



WHY WE STUDY

MATH

MATH

Makes YOUR
LiFE add UP!

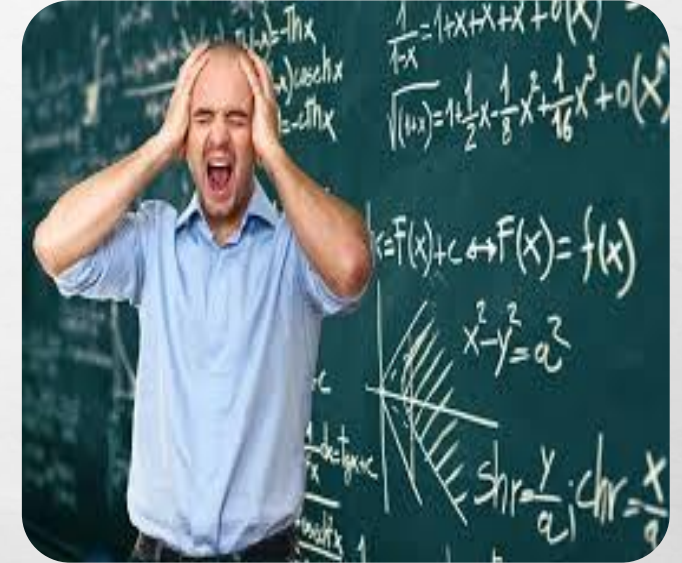
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DR.AHMED ABD AOUN

SOME COMMON VIEWS OF MATHEMATICS

- **maths is hard**
- **maths is boring**
- **maths has nothing to do with real life**
- **all mathematicians are mad!**



**BUT I CAN SHOW YOU THAT MATHS IS IMPORTANT IN
YOUR LIFE And YOUR CAREER**

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AND MANY OTHER CAREERS!!!!!!!!!!!!

Mathematics or numbers is the cradle of all creations. Without this , the world cannot move even an inch. Every human being needs mathematics in their day-to-day life., we use mathematics in our everyday life for existence.



Examples from different sciences



MATHS AND CRIME: DEBLURRING A NUMBER PLATE

A short crime story

- **Thief** robs a bank
- Escapes in a **getaway car**
- Pursued by **police**



GOOD NEWS

Police take a photo



BAD NEWS

Photo is blurred



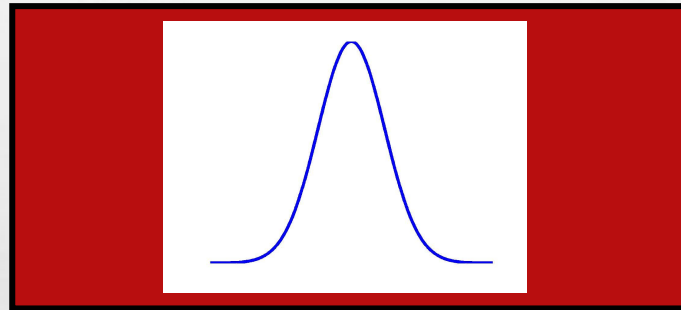
SOLUTION

Find a **model** of the blurring process

Blurring function **g**

Original image

f



Blurred image

h



- **Blurring formula**

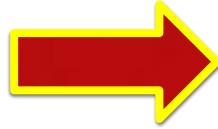
$$h(x) = \int f(x-y)g(y)d^2y$$

- **Inverting** the formula we can get rid the blur
- **BUT** need to know the blurring function **g**

$$f = \int e^{i\omega y} \left(\int e^{-i\omega x} h d^2 x / \int e^{-i\omega x} g d^2 x \right) d^2 \omega / 2\pi$$

Inversion formula

h(x)



f(x)



An example of Image Processing

Maths is widely used in the forensic service!!

