Problem of the Week

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October 7, 2024

OLYMPIAD - 10/7/24

THE AREA OF A SQUARE IS 36 CENTIMETERS. A RECTANGLE HAS THE SAME PERIMETER AS THE SQUARE. THE LENGTH OF THE RECTANGLE IS TWICE ITS WIDTH. WHAT IS THE AREA OF THE RECTANGLE IN SQUARE CM?

MATH OLYMPIAD CONTEST PROBLEMS: VOLUME 2
SET 2, OLYMPIAD 3, 3D. 6 MINUTES

September 30, 2024

OLYMPIAD - 9/30/24

KIM WAS ELECTED CLASS PRESIDENT. SHE RECEIVED 3 VOTES FOR EVERY 2 VOTES THAT AMY GOT. NO ONE ELSE RAN. HOWEVER IF 8 PEOPLE WHO VOTED FOR KIM HAD VOTED FOR AMY INSTEAD, KIM WOULD HAVE RECEIVED ONLY ONE VOTE FOR EVERY TWO THAT AMY WOULD HAVE GOT. HOW MANY PEOPLE VOTED?

MATH OLYMPIAD CONTEST PROBLEMS: VOLUME 2
SET 3, OLYMPIAD 4, 4C. 5 MINUTES

September 23, 2024

OLYMPIAD - 9/23/24

WHAT IS THE VALUE OF
THE WHOLE NUMBER N IF:

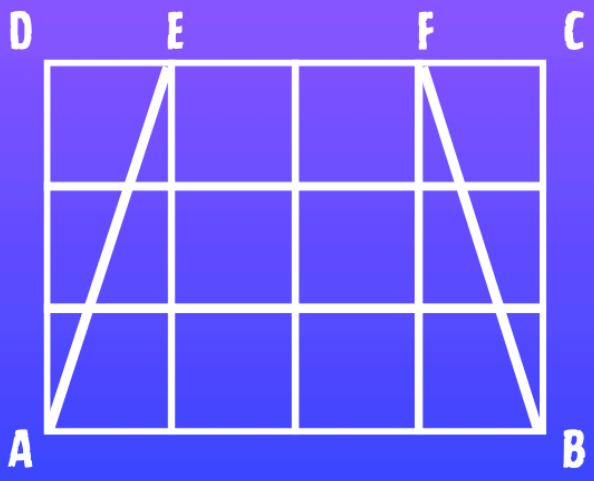
$$n = \frac{1}{2} \text{ OF } \frac{2}{3} \text{ OF } \frac{3}{4} \text{ OF } \frac{4}{5} \text{ OF } 100?$$

MATH OLYMPIAD CONTEST PROBLEMS: VOLUME 2
SET 1, OLYMPIAD 4, 4A. 4 MINUTES

September 16, 2024

OLYMPIAD - 9/16/24

ABCD IS A RECTANGLE WHOSE AREA IS 12 SQUARE UNITS. HOW MANY SQUARE UNITS ARE CONTAINED IN THE AREA OF TRAPEZOID EFBA?



MATH OLYMPIAD CONTEST PROBLEMS: VOLUME 2

SET 1, OLYMPIAD 4, 4B. 5 MINUTES

September 9 2024

OLYMPIAD - 9/09/24

ROBERT THROWS 5 DARTS AT THE TARGET SHOWN. EACH DART LANDS IN A REGION OF THE TARGET, SCORING THE POINTS SHOWN. OF THE FOLLOWING TOTAL SCORES, LIST ALL THAT ARE *NOT* POSSIBLE.

HOW MANY CUBES DOES THE TOWER CONTAIN?

6, 14, 17, 38, 42, 58

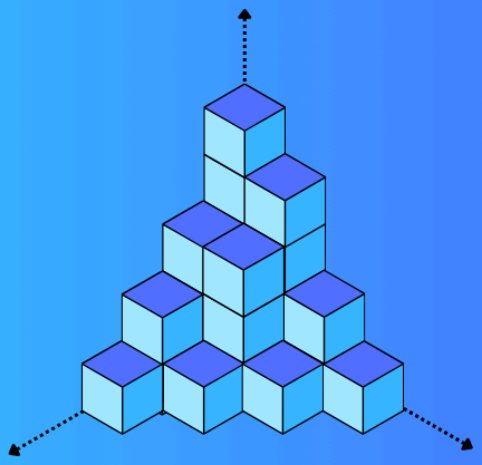
MATH OLYMPIAD CONTEST PROBLEMS: VOLUME 2

SET 4, OLYMPIAD 2, 2A. 5 MINUTES

June 24, 2024

OLYMPIAD - 6/24/24

The tower shown at the right is made by placing congruent cubes on top of each other with no gaps. Not all cubes are visible. How many cubes does the tower contain?



Math Olympiad Contest Problems: Volume 2
Set 1, Olympiad 3, 3C, 4 Minutes

June 17, 2024

OLYMPIAD - 6/17/24

Suppose a standard twelve-hour clock now shows a time of 10:45. What will the clock show 100 hours from now.

Math Olympiad Contest Problems: Volume 2
Set 1, Olympiad 3, 3A, 4 Minutes

June 10, 2024

OLYMPIAD - 6/10/24

Admission to the local movie theater is $3 for each child and $7 for each adult. A group of 12 people pay $64 admission. How many children are in this group.

Math Olympiad Contest Problems: Volume 2
Set 1, Olympiad 2, 2E. 6 Minutes

June 03, 2024

OLYMPIAD - 6/03/24

List all counting numbers which leave a remainder of 4 when divided by 22.

Math Olympiad Contest Problems: Volume 2
Set 1, Olympiad 2, 2D. 5 Minutes

May 27, 2024

OLYMPIAD - 5/27/24

Below, boxes represent digits and different letters represent different non-zero digits. What three digit number is the least possible product?

Math Olympiad Contest Problems: Volume 2
Set 1, Olympiad 2, 2C. 5 Minutes

May 20, 2024

OLYMPIAD - 5/20/24

A rectangular box is 2 cm high, 4 cm wide, and 6 cm deep. Michelle packs the box with cubes, each 2 cm by 2 cm by 2 cm, with no space left over. How manu ubes does she fit in the box?

Math Olympiad Contest Problems: Volume 2
Set 1, Olympiad 2, 2B. 4 Minutes

May 13, 2024

OLYMPIAD - 5/13/24

Marty has 6 more pogs than Jen has. After he gives 10 pogs to Jen. How many More pogs will Jen have than Marty?

Math Olympiad Contest Problems: Volume 2

Set 1, Olympiad 2, 2A. 3 Minutes

April 29, 2024

OLYMPIAD - 4/29/24

In the number 203,500, the last two zeroes are called **terminal zeros.**
If 30 x 40 x 50 x 60 x 70 is done, how many terminal zeros would the product have?

April 22, 2024

OLYMPIAD - 4/22/24

Linda wants to buy 20 crayons. **Toyworld** sells crayons at 4 for 25 cents, and **Gameland** sells crayons at 5 for 30 cents. Which of the two stores sells 20 crayons for less, and by how much more?

April 15, 2024

OLYMPIAD - 4/15/24

In a class of 26 students, 15 like vanilla ice cream and 16 like chocolate ice cream. However, 3 students do not like either. How many students like vanilla and chocolate ice cream?

April 1, 2024

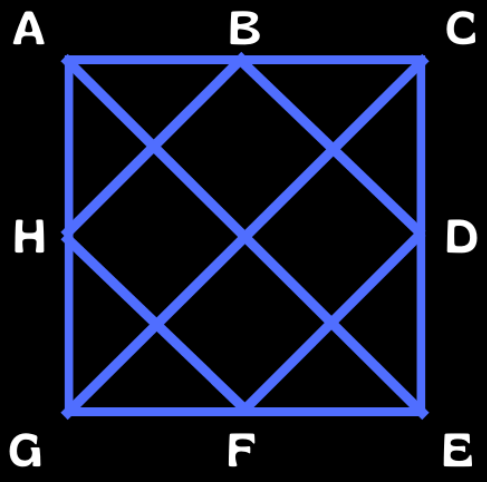
OLYMPIAD - 4/1/24

On a standard 12-hour clock, the numerals 12 and 6 are opposite each other. On the planet Bajor, they used a circular ten-hour clock with the numerals 1 to 10 equally spaced. What pair of opposite numerals on a Bajorian clock has a sum of 11

March 18, 2024

OLYMPIAD - 3/18/24

Square ACEG is drawn below. Points B,D,F, and H are midpoints of the sides of the square.

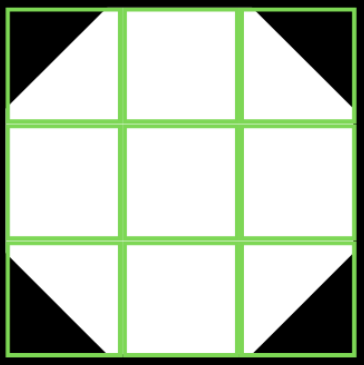


How many squares are in this diagam?

March 11, 2024

OLYMPIAD - 3/11/24

Square ABCD is composed of nine congruent squares as shown. The area of the white region is 14 sq cm.



What is the area of square ABCD in sq cm?

February 26, 2024

OLYMPIAD - 2/26/24

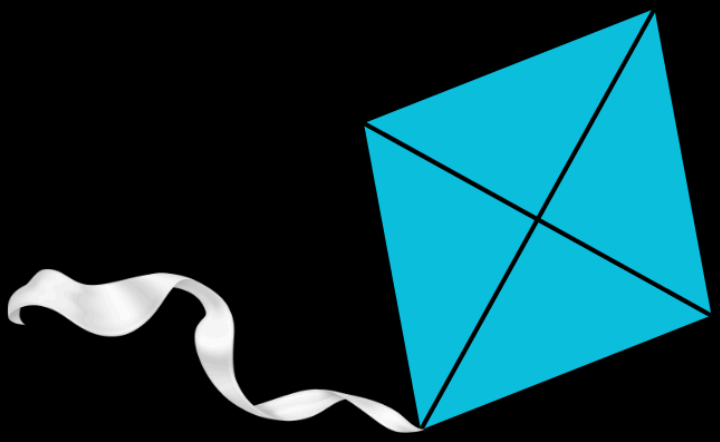
What is the value of the following, in simplest terms?

$(20 \times 24 \times 28 \times 32) \div (10 \times 12 \times 14 \times 16)$

February 12, 2024

OLYMPIAD - 2/12/24

The kite shown below is a rhombus. The diagonals measure 16 and 12 inches.



