

Aplusclick Best Brainteasers 2024

AplusClick online project helps children and adults to become problem solvers. The website aplusclick.org features 17,000+ challenging problems. The brainteasers concentrate on understanding, spatial reasoning, usefulness, and problem solving rather than math rules and theorems. The problems include a short description and an illustration to help problem solvers visualize the model. Most of the problems can be solved within one minute and without using a calculator. The answer can be found by a link after the question. This is a collection of new brainteasers with answers that were added to the website in 2024.

Questions

1. Two identical squares intersect and form four colored triangles.

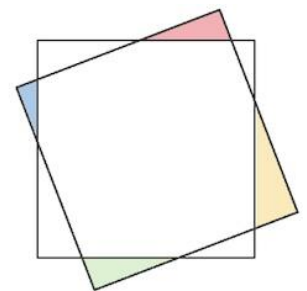
The areas of three of them are:

blue - 36 cm^2 ,

red - 64 cm^2 ,

yellow - 100 cm^2 .

Find the area of the green triangle.



Answer: aplusclick.org/t.htm?q=17100

2. It takes Jane 1 hour to walk to school and return by bus. It takes her 20 minutes if she takes the bus both ways.

How long does her journey last if she walks both ways?



Answer: aplusclick.org/t.htm?q=17099

3. Gerry wanted to buy several toy cars for his collection for \$216.

Each of the cars costs the same whole number of dollars.

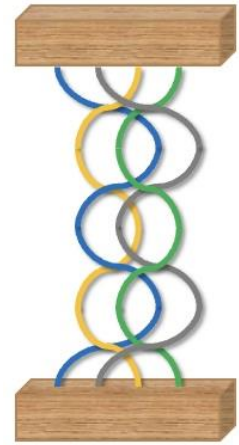
After a long negotiation with the shop owner, the price per car drops down by \$1, and Gerry gets 3 more toy cars for the same total price.

How many toy cars does he buy for \$216?



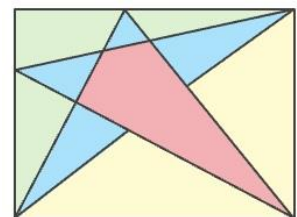
Answer: aplusclick.org/t.htm?q=17097

4. If we pull up the top wooden block, how many of the four colored ropes of the same length will be straight without knots with other ropes?



Answer: aplusclick.org/t.htm?q=17095

5. Which area of the large rectangle is equal to the red area?



Answer: aplusclick.org/t.htm?q=17087

6. Jane took a 60-day consecutive unpaid leave from the 20th of one month until the 20th of another month.

When did she come back?



Answer: aplusclick.org/t.htm?q=17082

7. Two pirates Grady Greedy and Sonny Smarty divide golden coins.

Grady Greedy suggests to split the coins according to a simple rule:
"Round 1: one coin to you, two coins to me.
Round 2: three coins to you, four coins to me.
And so on."



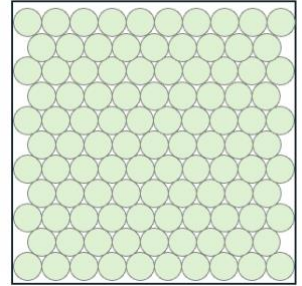
Sonny Smarty agrees and adds the condition that the share is fair even if only one of them gets the coins in the last round.

Sonny gets eleven coins more than Grady at the end.

How many coins do they divide?

Answer: aplusclick.org/t.htm?q=17081

8. We can put 105 round pencils with a diameter of 1 cm into a box with the 10x10 cm cross-section.

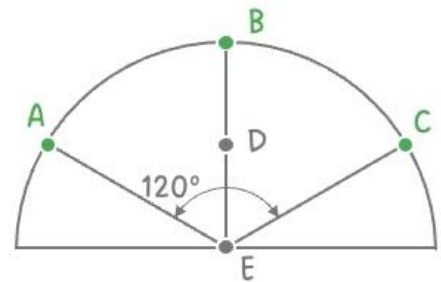


We also have hexagonal pencils with the same sizes (the hexagon is on a circle with the diameter of 1 cm).

How many hexagonal pencils can we put in the same box?

Answer: aplusclick.org/t.htm?q=17072

9. Three friends Annie, Bennie, and Cannie are at the green points of a large circle. They want to walk to a point so that the sum of the walking distances is the smallest.



At which point should they meet?

Answer: aplusclick.org/t.htm?q=17069

10. A flock of pigeons flew up to a tall tree. Some of them sat on the tree, whilst the rest sat on the ground under the tree.



The pigeons on the tree said to the others, "If one of you moves up here onto the tree, you will then be three times less than all the pigeons in the flock."

The pigeons under the tree said to the others, "If one of you comes down here, you will then be as many as us down here."

