphabetical order.*
- *Conversely " One " is the only number that is spelt with letters arranged in descending order.*
- *Every Odd number has an " e " in it.*
- *Zero is not represented in Roman numerals.*
- *The symbol for division (÷) is called an **Obelus**.*
- *Google search engine is a term which is derived from word **" googol "** which is a mathematical term for the number 1 followed by 100 zeros which reflect infinite amount of search on the internet.*
- *Pure Mathematics is in its way the poetry of logical ideas.*
- *In most of the Asian continent, number 4 is known as very unlucky! Because in Korean, Mandarian and Japanese word ' **Four** ' is used for ' death ' and you may not see a fourth floor in an elevator that ends with four in China.*
- *Not many of us believe, but it is accepted and proven that ' **Zero** ' is an even number.*

Eg :

4 ÷ 2 = 2 (No remainder, this number is even)

3 ÷ 2 = 1 (With a remainder of 1, this number is odd)

0 ÷ 2 = 0 (No remainder, this number is even)

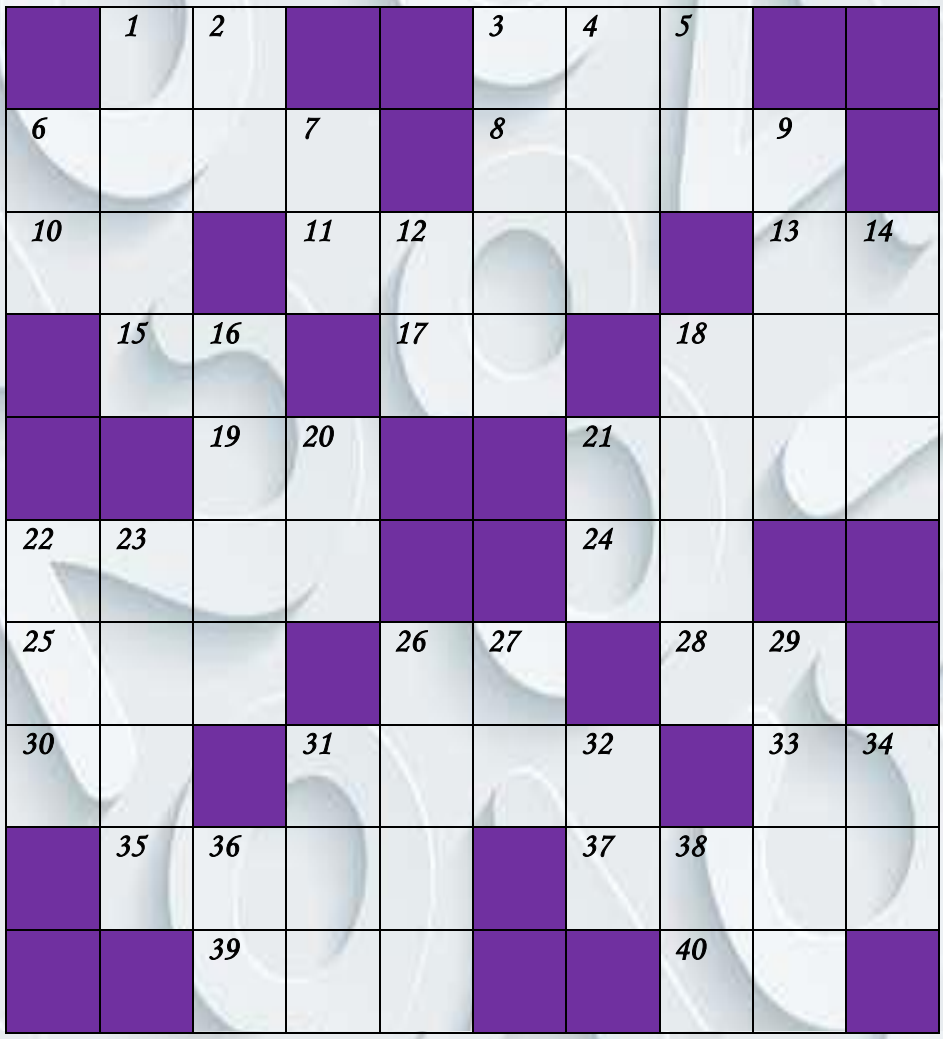
By

S.J.Santhana Mariammal (II B.Sc)

A.Nandhini (II B.Sc)

M.Karthika (II M.Sc)