How many inches of ribbon would be needed to line the perimeter of the kite?

February 5, 2024

OLYMPIAD - 2/05/24

If the first 20 odd counting numbers are written. How many times does '3' appear as a digit?

January 29, 2024

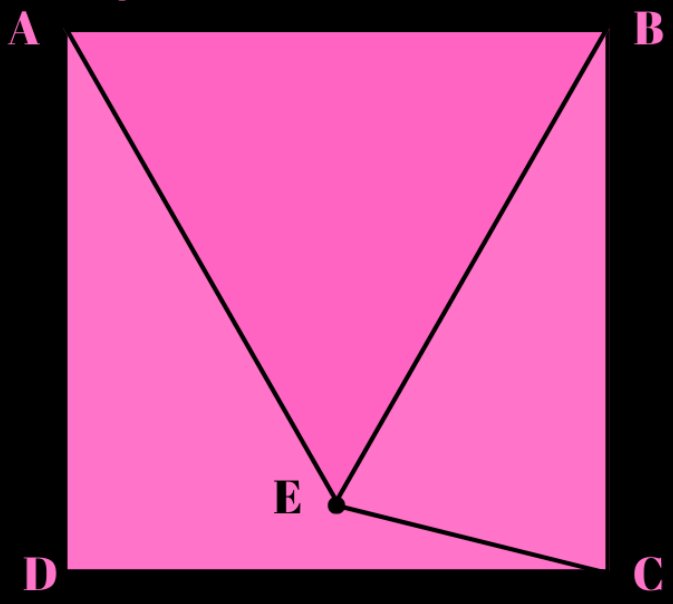
OLYMPIAD - 1/29/24

Ten years ago, Jimmy was three times as old as Tom. In five years, Jimmy will be 10 years more than twice as old as Tom. How old is Tom right now?

January 22, 2024

OLYMPIAD - 1/22/24

In the diagram below, point E is drawn inside square ABCD such that triangle ABE is equillateral and EC is drawn.



What is the measure of angle BEC?

January 15, 2024

OLYMPIAD - 1/15/24

The 'tribonacci' sequence starts with terms

$T(0) = T(1) = 0$ and $T(2) = 1$

and follows a pattern where each term is found by adding the three that came before it. For example:

$T(3) = 0 + 0 + 1 = 1$

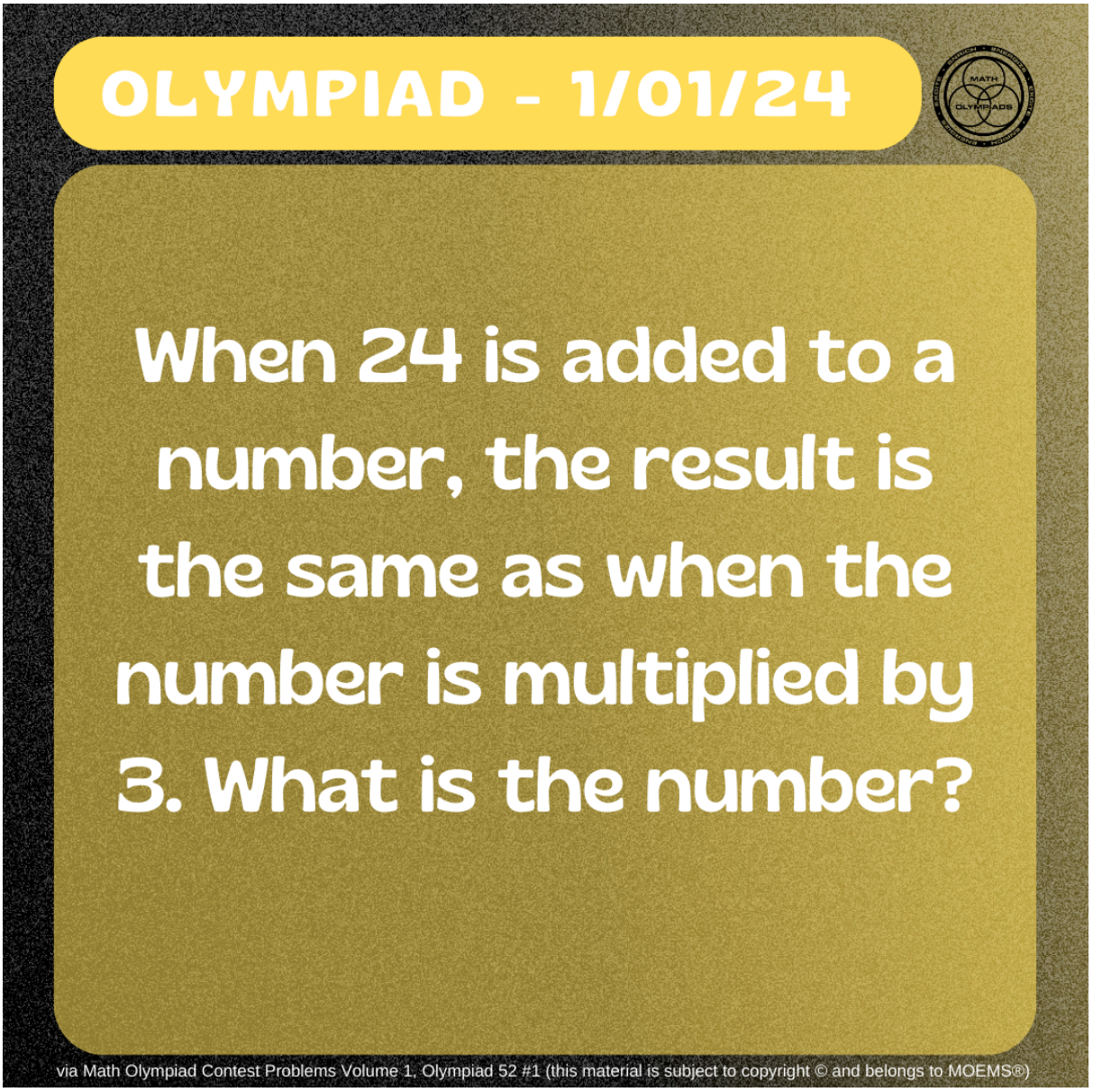
What is T(8)?

January 8, 2024

OLYMPIAD - 1/08/24

The angles of a triangle are in a ratio of 4 : 3 : 2. What is the degree measure of the second largest angle?

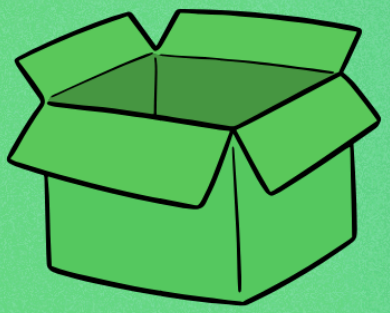
January 1, 2024



December 18, 2023

OLYMPIAD - 12/18/23

A box contains over 100 marbles. The marbles can be divided into equal shares among 6, 7, or 8 children with 1 marble left each time. What is the least number of marbles that the box can contain?



December 11, 2023

OLYMPIAD - 12/11/23

In the multiplication problem below, each blank space represents a missing digit. Find the product:

$$\begin{array}{r} 4\,\square\,\square \\ \times\ \square\,7 \\ \hline \square\,\square\,8\,2 \\ 1\,2\,\square\,\square \\ \hline \square\,\square\,\square\,\square\,\square \end{array}$$

December 04, 2023

OLYMPIAD - 12/04/23

A restaurant has 30 tables which are of two types. The first type seats two people and the second seats five people. A total of 81 people are seated when all seats are occupied. How many tables for two are there?

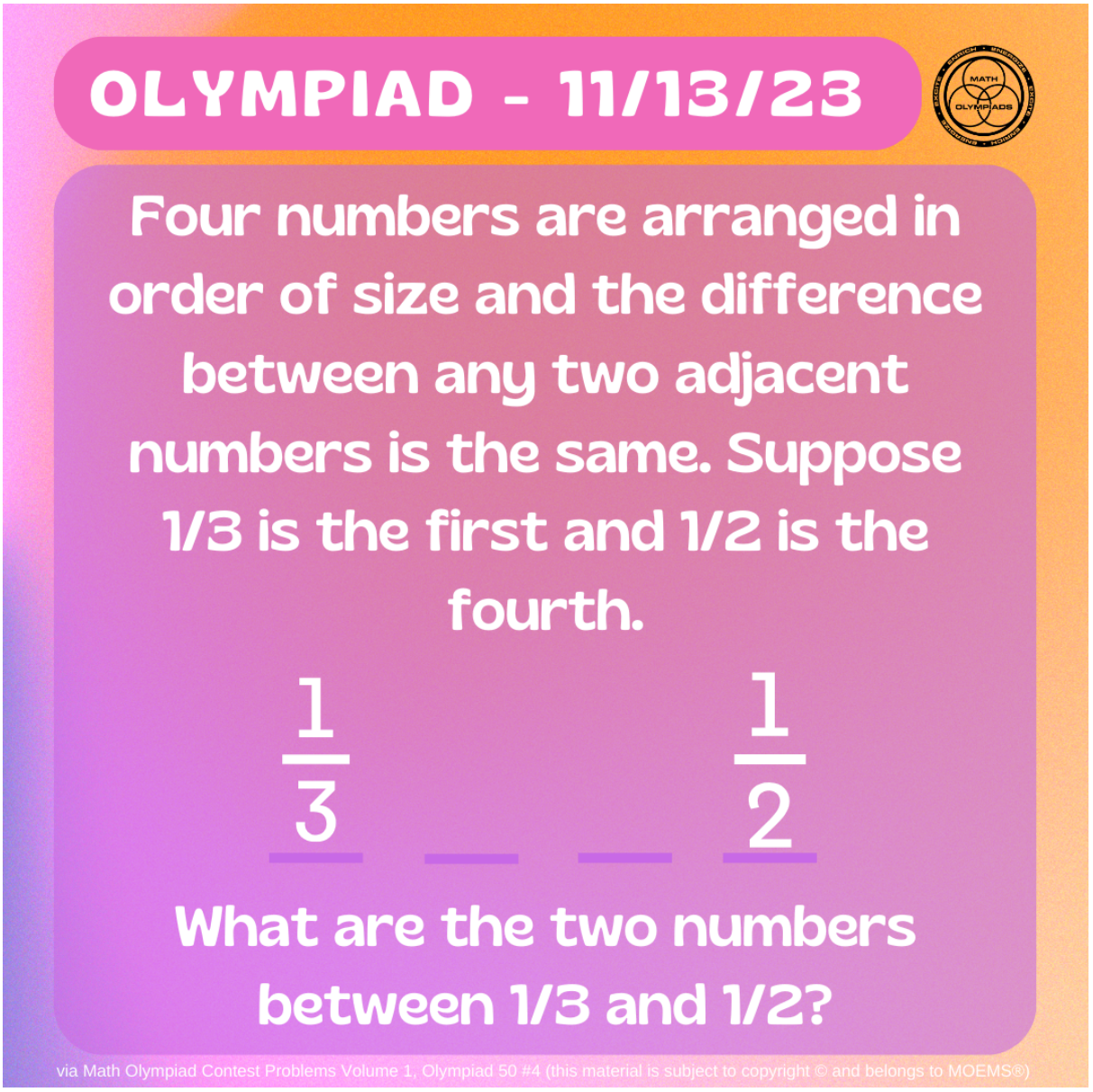
November 27, 2023

OLYMPIAD - 11/27/23

Glen, Harry, and Kim each have a different favorite sport among tennis, baseball, and soccer. Glen does not like baseball or soccer. Hary does not like baseball. Name the favorite sport of each person.