How many pigeons were there under the tree?

Source : Arabic fairy tale *One Thousand and One Nights*, Night 458

Answer: aplusclick.org/t.htm?q=17060

11. Three runners competed in several races.

Lillian beat Nathan in most of the races.
Nathan beat Charlie in most of the races.
Charlie beat Lillian in most of the races.



Which is the smallest possible number of races in which they competed?

Answer: aplusclick.org/t.htm?q=17059

12. A rooster was born on January First, year 5 BC and died on January First, year 5 AD.

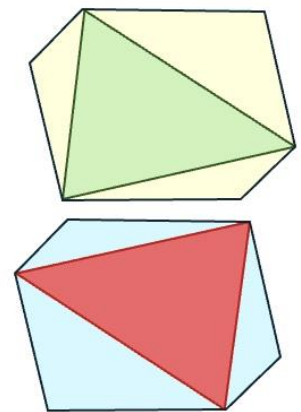
How many years did he live?



Answer: aplusclick.org/t.htm?q=17057

13. The picture shows two congruent (identical) hexagons with 3 pairs of parallel opposite sides of equal lengths.

Which area is the greatest?



Answer: aplusclick.org/t.htm?q=17053

14. $29A + 30B + 31C = 366$

What is the sum of the three positive whole numbers A, B, and C?



Answer: aplusclick.org/t.htm?q=17046

15. In a country with old traditions, several people enjoy a lunch in a restaurant and pay the total of \$175.

The men suggest that the two women do not pay, so that each of the men pays \$10 more.

How many men are there?



Answer: aplusclick.org/t.htm?q=17042

16. Three brothers who lived in the old German city of Köln decided to equally share 9 amphorae of grain without opening them.



The first amphora contains 1 quart of grain,
the second amphora 2 quarts of grain,

...
the ninth amphora 9 quarts of grain.

How many different ways were there to equally share the 9 amphorae among the three brothers?

This is a problem from an old 13th century German book

Answer: aplusclick.org/t.htm?q=17041

17. A rich merchant divides 20 gold coins into two piles. He promises the largest pile to Aladdin if Aladdin can say how many coins are in the largest pile.



Aladdin knows that the product of the numbers of coins in the two piles is 96.

How many coins does Aladdin receive?

Answer: aplusclick.org/t.htm?q=17039

18. A magician suggests that you choose a number from the set $\{ 1, 2, 3, 4, 5, 6 \}$ before throwing 3 fair dice. If you get at least one of your chosen number then you win.



Estimate the probability of your win.

Answer: aplusclick.org/t.htm?q=17038

19. A problem from the ancient tractate *Bava Batra*



Five houses with inner yards are connected by a single passage.

Adam pays for the maintenance of the first yard.

Bram pays for the maintenance of the first and second yards.

Chayam pays for the maintenance of the first, second and third yards.

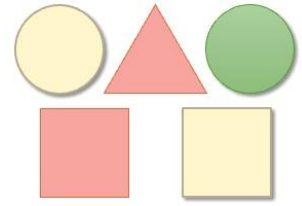
Dan pays for the maintenance of the first, second, third and fourth yards.

Eitan pays a fraction of the maintenance of the first four yards, as well fully paying for the fifth yard.

What fraction of the total maintenance fees does Eitan pay?

Answer: aplusclick.org/t.htm?q=17036

20. Two intelligent teenagers, Jane and Gerry, play a game.



A magician puts a prize under one of the figures and secretly tells its color to Jane and its shape to Gerry.

1. He asks them
"Does somebody know where the prize is?"
Both of them answer "No".
2. He asks them again
"Does somebody know where the prize is?"
Both of them answer "No".
3. He asks them again
"Does somebody know where the prize is?"
Both of them answer "Yes".

Under which shape is the prize?

This is a problem from entrance exams of the Oxford University.

Answer: aplusclick.org/t.htm?q=17026

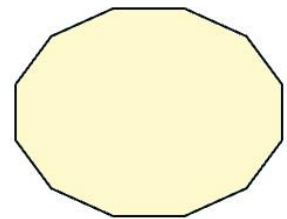
21. Twelve people carried 12 loaves: each man carried 2 loaves, each woman one, and each child a quarter.



How many women were there?

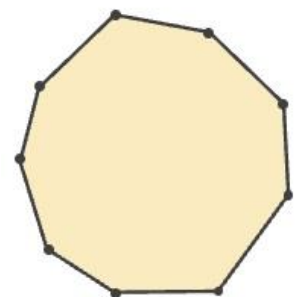
Answer: aplusclick.org/t.htm?q=17022

22. What is the largest number of right angles (90°) that can be in a 12-sided polygon (dodecagon)?



Answer: aplusclick.org/t.htm?q=17021

23. What is the largest possible number of acute angles ($< 90^\circ$) that can be in a nonagon (9-sided polygon)?



Answer: aplusclick.org/t.htm?q=17015

24. I have three buckets with 12, 8, and 5 liters when they are full.

There are 12 liters of milk in the largest bucket, but I need only 6 liters to give to a cook.

