

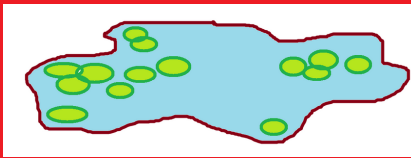
Cells : Solutions

puzzle #1

Water lilies are growing in a lake, covering the surface area of the lake.

And these lilies are growing so fast that, by the end of each day, they cover double the amount of surface area they did the day before. Luckily, it is a big lake.

It has taken 60 days for the lilies to cover half of the surface area. How many more days will it be before the entire surface is covered?



ANSWER TO PUZZLE 1:

Just 1 more day!

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The NMF Weekly is written by mathematician Dr. James Tanton as a resource for friends and fans of the 2021 National Math Festival.

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puzzle #2

Look at the doubling numbers.

1 2 4 8 16 32 64 128 256 512 1024 ...

There's one that begins with a 3.

There's one that begins with a 5.

There's one that begins with a 6.

Is there one that begins with a 7?

If there is: What's the second one that begins with a 7? What's the third one and the fourth one?

If there isn't: What's wrong with "7" as a starting digit?

ANSWER TO PUZZLE 2:

You have to double the number 1 **forty-six** times before you find a doubling number that begins with a 7. It's 70,368,744,177,664.

The next one occurs when you've doubled the number 1 **fifty-six** times, then **sixty-six** times, then **seventy-six** times, then **eighty-six** times, then **ninety-six** times, but NOT one-hundred-six times!

(That's weird! Why does the pattern stop? When does it start up again?)