November 20, 2023

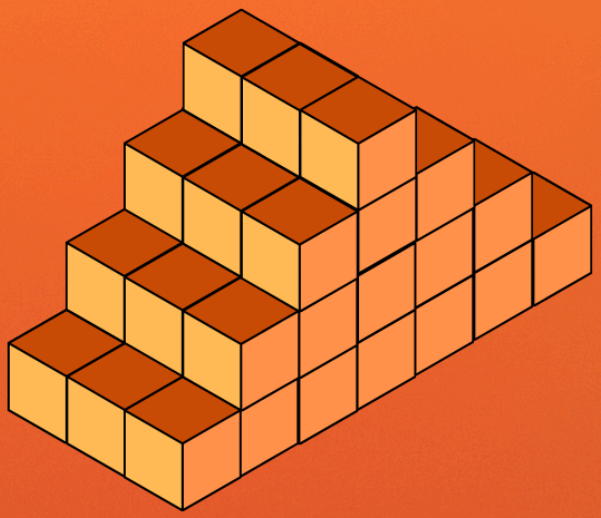
November 13, 2023



November 6, 2023

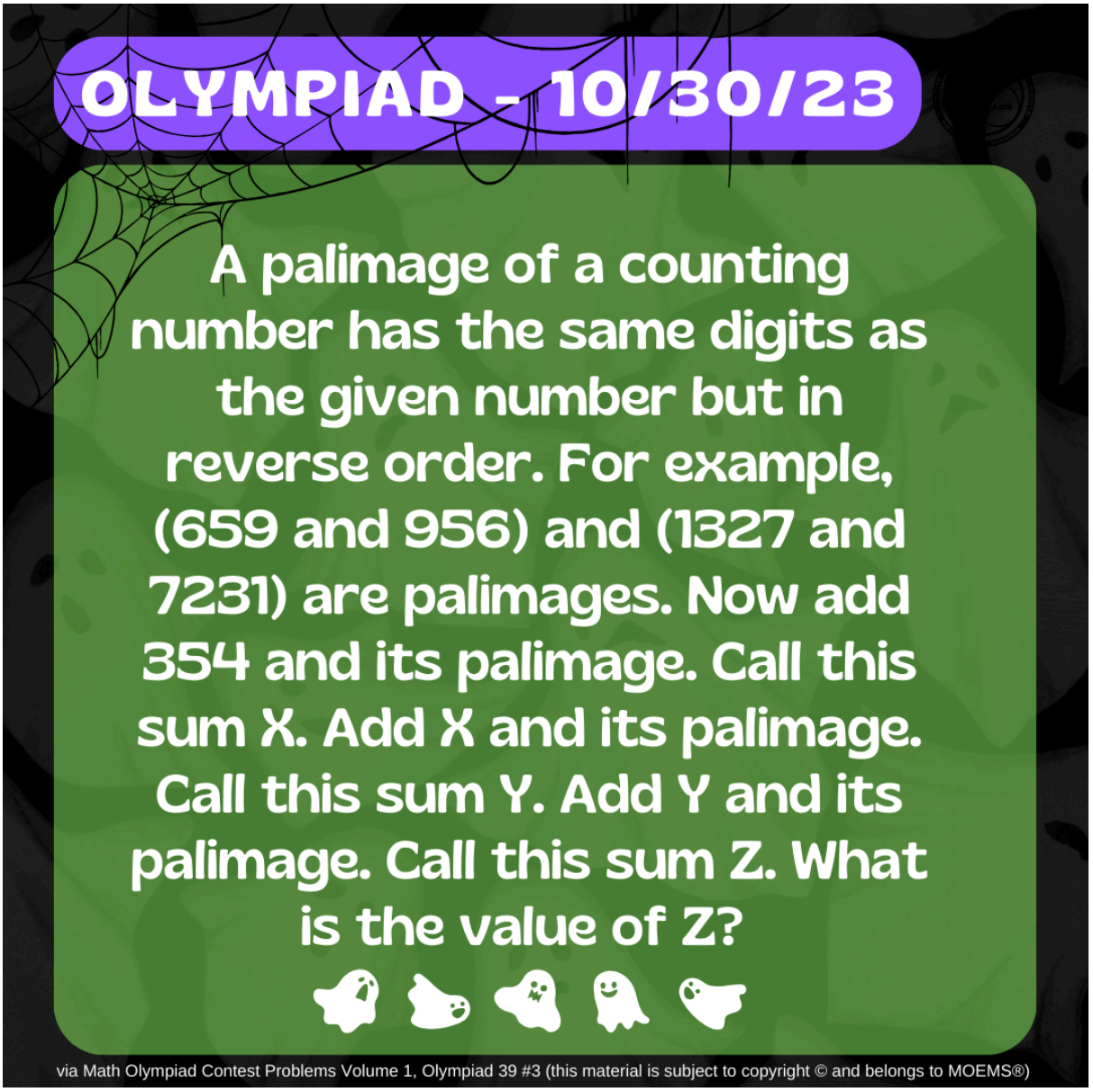
OLYMPIAD - 11/06/23

The set of stairs shown at the right is constructed by pacing layers of cubes on top of each other.



What is the total number of cubes contained in the staircase?

October 30, 2023



October 24, 2023

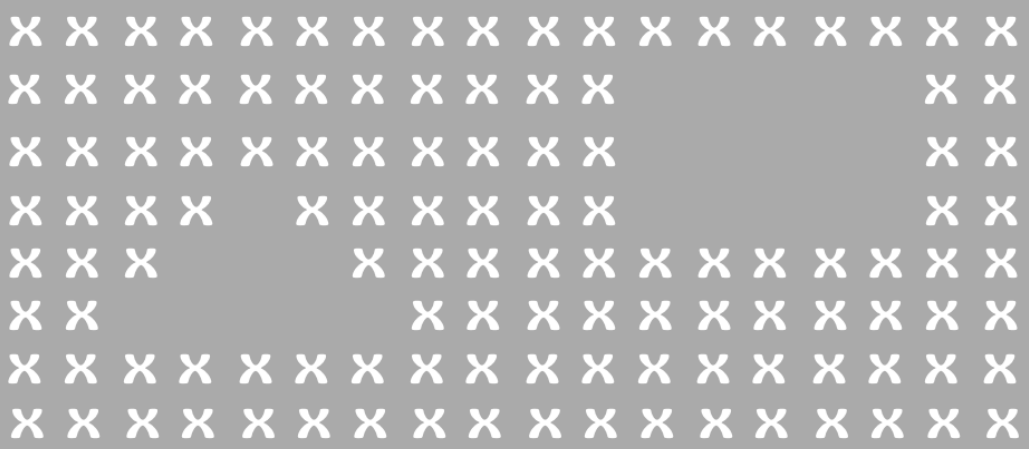
OLYMPIAD - 10/23/23

Of three numbers, 1/2 and 1/3. What should the third number be so that the average of all three is 1?

October 16, 2023

OLYMPIAD - 10/16/23

How many times does x appear in the diagram below?



October 02, 2023

OLYMPIAD - 10/02/23

Suppose all the counting numbers are arranged in columns as shown at below.

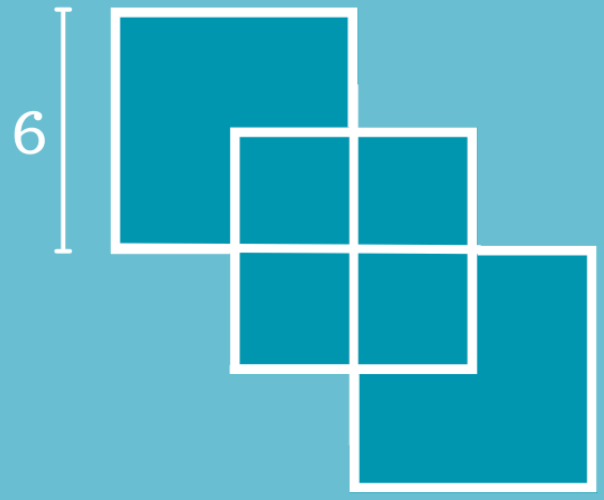
A	B	C	D	E	F	G
1		2		3		4
	7		6		5	
8		9		10		11
	14		13		12	
15		16		...		

Under what column/letter will 300 appear?

September 25, 2023

OLYMPIAD - 9/25/23

Three squares each have sides of length 6 units and overlap each other as shown at the right. The points where the sides cross are midpoints.



Find the area of the shaded figure in square units.

September 18, 2023

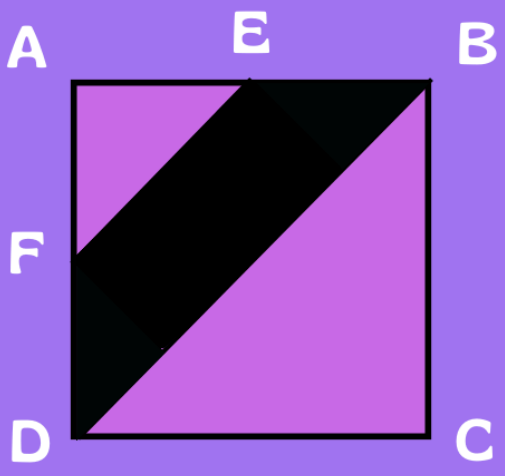
OLYMPIAD - 9/18/23

The age of a man is the same as his wife's age with the digits reversed. The sum of their ages is 99 and the man is 9 years older than his wife. How old is the man?