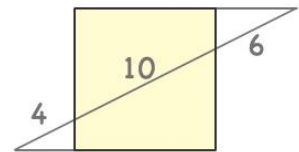


How many times do I need to pour the milk from one bucket into another one?

NOTE: There is to be no guessing. At each step either the receiving bucket is filled or the pouring bucket is emptied.

Answer: aplusclick.org/t.htm?q=17011

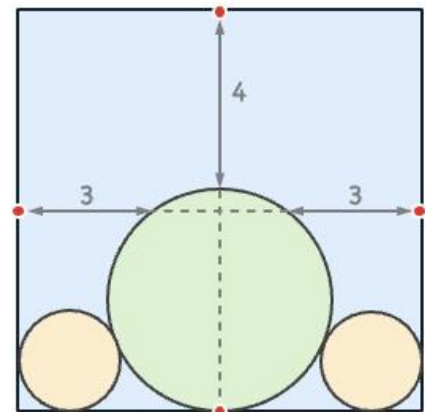
25. Find the area of the yellow square.



Answer: aplusclick.org/t.htm?q=17003

26. The red dots are midpoints of the four sides of a square. All sizes are in cm.

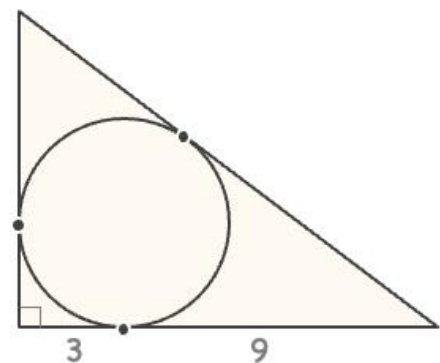
Find the side length of the square.



Answer: aplusclick.org/t.htm?q=16991

27. The inscribed circle divides a leg of the right-angled triangle into two line segments with the lengths of 3 cm and 9 cm.

Find the area of the right-angled triangle.



Answer: aplusclick.org/t.htm?q=16990

28. A painter wanted to mix 2 liters of red paint with 3 liters of green paint to make yellow paint. However, by mistake he used 3 liters of red and 2 liters of green so that he made the wrong shade of yellow.

How much of green paint should he add to the mix to obtain the correct shade of yellow?



Answer: aplusclick.org/t.htm?q=16984

29. I would like to open a ring so that all rings are separated.

Which ring do I need to open?

Three of the links look like Borromean rings that are used in the coat of arms of the aristocratic Borromeo family in Northern Italy.



Answer: aplusclick.org/t.htm?q=16982

30. There are 13 men attending a meeting of tall people. They decide that each person shakes hands only with someone who is shorter than him.

How many handshakes will take place?



Answer: aplusclick.org/t.htm?q=16976

31. The owner of a grocery shop says that I am lucky to choose today for shopping because

yesterday a bowl of cherries cost 50% more, a bowl of apricots cost 60% more, and a bowl of red currants cost 70% more making the total of the three bowls cost \$20.



Tomorrow a bowl of cherries will cost 50% more, a bowl of apricots will cost 40% more, and a bowl of red currants will cost 30% more making the total of the three bowls cost \$16.

How much should I pay for the three bowls today?

Answer: aplusclick.org/t.htm?q=16966

36. I only wrote those numbers whose sum of digits is evenly divisible by 5:

5, 14, 19, 23, 28, 32, 37, 41, . . .

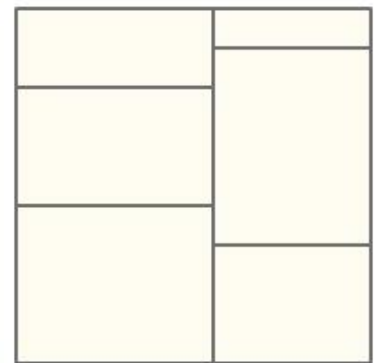
What is the smallest possible difference between two consecutive numbers in the line?

Answer: aplusclick.org/t.htm?q=16927

FIVE

37. I cut the yellow square into 6 rectangles.

How many times is the sum of perimeters of the rectangles greater than the perimeter of the original square?



Answer: aplusclick.org/t.htm?q=16925

38. $1 \times 2 \times 3 \times 4 \times \dots \times 37 - 1 \times 3 \times 5 \times 7 \times \dots \times 37$

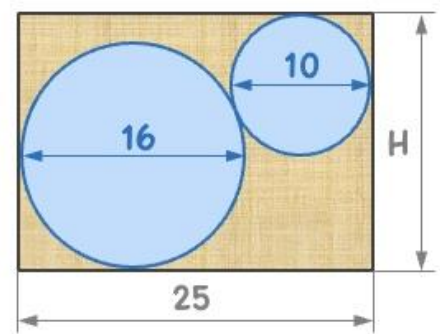
What is the last digit of the result?