CROSSWORD



Across		Down	
1.	22 – 9	1.	710 + 543
3.	159 – 13	2.	46 - 15
6.	465 + 750	3.	297 + 1269
8.	2329 + 3294	4.	235 + 232
10.	25 – 10	5.	83 - 21
11.	18833 - 9266	6.	15 - 4
13.	20 – 7	7.	29 + 30
15.	15 + 16	9.	5457 - 2355
17.	120 – 24	12.	24 + 35
18.	952 - 344	14.	560 - 180
19.	99 – 40	16.	381 + 1139
21.	445 + 8975	18.	12346 - 5865
22.	1496 + 930	20.	27 + 69
24.	124 – 46	21.	183 - 86
25.	1290 - 300	22.	338 - 42
26.	98 – 44	23.	280 + 4692
28.	11 + 5	26.	10786 - 5144
30.	27 + 40	27.	27 + 22

31.	9284 - 2589	29.	12200 - 5879
33.	44 - 10	31.	687 - 67
35.	3292 - 768	32.	62 -11
37.	9 + 1616	34.	21 + 24
39.	858 - 356	36.	61 - 6
40.	1 + 10	38.	17 + 44

By S.Avudaiammal

II B.Sc (U.A)

RIDDLES

1) How can you add eight 8 s to get the number 1,000 using only addition ?

Answer :888 + 88 + 8 + 8 + 8 = 1,000

2) Brian, Rennie and their dog start walking down a road in the same direction. They start at the same point and at the same time. Brian walks at 12 km / h, while Rennie walks at the speed of 10 km / h. Their dog runs from Brian to Rennie and back again with a constant speed of 15 km / h. How far does the dog travel in 1 hour ?

Answer : 15 km. Because the dog's speed is 15 km / h.

3) Use four 9 s in a math equation that equals 100.

Answer : 99 + (9 ÷ 9) = 100.

4) I add five to nine, and get two. The answer is correct, but how ?

Answer : When it is 9 am, add 5 hours to it and you will get 2 pm.

5) How many eggs can you put in an empty basket of 2m × 2m size ?

Answer : Only one, after that the basket is not empty.

6) What is the value of 1/2 of 2/3 of 3/4 of 4/5 of 5/6 of 6/7 of 7/8 of 8/9 of 9/10 of 1,000 ?

Answer : 100

7) A baseball bat and ball costs USD 50. If the bat costs USD 49 more than the ball. What is the cost of each ?

Answer : The ball costs USD 0.5, while the bat costs USD 49.5

8) In a certain country, 1/2 of 5 = 3. If the same proportion holds, what is the value of 1/3 of 10 ?

Answer : 3. *1/2 of 5 = 2.5, which is rounded to the next number, (i.e) 3. Similarly, 1/3 of 10 is 3.33, which when rounded to the previous number is 3.*

9) If 9999 = 4, 8888 = 8, 1816 = 3, 1212 = 0, then 1919 = ?

Answer : Count the closed areas on number 9999 has 4 closed areas (the top of the ' 9 '), 8888 has 8 closed areas, 1816 has 3 closed areas, 1212 has 0 closed areas.

10) How do you make seven even?

Answer : Remove the ' S '.

11) Mercury = 177, Venus = 251, Earth = 356, Mars = 447, Saturn = 669, Jupiter = ?

Answer :578

- *The first number describes position of planet from sun (5).*
- *The second number describes number of letters (7).*
- *The third number describes multiple of first two numbers.*

Let it be 1 × 7 = 07.
Then, 0 + 7 = 7.
Similarly 2 × 5 = 10.
Then 1 + 0 = 1.
Likewise 5 × 7 = 35.
Then 3 + 5 = 8.
So, it is 578.

12) Three prime numbers add up to 100. One must be even. One of them is more than a third but less than half of another. Find the three numbers.

Answer : Since the three prime number add upto 100. One of them must be even. So, only even prime number is 2. Then other two prime number must add upto 98. They are 31, 67.

Therefore the three prime numbers are 2, 31, 67.

13) What mathematical symbol can be placed between 5 and 9, to get a number greater than 5 and smaller than 9 ?

Answer :5.9

14) The equation shown below is not correct : 26 - 63 = 1. Can you make the equation correct by moving just one symbol ?

Answer : 2^6 - 63 = 1

15) What do you get if you add 3 to 300 five times ?

Answer : 303, 303, 303, 303, 303.

16) If you had a pizza with crust thickness ' A ' and radius ' z '. What's the volume of the Pizza ?

Answer : PI * Z * Z * A

17) Find three positive whole numbers that have the same answer added together or when multiplied together think ?