September 11, 2023

OLYMPIAD - 9/11/23

ABCD is a square with area 16 sq meters. E and F are midpoints of sides AB and BC, respectively.



What is the area of the trapezoid AEFC (the shaded region)?

September 4, 2023

OLYMPIAD - 9/04/23

In a group of 30 high school students, 8 take French, 12 take Spanish and 3 take both languages. How many students of the group take neither French nor Spanish?

August 21, 2023

OLYMPIAD - 8/21/23

Six people participated in a checker tournament. Each participant played exactly three games with each of the other participants. How many games were played in all?

August 7,2023

OLYMPIAD - 8/07/23

If two days ago was Sunday, what day of the week will 365 days from today then be?

July 31, 2023

OLYMPIAD - 7/30/23

The product of two whole numbers is 10,000. If neither number contains a zero digit, what are the two numbers?

July 24, 2023

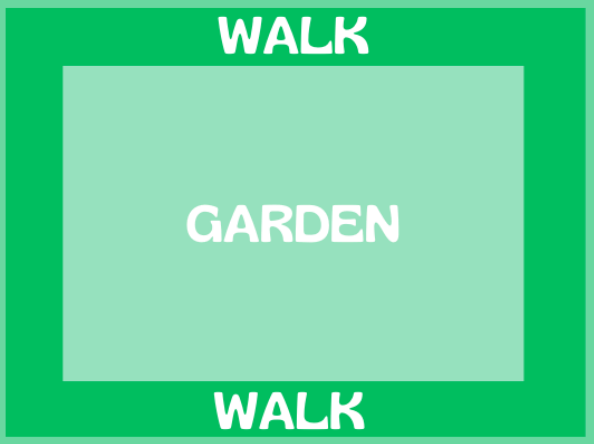
OLYMPIAD - 7/24/23

A number is greater than 10 with the property that, when divided either by 5 or 7, the remainder is 1. What is the smallest odd counting number that has that property?

July 17, 2023

OLYMPIAD - 7/17/23

A rectangular garden is 14 ft. by 21 ft. and is bordered by a concrete walk 3 ft wide as shown.



How many square feet are in the surface area of just the concrete walk?

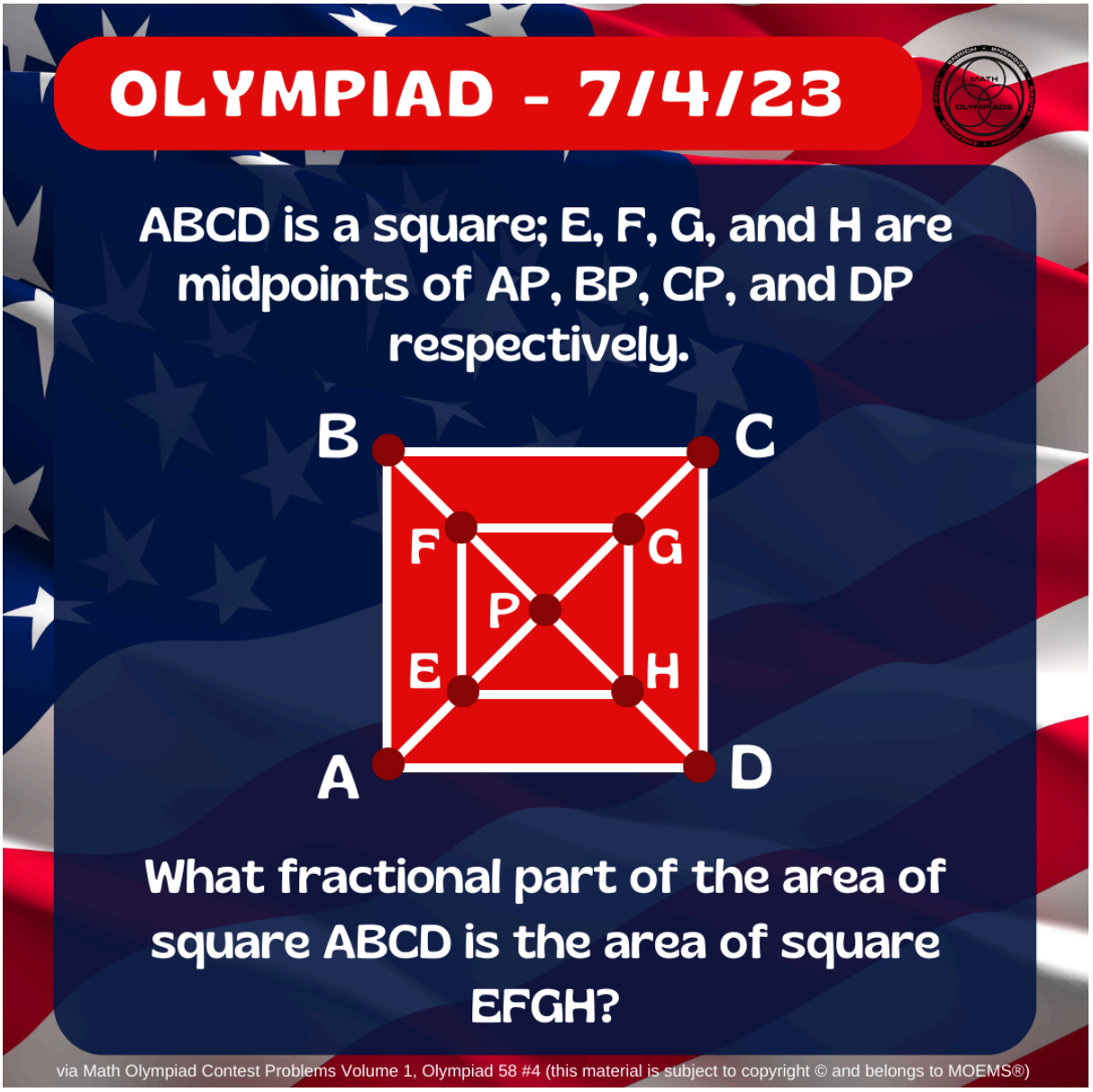
July 10, 2023

OLYMPIAD - 7/10/23

The length of AE is 20 cm. B is the midpoint of AC, C is the midpoint of BD and D is the midpoint of BE.

What is the length of DE in cm?

July 4, 2023


OLYMPIAD - 7/4/23
ABCD is a square; E, F, G, and H are midpoints of AP, BP, CP, and DP respectively.
B
C
F
G
P
E
H
A
D
What fractional part of the area of square ABCD is the area of square EFGH?
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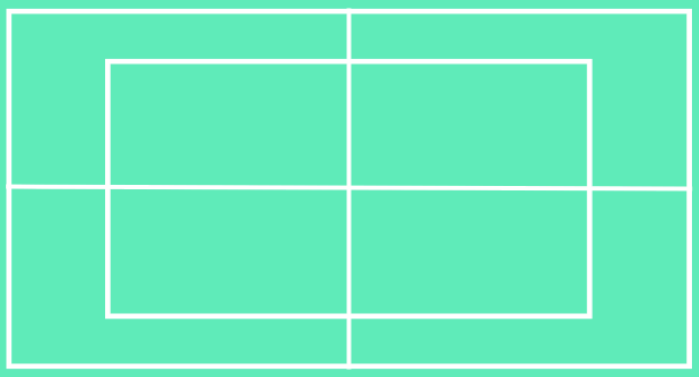
June 26, 2023

OLYMPIAD - 6/27/23

HOW MANY DIFFERENT RECTANGLES



CAN YOU TRACE?

June 19, 2023

OLYMPIAD - 6/19/23

In hoopball, a field goal is worth 2 points and a foul shot is worth 1 point. Suppose a team scored 72 points and made 6 more field goals than foul shots.

How many foul shots did the team make?

June 12, 2023

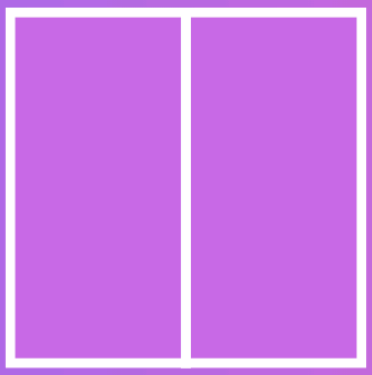
OLYMPIAD - 6/12/23

HOW MANY EVEN NUMBERS BETWEEN 1 AND 101 ARE MULTIPLES OF 3?

June 6, 2023

OLYMPIAD - 6/5/23

A square piece of paper is folded in half as shown and then cut into two rectangles along the fold. The perimeter of the two rectangles is 18 inches.

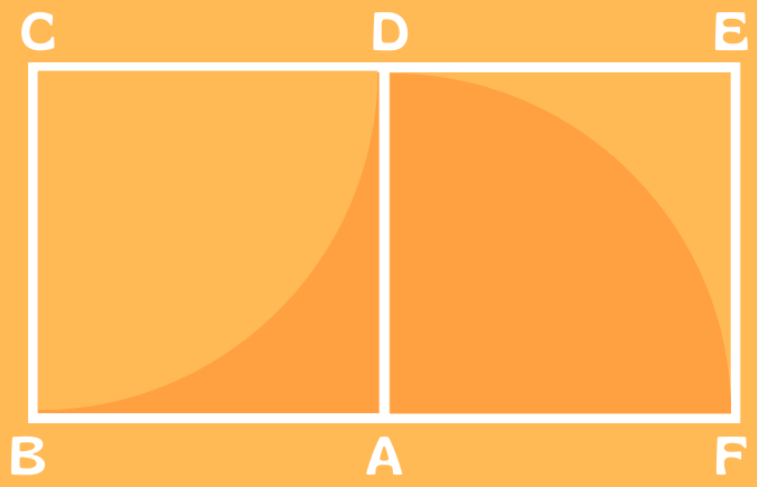


What is the perimeter of the original square?