Answer: aplusclick.org/t.htm?q=16923

39. Two jars with diameters 16 cm and 10 cm are inside a rectangular box with the length of a side equal to 25 cm.

What is the length of the other side of the box?



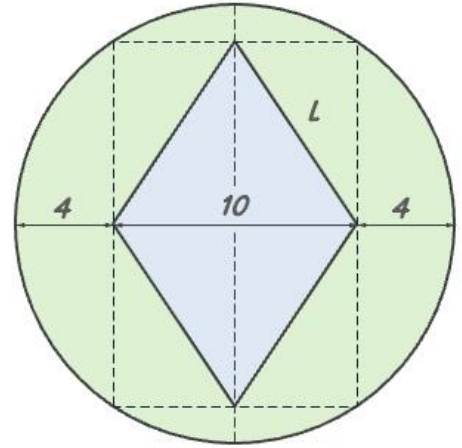
Answer: aplusclick.org/t.htm?q=16914

40. The picture shows a plan of a rhomb-shaped pool inside a circular lawn.

Three sizes along the horizontal line in the circle are 4, 10, and 4 meters.

Estimate the side length of the pool, L .

Inspired by one of Martin Gardner's puzzles.



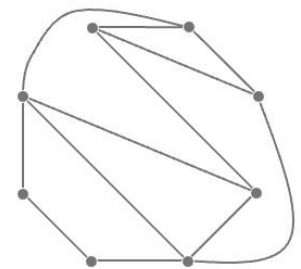
Answer: aplusclick.org/t.htm?q=16910

41. The picture shows a map of roads between cities on an island.

A salesman wants to visit each of the 8 cities once, and then return to the first one.

How many different ways to travel are there for him?

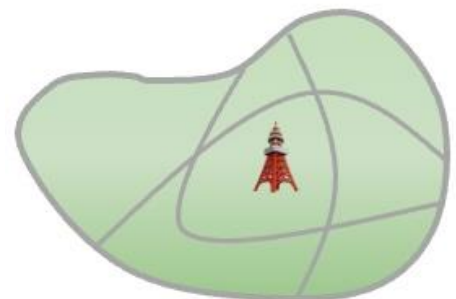
The same route clockwise and anti-clockwise is counted as one.



Answer: aplusclick.org/t.htm?q=16899

42. There are three paths in a park. An observation tower is situated in the center of the park.

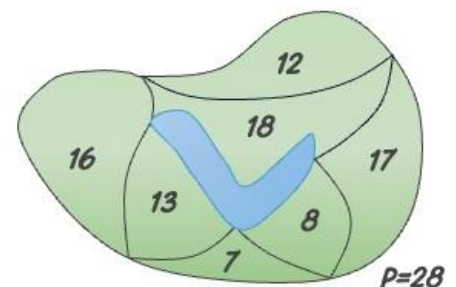
What is the smallest number of observation towers that have to be added so that there are the same number of towers on either side of each path?



Answer: aplusclick.org/t.htm?q=16888

43. National park "Lake Forest" is divided into 7 sectors. The picture shows the perimeters of the sectors and the external perimeter of the park, P , in miles.

What is the perimeter of the lake?

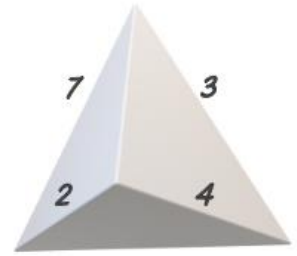


Answer: aplusclick.org/t.htm?q=16885

44. A triangular pyramid has edges of integer length.

Four of the six lengths are as shown in the picture.

What is the sum of the lengths of the two other edges?

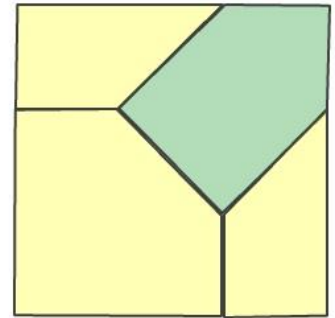


Answer: aplusclick.org/t.htm?q=16882

45. The picture shows a square that is cut into a convex pentagon and three convex quadrilaterals. Cut a paper square into several convex pentagons.

What is the least possible number of pentagons?

All interior angles in a convex polygon measure less than 180 degrees.



Answer: aplusclick.org/t.htm?q=16876

46. Gerry bought a square piece of land that is 57 x 57 meters.

He wants to plant apple trees in rows so that the distance between rows is 10 meters and the distance between trees in a row is also 10 meters.