Answer : 1 × 2 × 3 = 6 & 1 + 2 + 3 = 6

By

P.Agnes (II B.Sc)

V.Veera Lakshmi (II B.Sc)

M.Mageswari (II B.Sc)

Mr. and Mrs. Crazy : Petrol Shortage

Recently Mr. and Mrs. Crazy have heard the news about the petrol shortage. The King has introduced to the villagers petrol rationing according to the following system, based on the 3 - digit number of each number - plate (000 to 999) of the cars in the village.

People could only buy petrol on certain days as follows:

Sunday : If each of the three digits was less than 6.

Monday : If the 3 - digit number was odd.

Tuesday : If the sum of the three digits was greater than 10.

Wednesday : If the 3 - digit number was a multiple of 3.

Thursday : If the sum of the three digits was less than 15.

Friday : If at least two of the three digits were the same.

Saturday : If the 3 - digit number was less than 500.

If Mr. and Mrs. Crazy could refuel their car on any day of the week, What is the number on their car's number - plate ?

Answer : 255

By J.Anuf Sarumathi

M.Phil Scholar

Funny Questions.....

1) Find the number for the Lemon ?

70, 68, 64, 58,  , 40

2) Find the number for the Apple ?

 +  = 55

 -  = 45

3) Find the number for the Orange ?

1  = 51

 7 = 12

  = 

 = ?

By P.Sheerin, II B.Sc

Colloquium of Mathematical Symbols - I

By A.Sundari, I M.Sc

வினா :

சரியான எண்ணிக்கை என்ன ?

அனுப்குமாரிடம் மற்றும் பிபின் குமார் இருவரும் முக்கிய பிரமுகர்கள். அவர்களை பாதுகாக்க எப்போதும் சில காவலர்கள் இருப்பார்கள். அவர்கள் இருவரிடமும் 10க்கும் மேற்பட்ட காவலர்கள் உள்ளனர். அதே நேரத்தில் அந்த காவலர்களின் எண்ணிக்கை 20க்குள் தான் உள்ளது.

அனுப்குமாரிடம் உள்ள காவலர்களில் ஒருவர் பிபின் குமாரிடம் சென்றால் இருவரிடமும் உள்ள காவலர்களின் எண்ணிக்கை சமமாக இருக்கும். அப்படி என்றால் ஒவ்வொருவரிடமும் உள்ள காவலர்களின் எண்ணிக்கை எத்தனை என்பதை கண்டுபிடியுங்கள் பார்க்கலாம்.

விடை :

அனுப்குமாரிடம் 10 காவலர்களும் பிபின் குமாரிடம் 8 காவலர்களும் உள்ளனர்.

கணிதப்புதிர்

ஆதி, நீனா மற்றும் கோமல் ஆகியோர் தங்கள் பள்ளியில் நடைபெற்ற மரம் நடும் நிகழ்ச்சியில் தலா ஒரு மரம் நட்டு தண்ணீர் விட்டு வளர்த்தனர், அப்போது மூன்று பேரின் மரக்கன்றுகளும் 60 சென்டிமீட்டர் உயரம் இருந்தன. பின்னர் ஒரு வாரம் கழித்து பார்த்த போது நீனாவின் மரம் 2 சென்டிமீட்டர் உயரமும், ஆதியின் மரம் ஒரு சென்டிமீட்டர் உயரமும் வளர்ந்திருந்தது. நீனாவின் மரம் 2 சென்டிமீட்டர் உயரம் வளர்ந்திருந்த போது கோமலின் மரம் 3 சென்டிமீட்டர் உயரம் வளர்ந்திருந்தது. இந்த கணக்குப்படி கோமலின் மரம் 108 சென்டிமீட்டர் உயரம் வளரும் போது ஆதியின் மரம் எத்தனை சென்டிமீட்டர் உயரம் வளர்ந்திருக்கும் ?

விடை :