HOW MATHS WILL GET YOU ON TV

PICTURES AND IMAGES ARE ALL AROUND US

- TV
- DVD
- COMPUTER GRAPHICS
- SPECIAL EFFECTS



IMAGES ARE STORED AS NUMBERS

36 46 45 80 144 67 44 55 40 65 52 27 48 65 78 125 141 138 141 146 51 78 122 71 108 51 50 40 53
81 70 38 65 61 122 146 119 145 144 143 110 131 144 121 120 42 32 66 28 112 107 41 47 105 136 134
160 156 150 142 127 139 142 121 104 66 88 63 80 98 132 73 61 125 137 134 147 145 180 161 100 119
146 112 42 75 84 57 67 59 65 59 41 139 137 156 169 152 165 189 111 140 76 34 56 77 72 94 62 78 62
53 71 141 145 162 163 160 184 211 201 107 66 81 71 51 68 79 78 86 90 69 104 131 167 171 160 166
196 166 79 47 60 56 54 49 67 67 68 78 74 82 109 151 152 136 155 157 159 49 61 61 51 58 57 90 71 59
60 56 65 73 123 137 163 153 156 165 124 57 54 56 61 52 53 68 86 73 58 49 52 57 65 127 127 143 150
157 138 52 57 60 42 49 72 70 112 57 73 48 61 67 70 137 145 157 139 156 166 57 65 47 48 43

**USING THESE NUMBERS WE CAN PROCESS
THE PICTURES BY USING MATHEMATICS**

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SOME APPLICATIONS

PRODUCING THE PICTURES IN THE FIRST PLACE

Lots of mathematicians work in **computer graphics**, **computer games** and **Hollywood**



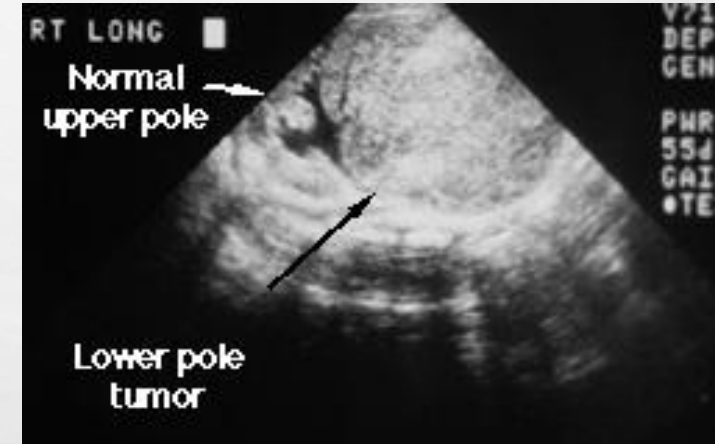
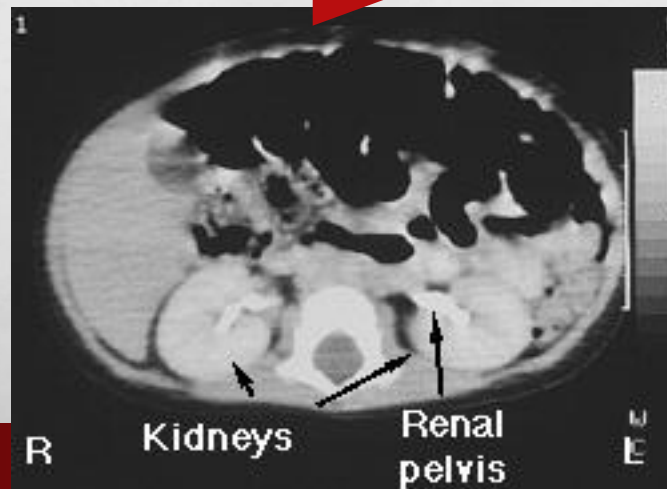
TRANSMITTING THE PICTURES WITHOUT MISTAKES

Lots of mathematicians work in IT and mobile phone companies

MATHS AND MEDICINE

Modern medicine has been transformed by methods of seeing Inside you without cutting you open!

- **Ultra sound:** sound waves
- **MRI:** magnetism
- **CAT scans:** X rays



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ALL USE MATHS TO WORK!!

Modern CAT scanner



CAT scanners work by casting many shadows with X-rays and using maths to assemble these into a picture

Lots of mathematicians work in medicine

What We need from Math in

Business Anyone trying to run a business or understand economics needs to know some math.