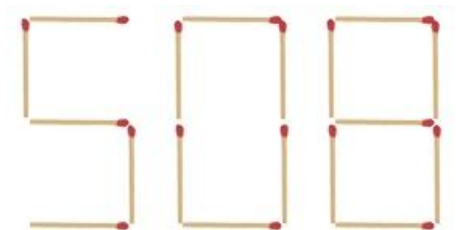


What is the largest possible number of trees he can plant?

Answer: aplusclick.org/t.htm?q=16867

47. Move two matchsticks to make the largest possible number.

What maximum number can you form?



Answer: aplusclick.org/t.htm?q=16865

48. The matchsticks form two Roman numbers 7 and 1.

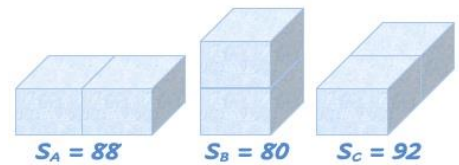
Move just one matchstick to make the equality correct.

Which matchstick do you move?



Answer: aplusclick.org/t.htm?q=16864

49. The picture shows three sets of two identical ice blocks and their corresponding surface areas in square inches.



The set of ice blocks with the largest surface area melts fastest.

What is the surface area of a single block?

Answer: aplusclick.org/t.htm?q=16847

50. Gerry paid \$123 for 3 presents.

The first present costs \$100 more than the second present.

The second present costs \$10 more than the third present.

How much does the third present cost?



Answer: aplusclick.org/t.htm?q=16843

51. How many bottles can you place on a table so that the distance between any two blue covers is the same?

Find the largest possible number of bottles.



Answer: aplusclick.org/t.htm?q=16838

52. A rich man promised 12 camels and a riding horse to a poor man if he would herd all the animals of the rich man for one year.

The poor man worked hard for 7 months, but then decided to quit.

The rich man gave him the horse and 5 camels.

What is the value of the horse compared to camels?



Answer: aplusclick.org/t.htm?q=16837

53. Water expands when it freezes by approximately 1/11 of its volume.

How does the volume of the ice decrease when it melts?



Answer: aplusclick.org/t.htm?q=16835

54. Twelve teenagers, all of different heights, stand in a circle.

Each person who is taller than both his/her neighbors raises their right hand.

Each person who is shorter than both his/her neighbors raises their left hand.

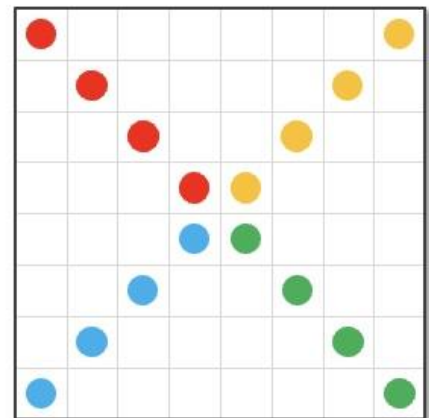
What is the smallest number of raised hands that can be seen?



Answer: aplusclick.org/t.htm?q=16817

55. Cut a 8x8 square into four congruent polygons along the grey lines of the grid so that each of them includes four points of different colors.

How many sides does the polygon have?



Answer: aplusclick.org/t.htm?q=16806

56. Once upon a time, a man decided that the time displayed on the village church clock (4:10 p.m) was wrong, although the clock still seemed to be running correctly. He went to a nearby village, and noted the correct time was 4:30 p.m. before returning. The clock in his village showed 5:20 p.m. on his arrival.

Which time did he set on the clock?



Answer: aplusclick.org/t.htm?q=16801

57. Alex, Bill, and Carl paved a path from their village to a lake. Alex delivered 20 lorries of gravel, Bill delivered 25 lorries of gravel. Carl was unable to provide gravel, so instead paid the others \$9,000 as his fair share.



What is Alex's share of the money?

Answer: aplusclick.org/t.htm?q=16790

58. A positive integer number ends by digit 4.

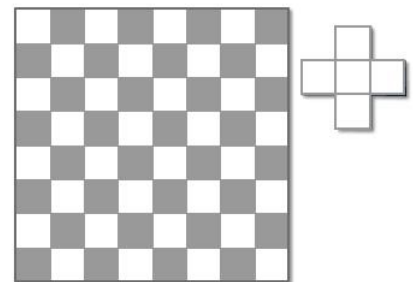
We move the last digit (4) from the end to the beginning and get a number that is 4 times greater than the original number.



How many digits does the original number have?

Answer: aplusclick.org/t.htm?q=16785

59. We cut 5-square crosses out of the chessboard. The cuts are not necessarily along the sides of the small squares.



What is the largest number of crosses we can obtain?