May 29, 2023

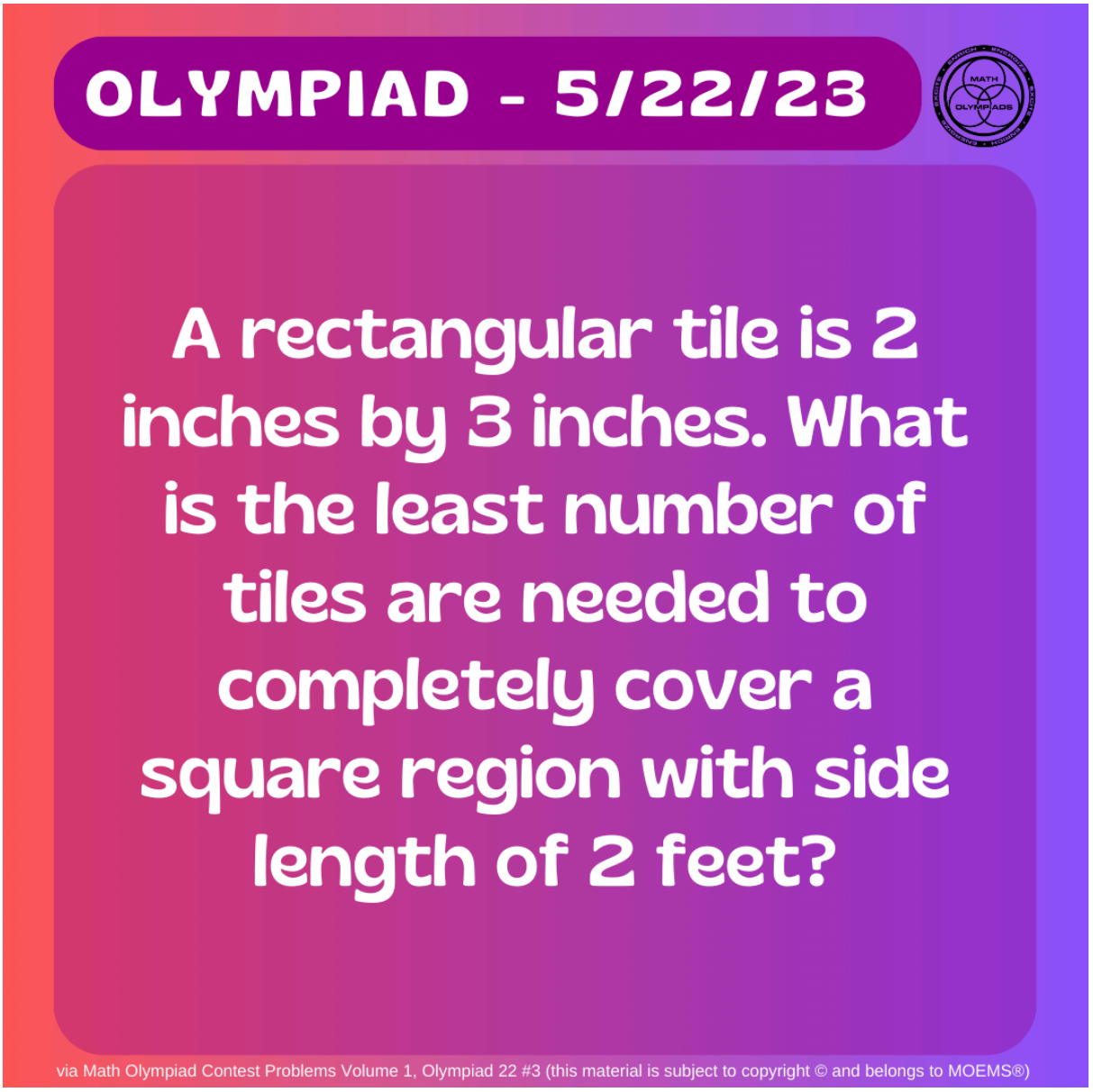
OLYMPIAD - 5/29/23

ABCD and AFED are squares with a common side AD of length 10. Arc BD and arc DF are quarter-circles.



How many square cm are in the area of the shaded region?

May 22, 2023


OLYMPIAD - 5/22/23
A rectangular tile is 2 inches by 3 inches. What is the least number of tiles are needed to completely cover a square region with side length of 2 feet?
via Math Olympiad Contest Problems Volume 1, Olympiad 22 #3 (this material is subject to copyright © and belongs to MOEMS®)

May 15, 2023

OLYMPIAD - 5/15/23

1^2 means 1 x 1, 2^2 means 2 x 2, 3^2 means 3 x 3, and so forth.

$$1^2 + 2^2 + 3^2 + 4^2 + \ldots + 25^2 = 5525$$

and

$$2^2 + 4^2 + 6^2 + 8^2 + \ldots + 50^2 = N$$

Find the value of N

May 8, 2023

OLYMPIAD - 5/8/23

The sum of the weights of Tom and Bill is 138 pounds and one boy is 34 pounds heavier than the other.

How much does the heavier boy weigh?

May 1, 2023

OLYMPIAD - 5/01/23

The square below is divided into four congruent rectangles. The perimeter of each of the four congruent rectangles is 25 units.

How many units are there in the perimeter of the square?

April 24, 2023

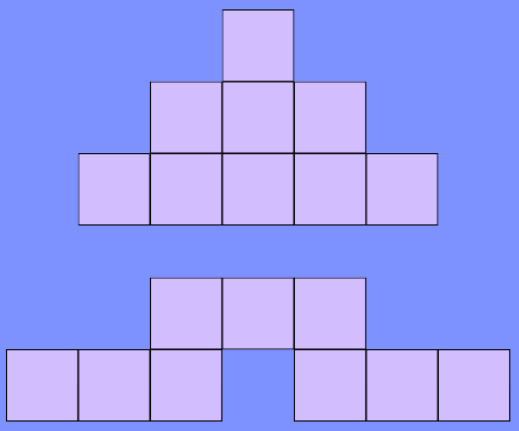
OLYMPIAD - 4/24/23

A train traveling at 30 miles per hour reaches a tunnel which is 9 times as long as the train. If the train takes 2 minutes to completely clear the tunnel, how long is the train?

April 17, 2023

OLYMPIAD - 4/17/23

The small boxes in figures A and B are congruent squares. The perimeter of figure A is 48 inches.



What is the perimeter of Figure B?

April 10, 2023

OLYMPIAD - 4/10/23

Person A was born on January 15, 1948.

Person B was born on January 15, 1962.

If both are alive now, in what year was person A twice as old as person B?

April 4, 2023

OLYMPIAD - 4/03/23

The owner of a bicycle store had a sale on bicycles (two wheelers) and tricycles (three wheelers). Each cycle has two pedals. When he counted the total number of pedals of the cycles, he got 50. When he counted the total number of wheels of the cycles, he got 64. How many tricycles were offered in the sale.

March 27, 2023

OLYMPIAD - 3/27/23

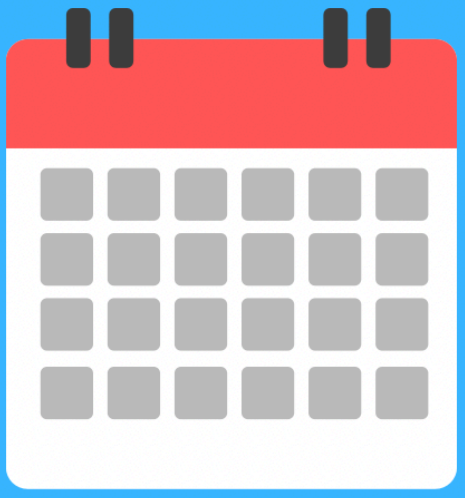
Consecutive numbers are numbers that follow in order. For example: 7, 8, 9, 10, ...

Suppose the average of 15 consecutive numbers is 15. What is the average of the first five numbers?

March 20, 2023

OLYMPIAD - 3/20/23

The month of January has 31 days. Suppose January 1st occurs on a Monday.

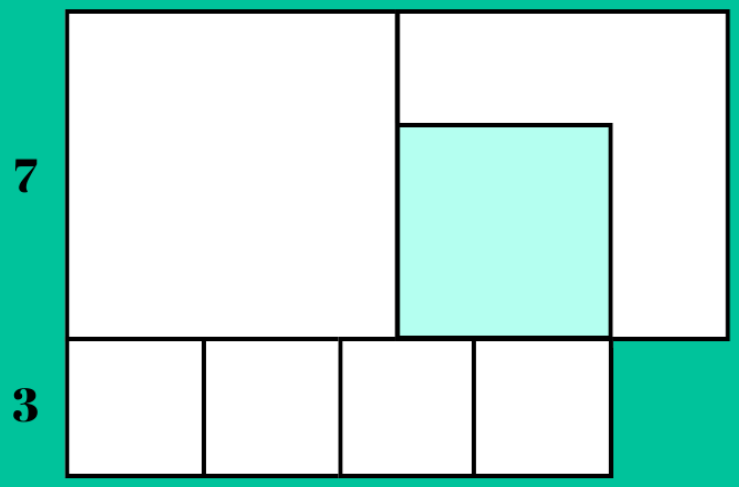


What day of the week is February 22 of the next month?

March 13, 2023

OLYMPIAD - 3/13/23

In the figure below, there are two large congruent squares with sides 7 units long and four small congruent squares with sides of 3 units long.



If the shaded figure is also a square, what is its area in square units?

March 6, 2023

OLYMPIAD - 3/06/23

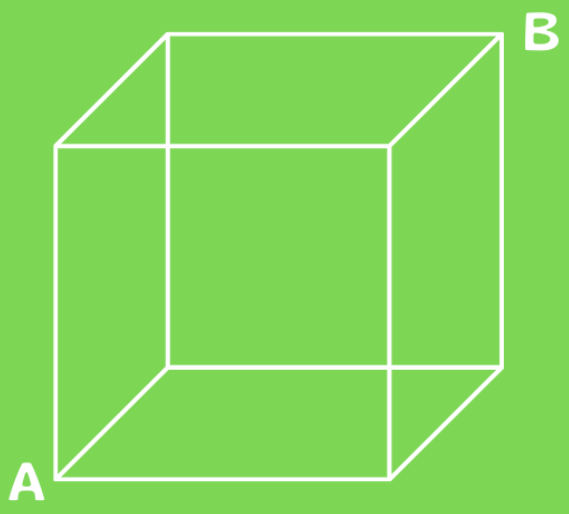
I have exactly ten coins whose total value is $1.

If three of the coins are quarters, what are the remaining coins?

Feb 27, 2023

OLYMPIAD - 2/27/23

The length of the shortest trip from A to B along the edges of the cube is the length of three edges.