- How much money did we take in?
- Profit is total revenue minus total costs.
- Total revenue is price times quantity sold.

How much did we make

By Using math, we can get a better understanding of the relationships between quantities, and by using this understanding we can make better business decisions.



Calculate Production Costs

Determine Pricing

Measure Profits

Analyze Finances

Use in Engineering

- **Used in physics ‘extensively’**
- **Used in graphics ‘structurally’**
- **Used in Civil engineering ‘practically’**
- **It’s used in every field of engineering.**

We require engineering maths in Bridge construction, defence, aeronautics, nuclear research work, etc.

One can say engineering revolution came in 17th century, but did it always made life easy for us?

Conclusion contd.

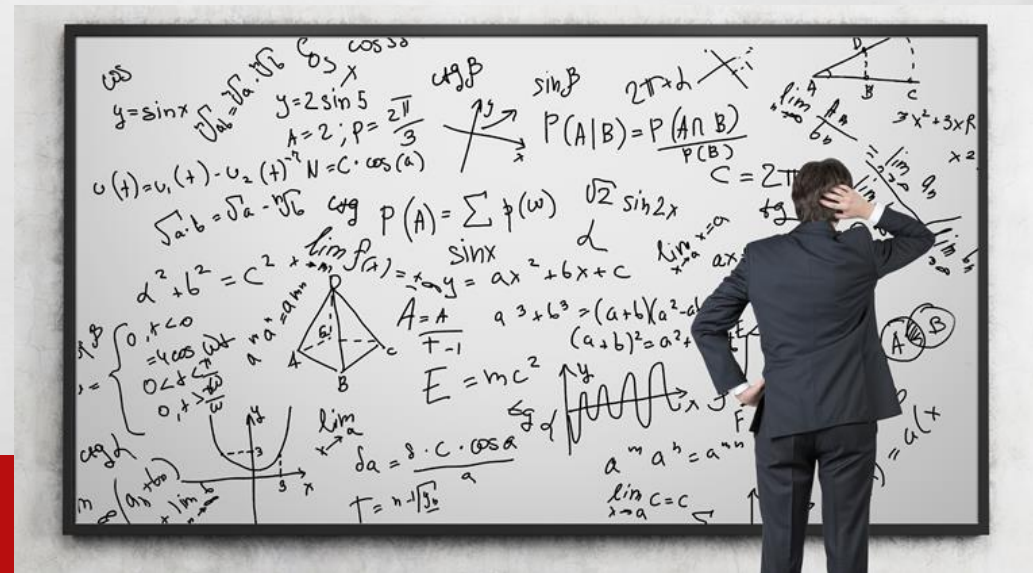
**Engineering + Maths =
Everything**

Enginnering – Maths = Nothing

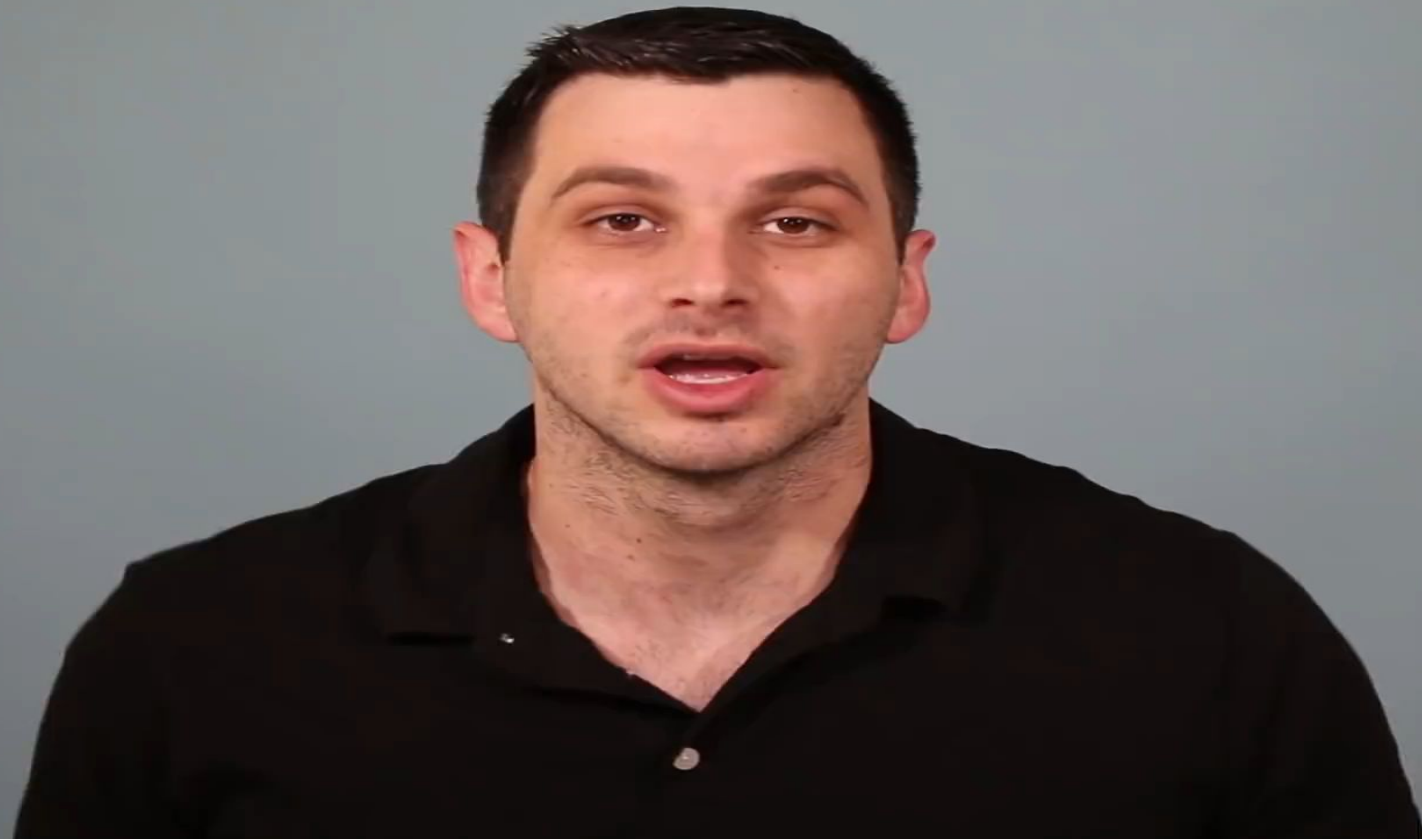


Some interesting **mathematical facts**

- Over **70%** of all jobs require maths
- On average maths graduates **earn more** than any other profession



WHY WE NEED MATH. CS.



