

**VISIT MATH**



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# Answers

## Step 1: The splendid Romane

Answer => There are 64 bays in the arcade.



## Step 2: The heart of the city

Answer => The point to find is the leveling plate altitude of 143.50 meters.

## Step 3: A famous mathematician

Answer => The difference between the two leveling plates is 0.

## Step 4: At the water's edge, Dame Garonne

Answer 1 =>  $v = qv/S = 0.525 \text{ m/sec}$  or  $1.89 \text{ km/h}$  (must multiplied by 3.6 to convert! )

$t = 325/1.89 = 172 \text{ hours}$  or a little more than 7 days! (not very fast right?)



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Answer 2 => Volume of the dome = (Volume sphere/2) + Volume Cylinder

$$\begin{aligned}\text{Cylinder volume} &= \text{base area} * \text{height} \\ &= (12^2 * \pi) * 55 \\ &= 144 * \pi * 55 \\ &= 24868.80 \text{ m}^3\end{aligned}$$

$$\begin{aligned}\text{Volume 1/2 sphère} &= (4/3 * \pi * r^3) / 2 \\ &= (4/3 * \pi * 1728) / 2 \\ &= 7234.56 / 2 \\ &= 3617.28 \text{ m}^3\end{aligned}$$

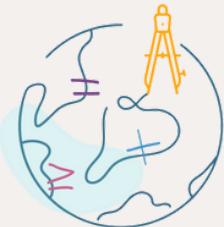
$$\begin{aligned}\text{therefore total volume of the building} \\ &= 24868.80 + 3617.28 \\ &= 28486.08 \text{ m}^3\end{aligned}$$

Answer 3 => The Pont-Neuf has 7 arches. It is indeed a prime number.

## Step 5: A pastel-coloured home



Answer => example of geometric shapes found on the facade.



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### Step 6: The Fine Arts meeting

Answer => The hidden number is 5 in Roman numeral V.

### Step 7: A curiosity

Answer => the area is  $10.25 \text{ m}^2$

Calculate the area of the square, then that of the 4 triangles and finally the area of the octagon.

According to the coding we have :

$KL = JI = HG = EF$  and  $DK = DJ = IC = CH = GB = BF = EA = AL$

where  $KL = 1.5\text{m}$  and  $DK = 1\text{m}$

one side of the square =  $DK + KL + LA = 1 + 1.5 + 1 = 3.5\text{m}$

so the area of the square =  $3.5 * 3.5 = 12.25\text{m}^2$

We then calculate the area of one of the right-angled triangles:

$$\text{Area of } DKJ = (1 * 1) / 2 = 0.5\text{m}^2$$

Then we calculate the area of the 4 triangles:

$$\text{Area of the 4 triangles} = 0.5 * 4 = 2\text{m}^2$$

Finally, we calculate the area of the octagon:

$$\text{Area of octagon} = \text{area of square} - \text{area of 4 triangles}$$

This is :

$$12.25 - 2 = 10.25\text{m}^2$$

### The secret message

The secret message is: GO TO **CAPITOLE** TOMORROW AT 5:00 A.M.  
Each hidden letter is bolded in the sentences preceded by a Violette.

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