Answer: aplusclick.org/t.htm?q=16761

60. With a diameter of 2,159 miles (3,475 kilometers), the Moon is just 1/4 the size of Earth. The Moon's average distance from Earth is 238,000 miles (383,500 km).

What is greater: the Moon's diameter or its shadow on Earth's surface (where the Sun is completely blocked) during the solar eclipse?



Answer: aplusclick.org/t.htm?q=16747

61. Take the four-digit year of your birth and subtract the sum of its digits. The result is evenly divisible by number N .

Find the smallest possible value N , that is valid for all everyone.



Answer: aplusclick.org/t.htm?q=16737

62. Ann and Ben play a game. Ann starts first and chooses a number from the list: 1, 2, 3, 4.

Ben does the same and adds her number from the list to Ann's number.

Then Ann adds a new number from the list and adds to Ben's result.

They continue until the first obtains 77.



Who has a winning strategy?

Answer: aplusclick.org/t.htm?q=16736

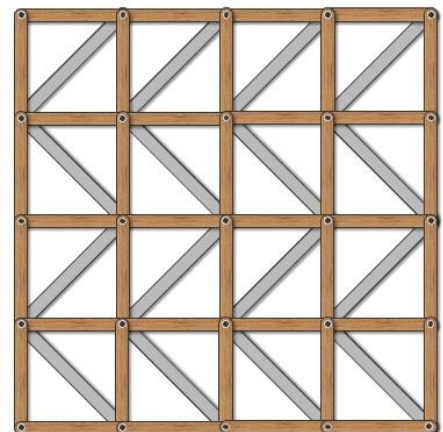
63. What is expected number of coin tosses to get three consecutive heads?



Answer: aplusclick.org/t.htm?q=16725

64. Wooden beams, joined at their ends, form a 5×5 grid. We braced the grid with diagonal metallic (grey) segments to keep the structure rigid in the plane.

Find the largest number of diagonal segments that can be removed without losing the rigidity of the structure.



Answer: aplusclick.org/t.htm?q=16719

65. You are walking to your gate at an airport and need to tie your shoelace. Up ahead is a moving walkway that you plan to utilize.

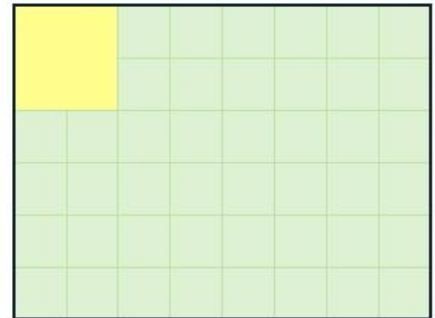
To minimize your time to get to the gate, should you stop and tie your shoelace now, or wait to tie it on the walkway?



Answer: aplusclick.org/t.htm?q=16711

66. A yellow square is painted on the upper surface of a 6x8 table. A carpenter wants to cut the table into several parts to form a new table with the yellow square exactly in the center of the new table.

What is the smallest number of parts needed?



Answer: aplusclick.org/t.htm?q=16685

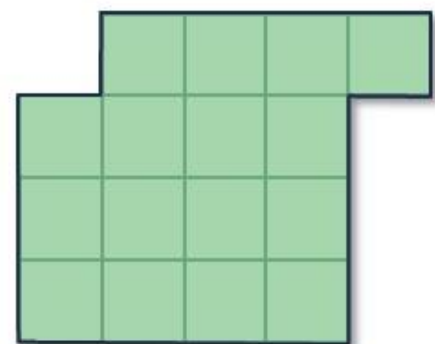
67. What do you need to add to three to get two?



Answer: aplusclick.org/t.htm?q=16627

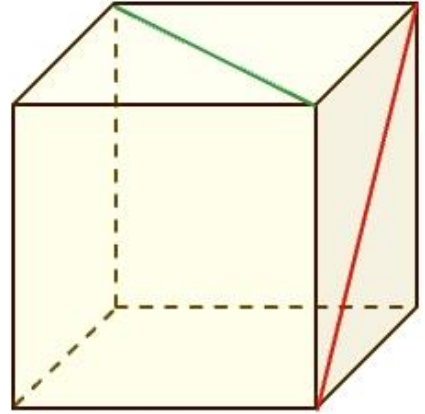
68. Cut the paper figure along the grid lines into two identical parts which could be put together to form a 4-by-4 cm square. The parts are allowed to be turned over.

What is the perimeter of one of the parts?