Many degrees require maths including

chemistry

statistics

social-science

physics

medicine

engineering

economics

psychology

cryptography

IT, computer

computer science

games

accountancy

actuarial studies

business studies

electronics

aeronautics

fashion design

Without Maths We Would Have No

TV

Internet

computer games

DNA profiling

aeroplanes

mobile phones

credit cards

mortgage payments

family budget

Taste the beauty of mathematics

Here is an interesting and lovely way to look at the beauty of mathematics

$$1 \times 8 + 1 = 9$$

$$12 \times 8 + 2 = 98$$

$$123 \times 8 + 3 = 987$$

$$1234 \times 8 + 4 = 9876$$

$$12345 \times 8 + 5 = 98765$$

$$123456 \times 8 + 6 = 987654$$

$$1234567 \times 8 + 7 = 9876543$$

$$12345678 \times 8 + 8 = 98765432$$

$$123456789 \times 8 + 9 = 987654321$$

$$1 \times 9 + 2 = 11$$

$$12 \times 9 + 3 = 111$$

$$123 \times 9 + 4 = 1111$$

$$1234 \times 9 + 5 = 11111$$

$$12345 \times 9 + 6 = 111111$$

$$123456 \times 9 + 7 = 1111111$$

$$1234567 \times 9 + 8 = 11111111$$

$$12345678 \times 9 + 9 = 111111111$$

$$123456789 \times 9 + 10 = 1111111111$$

$$9 \times 9 + 7 = 88$$

$$98 \times 9 + 6 = 888$$

$$987 \times 9 + 5 = 8888$$

$$9876 \times 9 + 4 = 88888$$

$$98765 \times 9 + 3 = 888888$$

$$987654 \times 9 + 2 = 8888888$$

$$9876543 \times 9 + 1 = 88888888$$

$$98765432 \times 9 + 0 = 888888888$$

$$1 \times 1 = 1$$

$$11 \times 11 = 121$$

$$111 \times 111 = 12321$$

$$1111 \times 1111 = 1234321$$

$$11111 \times 11111 = 123454321$$

$$111111 \times 111111 = 12345654321$$

$$1111111 \times 1111111 = 1234567654321$$

$$11111111 \times 11111111 =$$

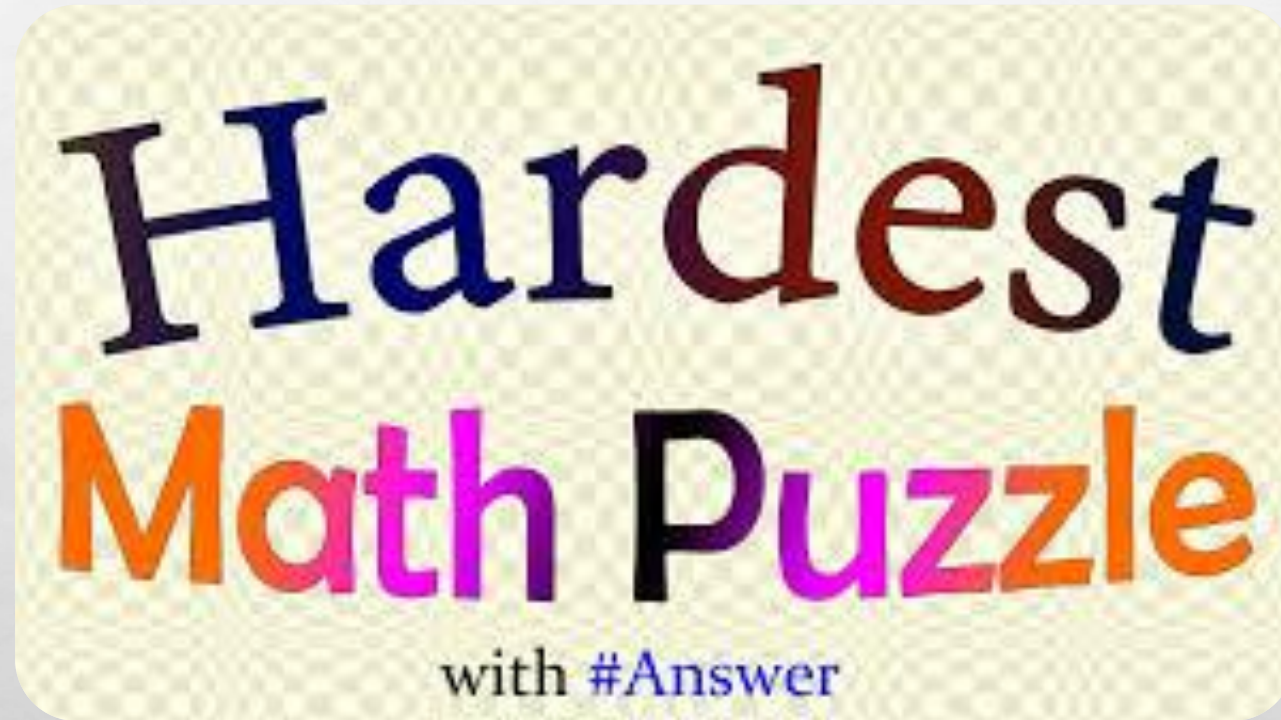
$$\mathbf{123456787654321}$$