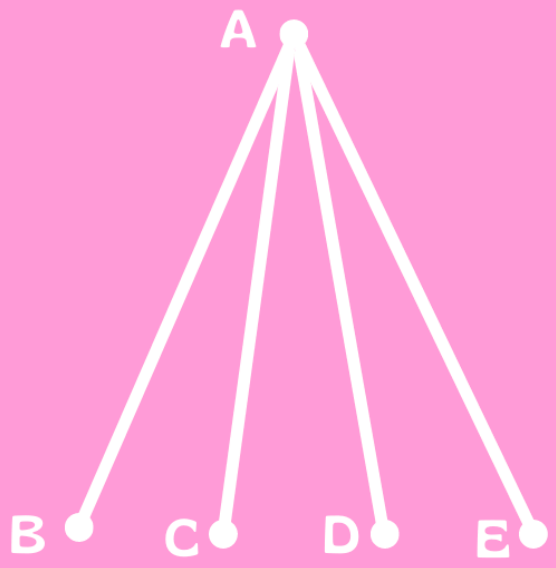


How many different 3-edge trips are there from A to B?

Feb 20, 2023

OLYMPIAD - 2/20/23

An acute angle is an angle whose measure is between 0 and 90 degrees. Using the rays in the diagram, how many different acute angles can be found?



Feb 13, 2023

OLYMPIAD - 2/06/23

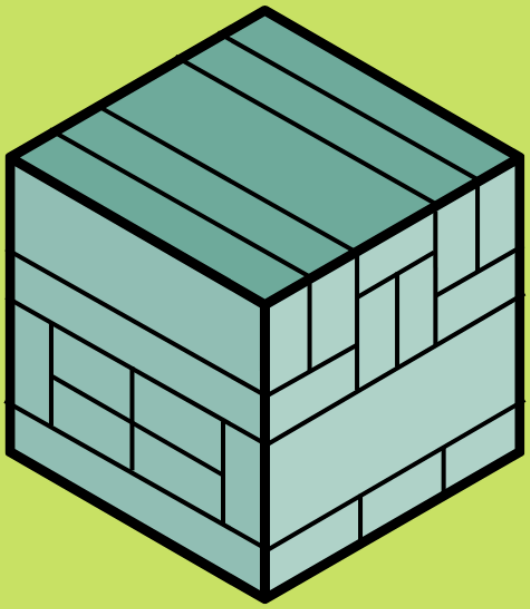
Peter had a 12:00 noon appointment that was 60 miles from his home. He drove from his home at an average rate of 40 miles per hour and arrived 15 minutes late.

At what time did Peter leave home for the appointment?

Feb 6, 2023

OLYMPIAD - 2/06/23

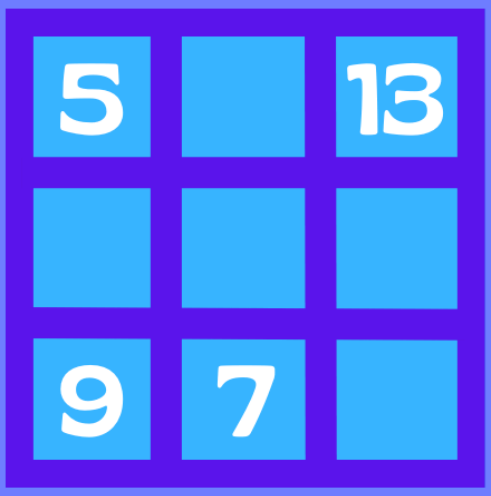
The cube below is constructed of congruent boards, each being the same size and shape. How many boards does the cube contain?



Jan 30, 2023

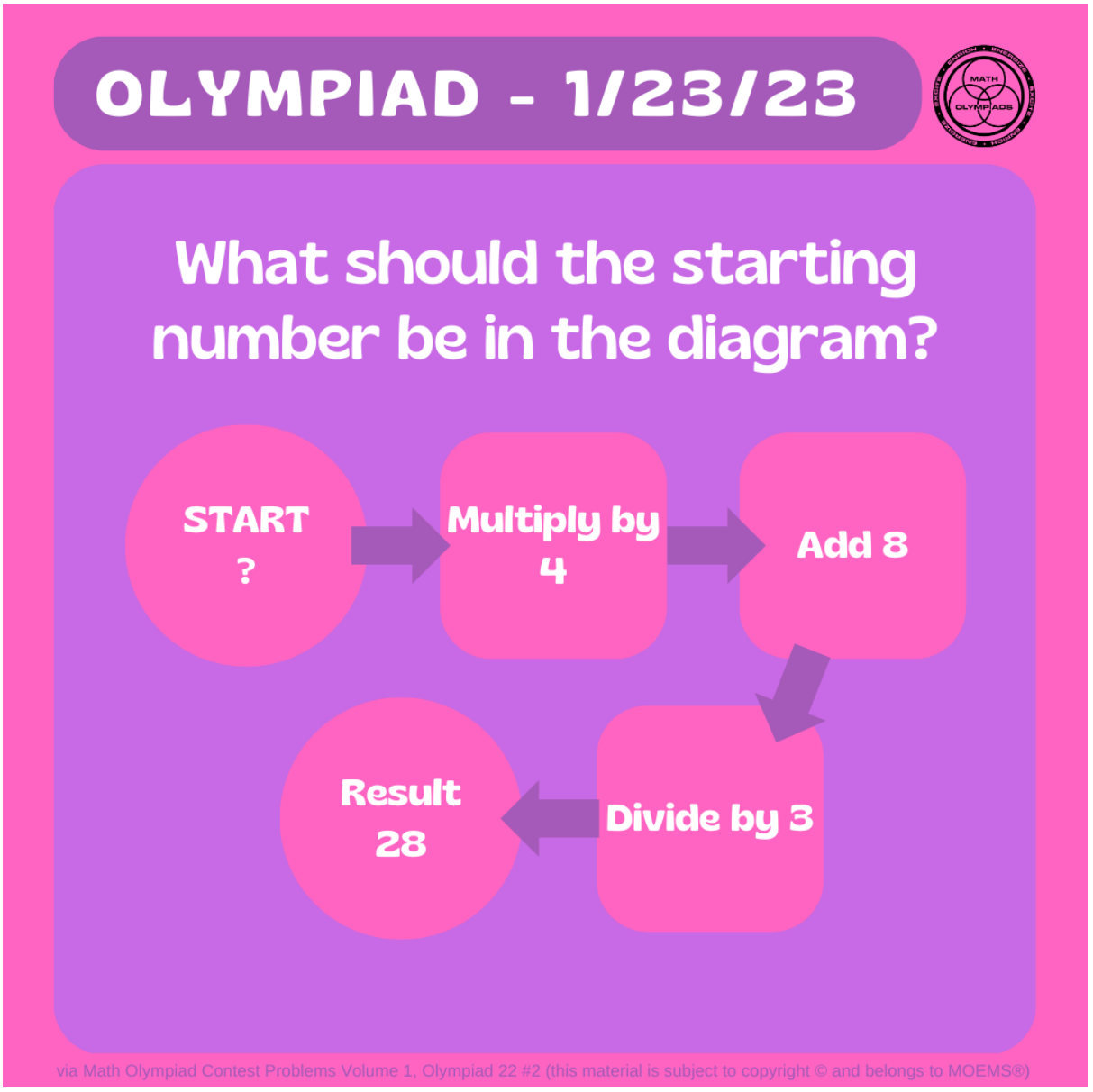
OLYMPIAD - 1/30/23

When certain numbers are placed in the empty boxes, the sum of the three numbers in each of the three rows, three columns, and two diagonals are the same. What number should be in the center box?



Bonus: Find all the missing numbers!

Jan 23, 2023


OLYMPIAD - 1/23/23
What should the starting number be in the diagram?
START
?
Multiply by 4
Add 8
Divide by 3
Result 28
via Math Olympiad Contest Problems Volume 1, Olympiad 22 #2 (this material is subject to copyright © and belongs to MOEMS®)

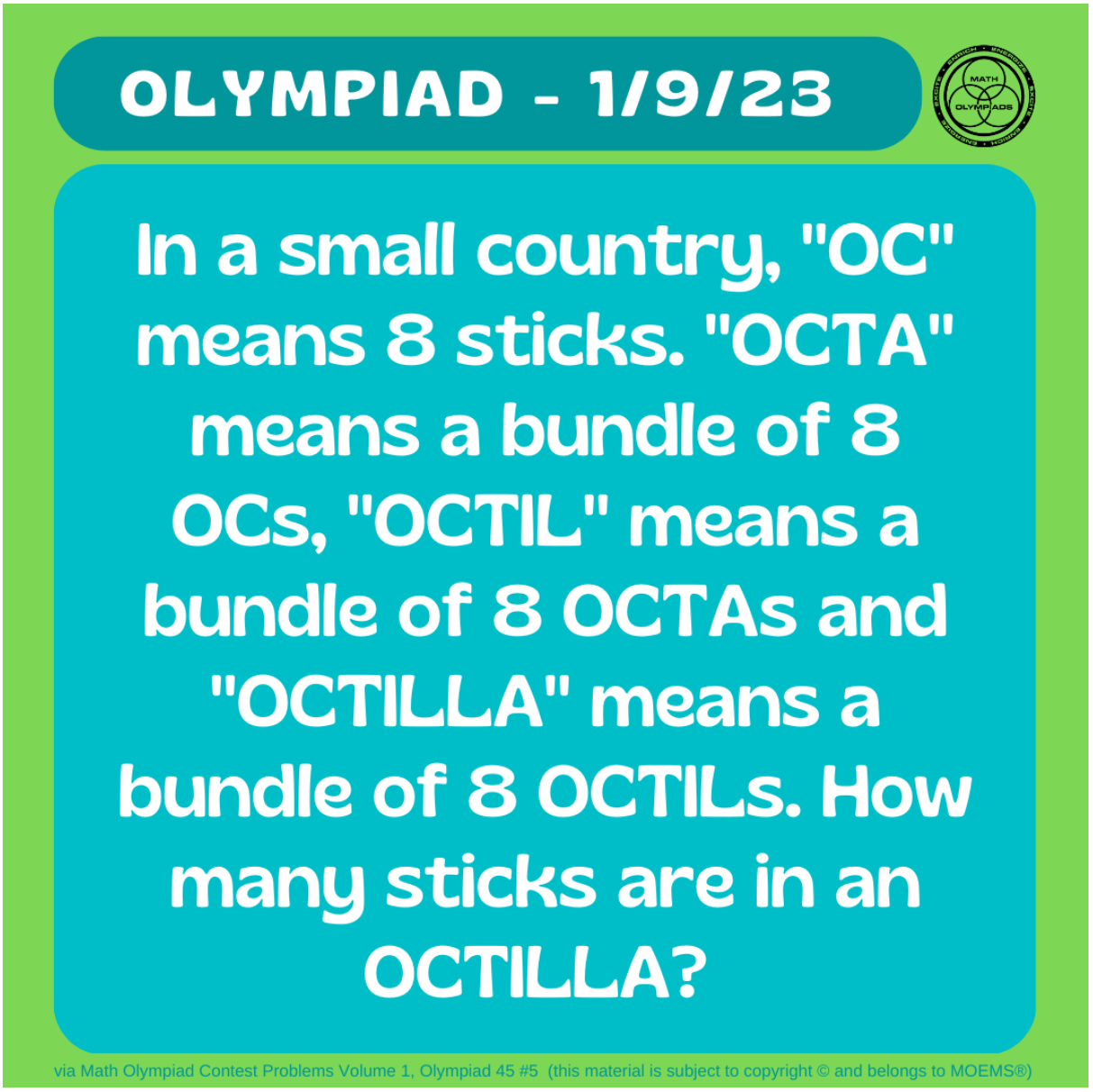
Jan 16, 2023

OLYMPIAD - 1/16/23

In the addition problem below, different letters stand for different digits. What five-digit number does S E R V E represent?

