

Meet me in room

[1] [2] [3] [4]

[1] If all prime numbers are odd, then ___ is very odd.

[2] What is the root of $y = \pi x^2$?

[3] Add the digits of $(3k + 2)^3$, for integer $k > 0$, until you get a single digit. What is that number?

(e.g. $4^3 = 64$ and $6 + 4 = 10$ and $1 + 0 = 1$. So 4^3 is 1)

[4] What is the diameter of a circle whose area is the same as its circumference?

Answer:

[1] 2

[2] 0

[3] 8

[4] 4

Use appropriate letters or numbers

1. Another name for $\sin x (\tan x)^{-1}$
2. How $2 + 2 = 1$
3. The correct spelling of the last name of the mathematician's name pronounced "oiler"
4. Advertised on *Ren and Stimpy*; most popular when it is base e
5. Popular middle school shorthand for "does not exist"
6. Teaches in a classroom named after him and his wife
7. Gave the first math coffee on 2006

Who witnessed this crime occur?

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____

Answers:

- 1. cosx**
- 2. mod3**
- 3. Euler**
- 4. log**
- 5. dne**
- 6. Klein**
- 7. Flake**

**special note: some of these clues are particular to Davidson (i.e. 6, 7). And, the letters in the asterisked column spell out *Colonel*. “Poisoned fried chicken” was one of our murder weapons—again, that weapon fit with our murderer and may not translate well to your institution. But we wanted to give you a form for this type of puzzle. The particulars are up to you! 😊

**Solve the following
problem if you know
that $a \leq b \leq c \leq d \leq e$
And $a \neq 1$.**

$$40585 = a! + b! + c! + d! + e!$$

Go to room

$$(a+b)(c)(d+e) + \text{(insert corrective factor here)}$$

Answer:

$$\mathbf{a = 0}$$

$$\mathbf{b = 4}$$

$$\mathbf{c = 5}$$

$$\mathbf{d = 5}$$

$$\mathbf{e = 8}$$

Because ironically,

$$\mathbf{40585 = 4! + 0! + 5! + 8! + 5!}$$

Confer:

<http://www.wschnei.de/digit-related-numbers/factorion.html>

Hugh's Horses:

A horse breeder goes to a horse show with a certain number of horses. The first buyer comes by and purchases half of the horses the breeder brought, plus half a horse. The second buyer comes by and purchases half of what remains plus half a horse. The third buyer comes by and purchases half of what remains plus half a horse. The breeder then leaves, satisfied that he has sold all the horses he brought. All three buyers have purchased whole horses and there is no shared ownership among them.

Take the number of horses the breeder brought to the show, multiply this number by _____ and subtract _____. Your next puzzle awaits you in that room.

The answer is 7 horses.

Confer: <http://www.brainj.net/puzzle.php?id=horses>

[1] Fill in the missing number:

0 3 3 12 27 75 192 ____

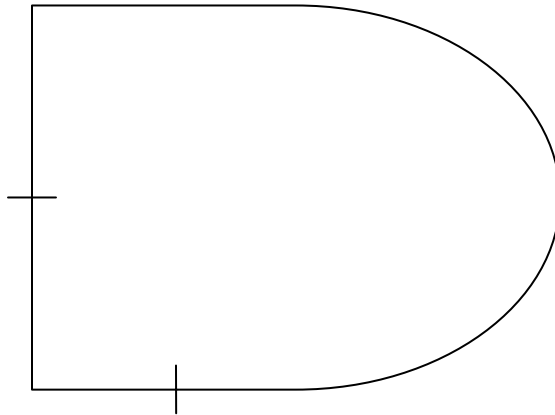
[2] Add that number to _____. Go to that room.

Answer: 507; notice, the sequence starts with the Fibonacci sequence, squares each number, and then multiplies each number by 3.

**If this shape's Surface Area =
 $A + B\pi$**

[draw difficult solid here]

**we had a solid of height 10 whose base looked like
this: a circle of radius 4 connected as shown to a
square**



Meet me in room

$A + B +$ _____

Answer:

[not provided]

Tennis Tournament!

Davidson is having a round-robin tennis tournament. Five players are signed up to participate, and in this type of contest, each pair of the five contestants must play each other. If the tournament is scheduled so that no contestant plays more than one match each day, what is the minimum number of days over which the tournament can be held?

Tennis Tournament Solution

The minimum number of days for the tournament is 5:

A total of ten matches must be played, and since no one player can compete twice in one day, only two matches (four players) can be scheduled for each day.