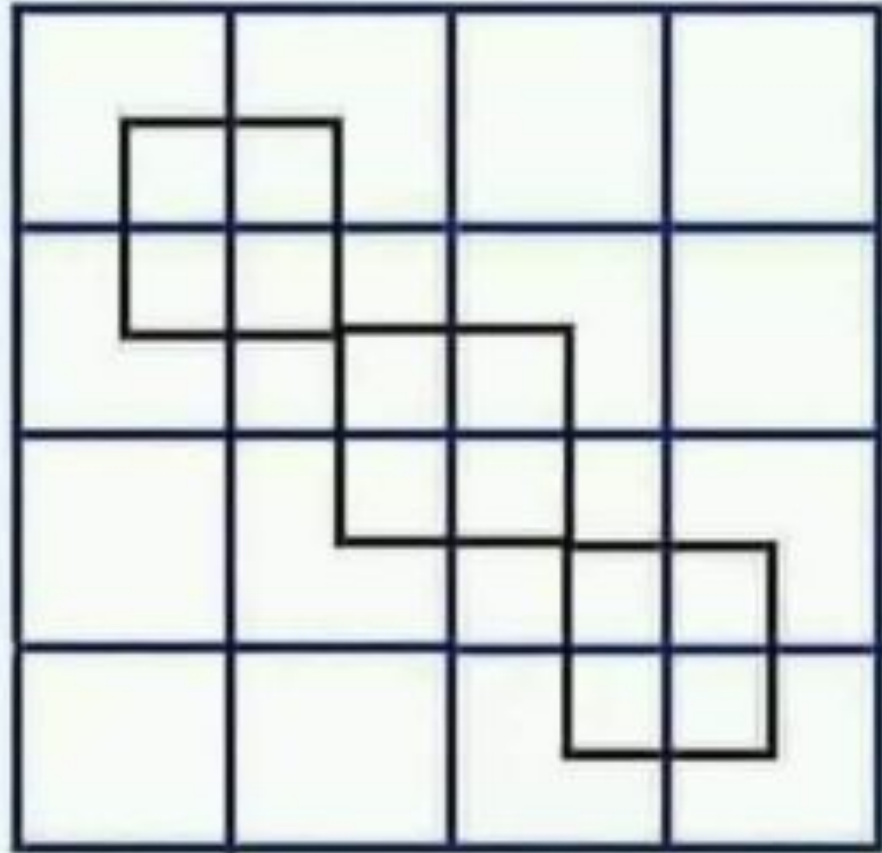
$$111111111 \times 111111111 =$$

$$\mathbf{12345678987654321}$$

And look at
this
symmetry

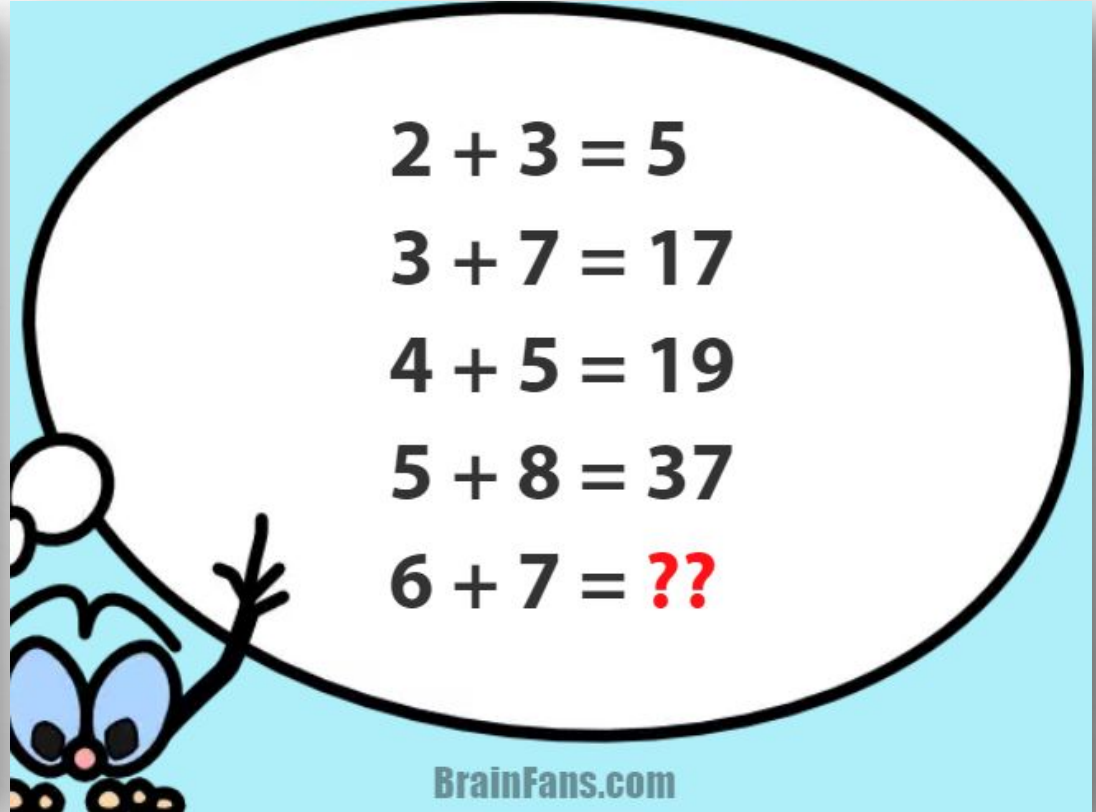
Mathematical puzzles





**How many
squares are in
this picture?**

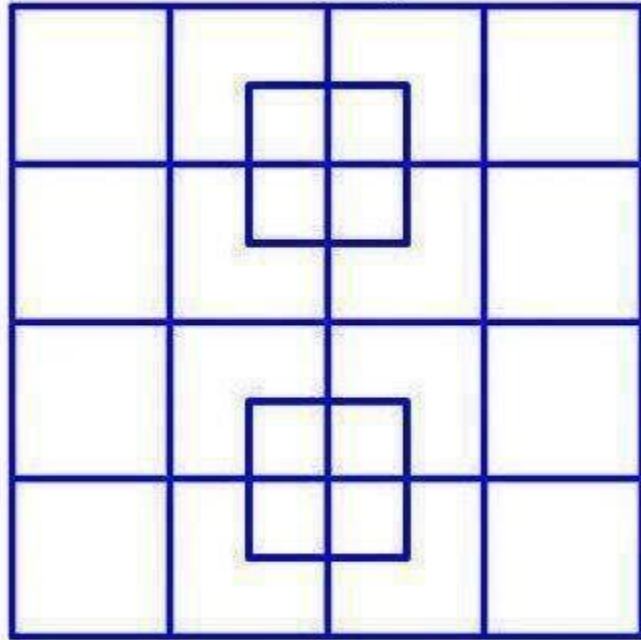
5	40	8
30		24
6	?	3



$2 + 3 = 5$
 $3 + 7 = 17$
 $4 + 5 = 19$
 $5 + 8 = 37$
 $6 + 7 = ??$

BrainFans.com

**How many squares
are in this picture?**



92% FAIL this simple test!

SHARE & GIVE 1 CHANCE TO UR FRIENDS



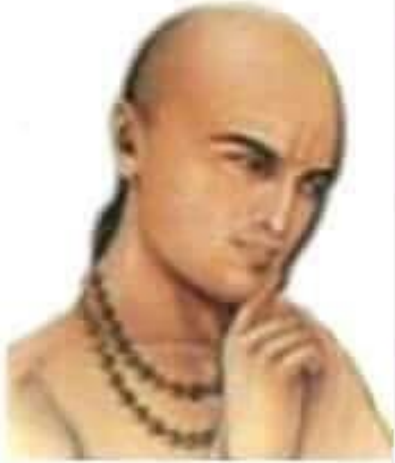
$$1 + 4 = 5$$

$$2 + 5 = 12$$

$$3 + 6 = 21$$

$$8 + 11 = ?$$

Only For Geniuses !



3	2	=	7
5	4	=	23
7	6	=	47
9	8	=	79
10	9	=	?

Only for Geniuses ;-)

IF: 2 = 6

3 = 12

4 = 20

5 = 30

6 = 42

Then: 9 = ??

**Thank you very
much for your
attention**



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