$$\begin{array}{r} V\,C\,R \\ +\;\; V\,C\,C\,T \\ \hline S\,E\,R\,V\,E \end{array}$$

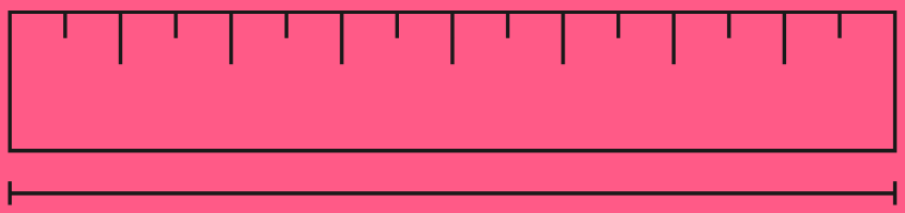
Jan 9, 2023


OLYMPIAD - 1/9/23
In a small country, "OC" means 8 sticks. "OCTA" means a bundle of 8 OCs, "OCTIL" means a bundle of 8 OCTAs and "OCTILLA" means a bundle of 8 OCTILs. How many sticks are in an OCTILLA?
via Math Olympiad Contest Problems Volume 1, Olympiad 45 #5 (this material is subject to copyright © and belongs to MOEMS®)

Jan 2, 2023

OLYMPIAD - 12/26/22

A4273B is a six-digit number in which A and B are digits, and the number is divisible by 72 with no remainder. Find the value of A and B.



December 26

OLYMPIAD - 12/26/22

The average of 6 numbers is 7. If two of the six numbers are removed, the average of the remaining numbers is 8. What is the sum of the two numbers which were removed?

December 19

OLYMPIAD - 12/19/22

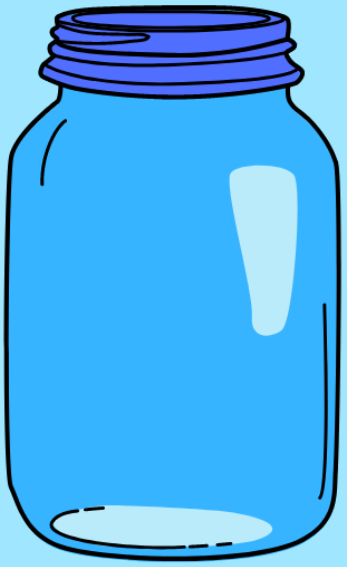
Consecutive numbers are whole numbers that follow in order such as 7, 8, 9, 10, 11, 12. Find three consecutive numbers such that the sum of the first and third is 118.

December 12

OLYMPIAD - 12/12/22

A jar filled with water weighs 10 pounds.

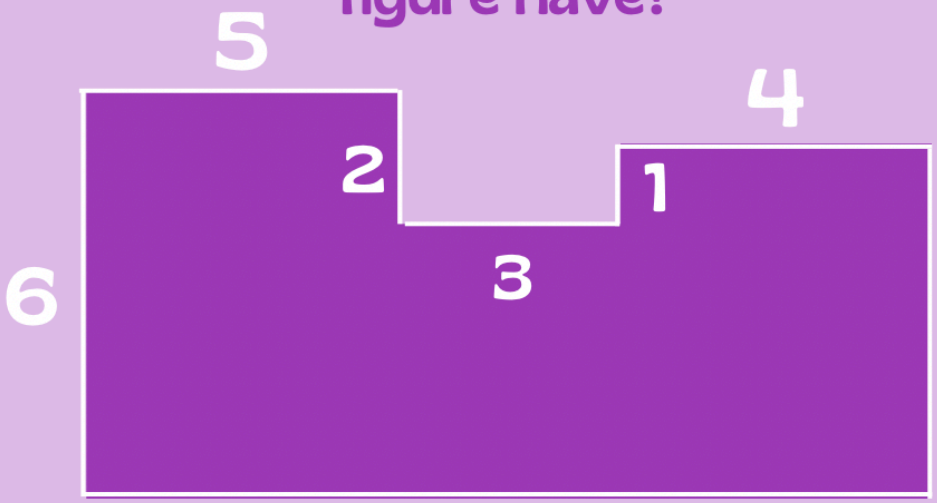
When one half of the water is poured out, the jar and the remaining water weigh $5\frac{3}{4}$ lbs. How much does the jar weigh?



December 5

OLYMPIAD - 12/5/22

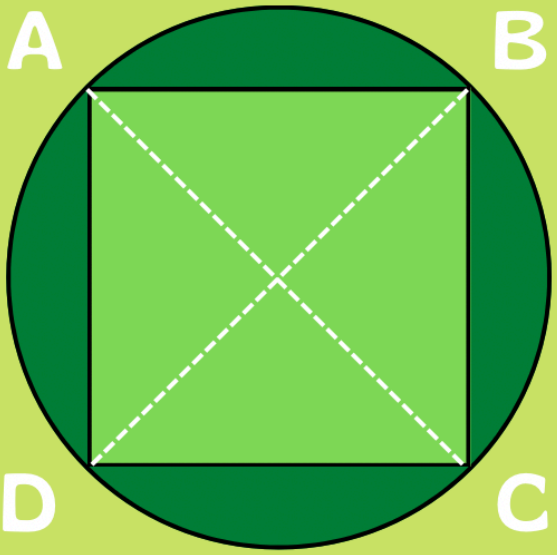
In the figure below, all corners are right angles and each number represents the unit length of the segment which is nearest to it. How many square units of area does the figure have?



November 28

OLYMPIAD - 11/28/22

Square ABCD has all four of its vertices on a circle with diameter 10 units in length. Segments AC and BD are diagonals. How many square units of area does square ABCD have?



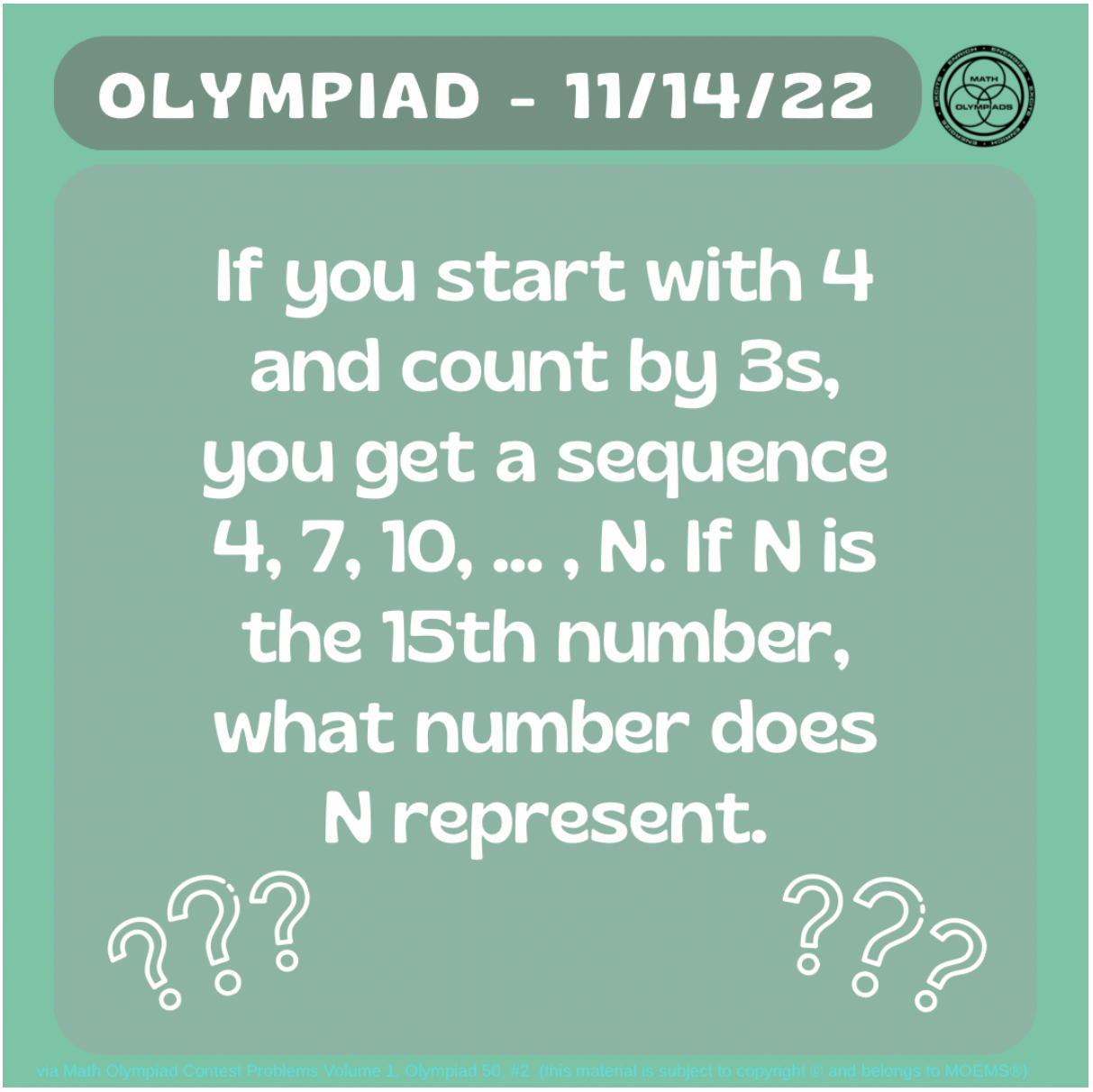
November 21

OLYMPIAD - 11/21/22

The fraction below is an extended fraction. What is the simplest form of this fraction?