Answer: aplusclick.org/t.htm?q=16617

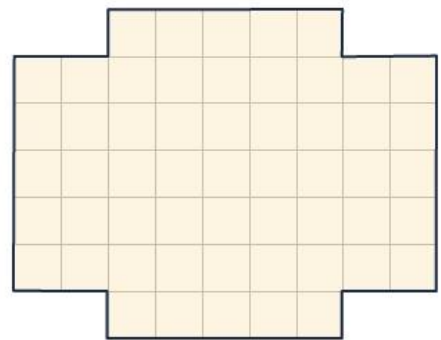
69. Find the angle between the shown red and green diagonals of the cube.



Answer: aplusclick.org/t.htm?q=16593

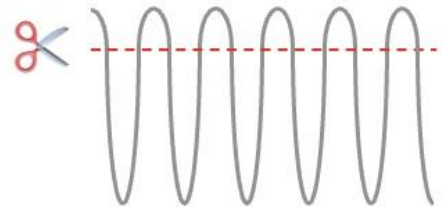
70. A 12-sided polygon is drawn on 1x1 cm grid.

What is the largest area of a square that can be inscribed into the polygon?



Answer: aplusclick.org/t.htm?q=16564

71. Gerry bent a cord and cut it into several parts as the picture shows. The shortest part was 1 centimeter (cm) and the longest was 8 cm.



How long was the original cord?

Answer: aplusclick.org/t.htm?q=16525

72. John, his father and mother play table tennis.

Two of them play a game, the winner stays and plays with the third member of the family. It continues in the same way.

John plays 7 times, his father - 3 times.

How many games do the three members of the family play?



Answer: aplusclick.org/t.htm?q=16513

73. Mr. Greedy had 6 apples. He gave a half to a girl.

How many apples does Mr. Greedy have now?



Answer: aplusclick.org/t.htm?q=16502

74. In a garden, Alex took as many apples as his son.

Bob took as many apples as his daughter Carole.

All together they took 21 apples.

How many apples did the girl take?

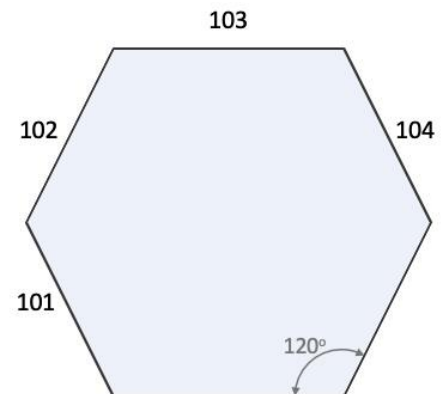


Answer: aplusclick.org/t.htm?q=16483

75. All angles of a hexagon equal to 120° .

The lengths of its four consecutive sides are 101, 102, 103 and 104.

Find the perimeter of the hexagon.



Answer: aplusclick.org/t.htm?q=16442

76. A guest asked each child of a large family: "How many brothers do you have?"

Each of them named a number, and the sum of all the numbers was equal to 21 and all of them answered correctly.

How many children are there in the family?



Answer: aplusclick.org/t.htm?q=16406

77. A magician put a golden coin or a pile of golden coins on each square of a chessboard except one.

No two squares had the same number of coins.

He remarked that the number of coins was the same as the number of the current year.

What is the year when the story might take place?

Answer: aplusclick.org/t.htm?q=16401



78. A roll of wallpaper has the inner diameter of 3 cm (30 millimeters) and the external diameter of 8 cm (80 millimeters).

The thickness of the paper is 0.1 cm (1 millimeter).

Estimate the length of the wallpaper.

Answer: aplusclick.org/t.htm?q=16398



79. Jane walks along a railway. Every 26 minutes she sees a train that is going in the same direction as her. Every 20 minutes she sees a train going in the opposite direction. The trains travel in both directions at the same speed, and all trains leave their respective depots at the same interval.

Find the interval.

Answer: aplusclick.org/t.htm?q=16391



80. A farmer brought a bag of nuts to a market. The nuts weighed 100 kilograms (kg).

The first customer bought 1 nut, the second customer bought 2 nuts, the third customer bought 4 nuts, and so on: each next customer bought twice as many nuts as the previous one. All nuts have the same weight. At the end of the day the farmer had one nut left.

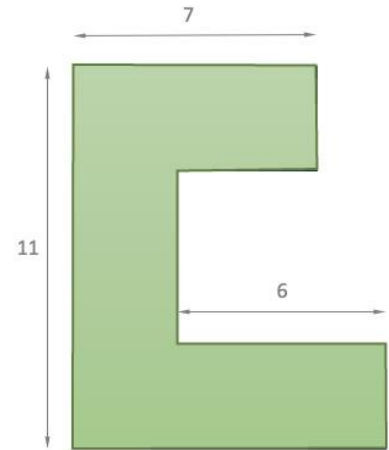
How many kilograms of nuts did the last customer buy?

Answer: aplusclick.org/t.htm?q=16387



81. All angles of the green polygon are either 90° or 270° .

Find the perimeter of the polygon.