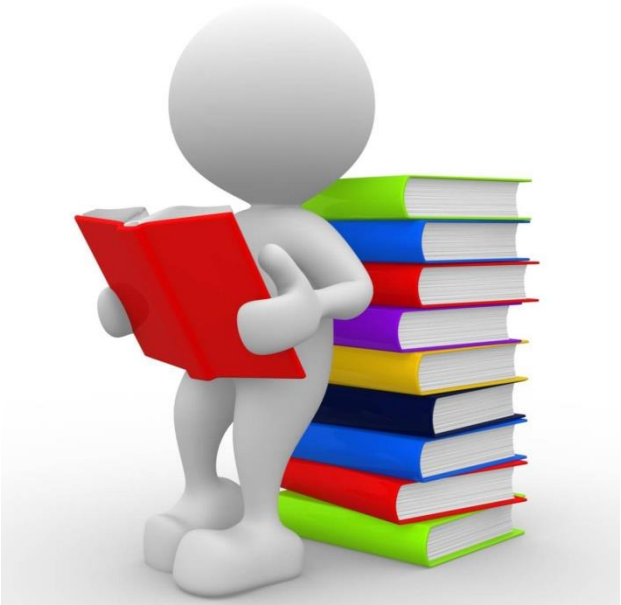
76 சென்டிமீட்டர்

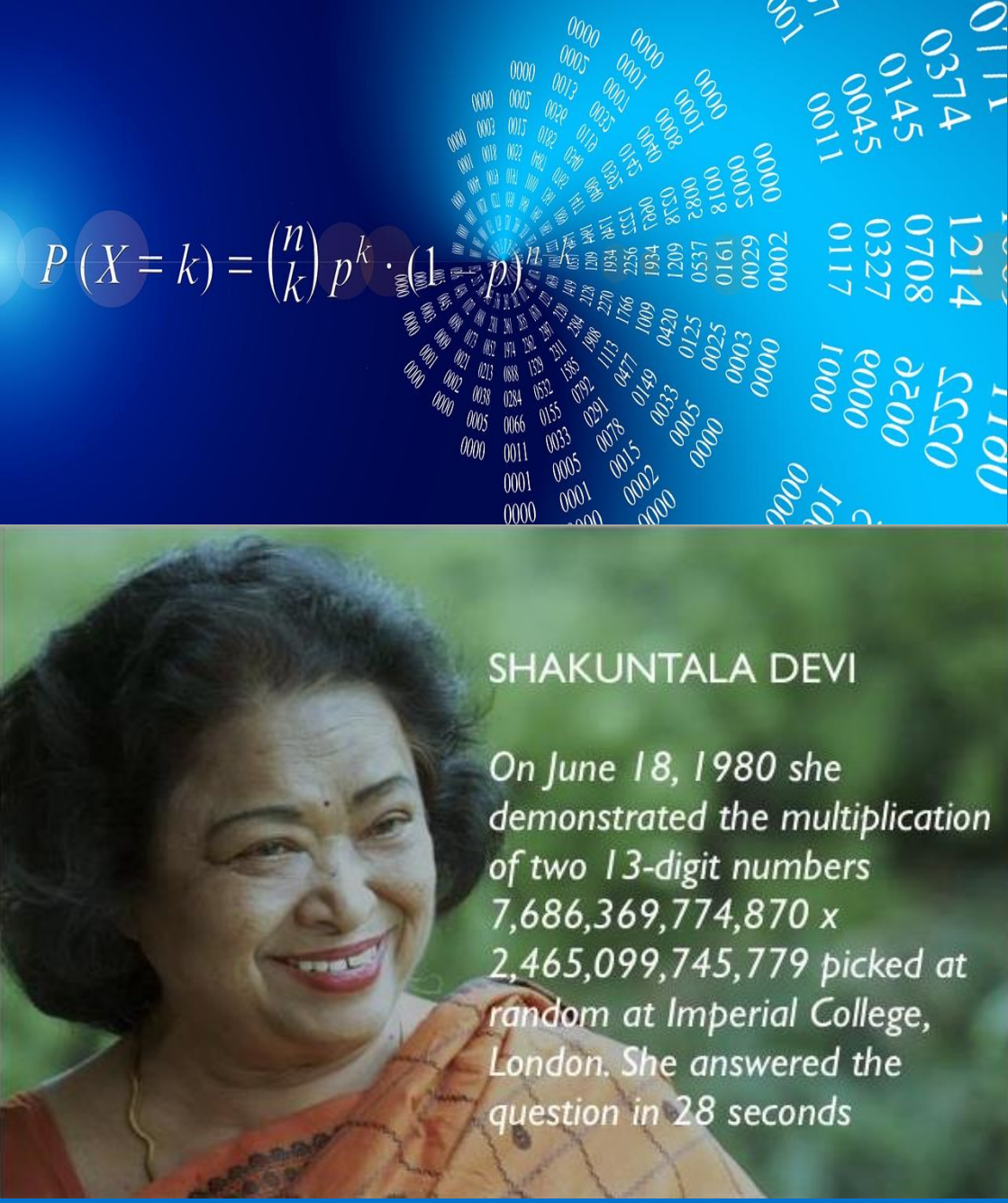
By R.Soundarya

III B.Sc

"It's not the end of the book,

It's just the beginning of a new chapter."





In 1970, she was invited by an institute in Germany where she bet a computer in calculation. Impressed by her performance, the institute gifted her a Mercedes Benz.