$$\cfrac{1}{1+\cfrac{1}{2+\cfrac{1}{3}}}$$

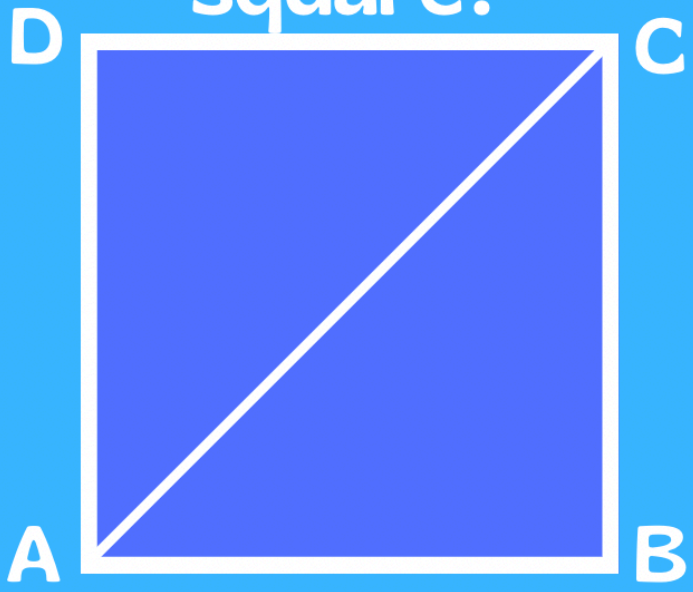
November 14


OLYMPIAD - 11/14/22
If you start with 4 and count by 3s, you get a sequence 4, 7, 10, ... , N. If N is the 15th number, what number does N represent.
via Math Olympiad Contest Problems Volume 1, Olympiad 50, #2 (this material is subject to copyright © and belongs to MOEMS®)

November 7

OLYMPIAD - 11/07/22

ABCD is a square with diagonal AC 8 units long. How many square units are in the area of the square?



October 31

OLYMPIAD - 10/31/22

When Frankenstein, Dracula, and a mummy compared the amount of candy they got on halloween, they discovered that Frankenstein and Dracula together had 12 pieces, Dracula and the mummy together had 18 and Frankenstein and the mummy together had 10. Who has the least amount of candy, and how much is it.

October 24

OLYMPIAD - 10/24/22

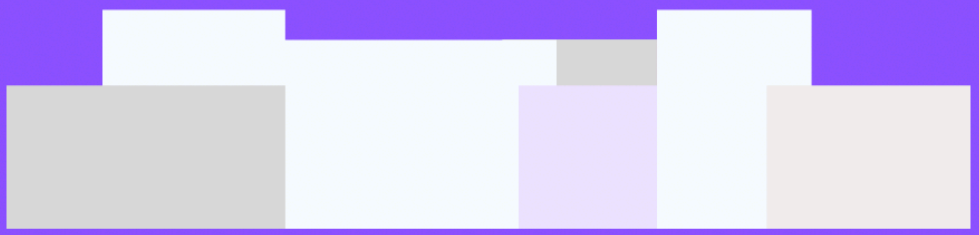
The product of two numbers is 504 and each of the two numbers is divisible by 6. However, neither of the two numbers is 6. What is the larger of the two numbers?

???

October 17

OLYMPIAD - 10/17/22

The perimeter of a rectangle is 22 inches and the inch-measure of each side is a counting number. How many different areas in square inches could the rectangle have?



October 10

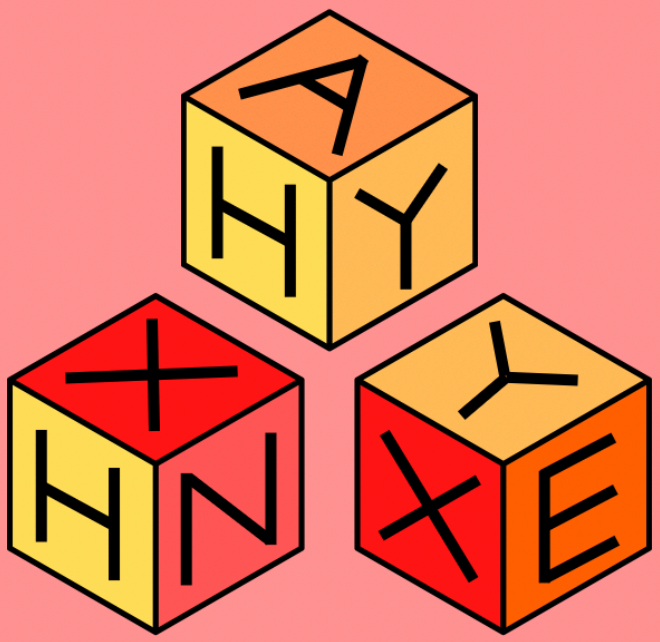
OLYMPIAD - 10/10/22

A group of 21 people went to the county fair with 9 people on a stagecoach and 3 people in each buggy. On the return trip, 4 people rode in each buggy. How many people returned on the stagecoach?

October 3

OLYMPIAD - 10/3/22

Below there are three views of the same cube.

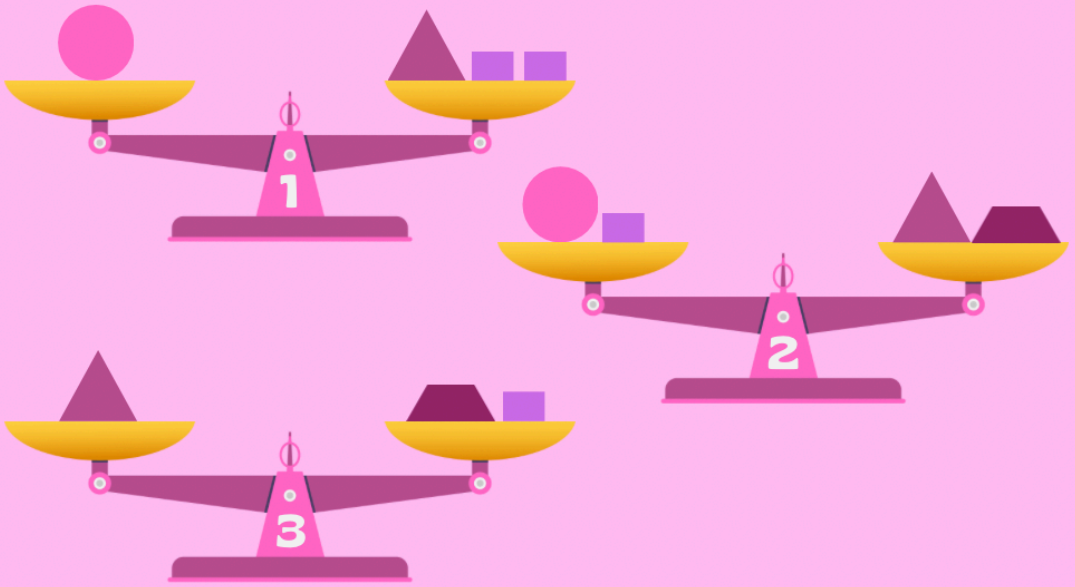


What letter is on the face opposite (1) H, (2) X, (3) Y ?

September 26

OLYMPIAD - 9/26/22

Each of the three diagrams below shows a balance of weights using different objects.



How many ▬ s will balance a ● ?

September 19

OLYMPIAD - 9/19/22

Suppose all the counting numbers are arranged in columns as shown at below.

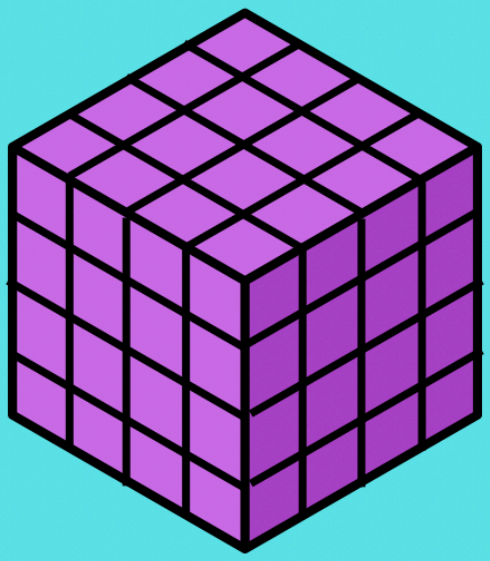
A	B	C	D	E	F	G
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	-	-

Under what column/letter will 1000 appear?

September 12

OLYMPIAD - 9/12/22

The complete outside (including the bottom) of a wooden 4 inch cube was painted purple. The painted cube was then cut into 1 inch cubes.

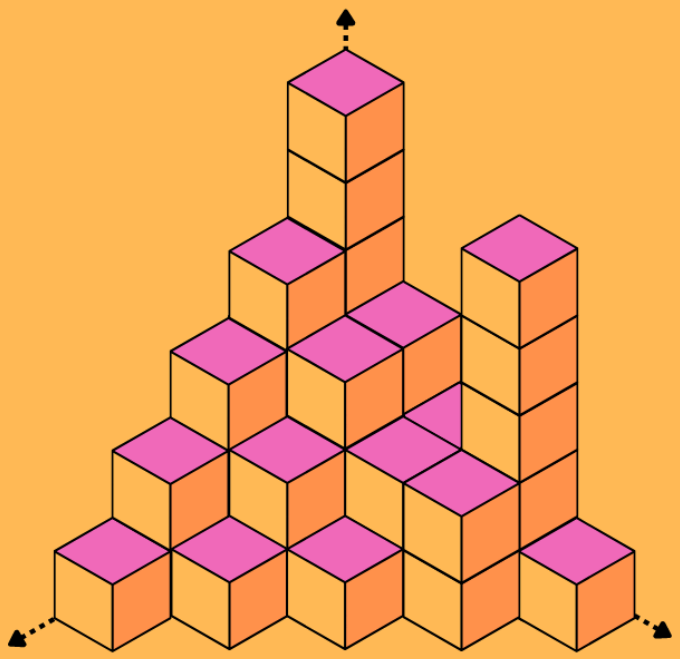


How many of the 1 inch cubes do not have purple paint on any face?

September 5

OLYMPIAD - 9/5/22

The structure below is made of unit cubes piled on top of each other. Some cubes are not visible.



What is the number of cubes in the structure?