Answer: aplusclick.org/t.htm?q=16368

82. What is the value of X?

$$X = \sqrt[5]{5 \cdot \sqrt[5]{5 \cdot \sqrt[5]{5 \cdot \sqrt[5]{5 \cdot \dots}}}}$$

Answer: aplusclick.org/t.htm?q=16358

83. Each of Alex, Betty, and Craig initially had the same quantity of tea in their cups.

Alex first drank half a cup, then drank a third of the rest, then took a sip.

Betty first drank half a cup, then took a sip, then drank a third of the rest.

Craig first took a sip, then drank half of the rest, then drank a third of the rest.

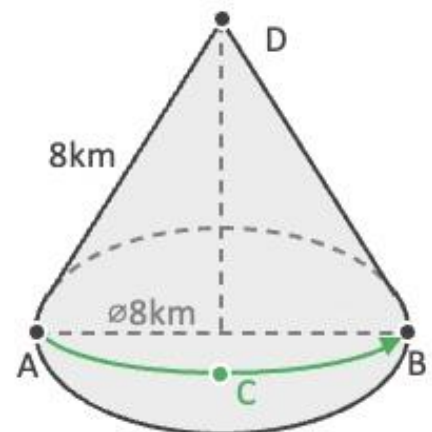


Who drank more tea?

Answer: aplusclick.org/t.htm?q=16350

84. Gerry and Jane are at the foot of a conical-shaped mountain with a direct way to the peak of 8 km and the foot circle's diameter of 8 km. They walk from point A to the diametrically opposite point B by the shortest route.

Find the shortest distance between the two points A and B.



Answer: aplusclick.org/t.htm?q=16338

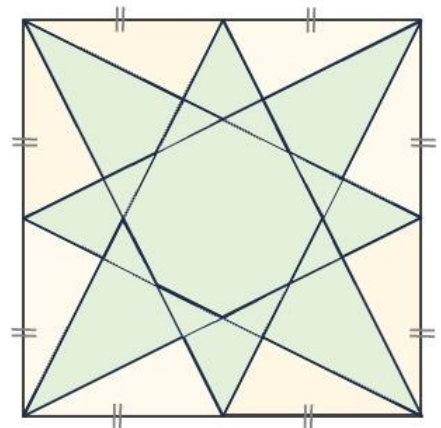
85. Three pirates fell asleep before sharing a pile of golden coins. One of the pirates woke up, took his share, a third of coins, and fell asleep again. Believing that he woke up first, the second pirate woke up, counted the coins, took the third part and fell asleep. Then the third pirate woke up. Believing that he woke up first, he counted the coins and took the third part. Then his companions woke up and saw that there were still 16 coins left in the pile.



How many coins should the third pirate take now from the pile, so that he gets his fair part?

Answer: aplusclick.org/t.htm?q=16333

86. What part of the large square is yellow?



Answer: aplusclick.org/t.htm?q=16326

87. Thirty three families live in a village. Each family owns 1, 2 or 3 bicycles. The number of families with 3 bicycles is the same as the number of families with 1 bicycle.



How many bicycles are there in the village?

Answer: aplusclick.org/t.htm?q=16321

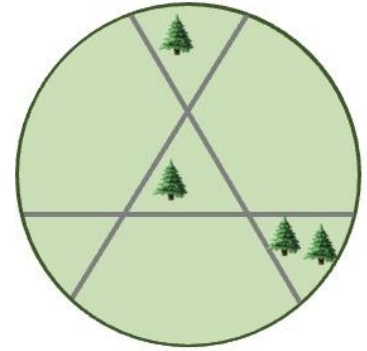
88. Gerry puts the Rubik's cube (as it is now) on a table and looks at it from a distance of 3 feet.

What is the largest possible number of small cubes (not small cube faces) he is able to see?



Answer: aplusclick.org/t.htm?q=16307

89. There are three walking paths and four trees in a garden. Jane wants to plant young trees so that the number of trees on both sides of each path is the same.

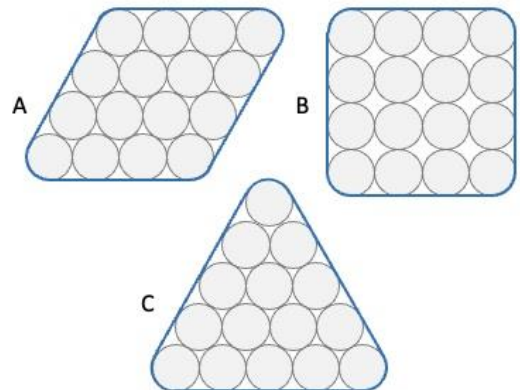


What is the smallest number of new trees?

Answer: aplusclick.org/t.htm?q=16297

90. Barrels with honey were placed in three different forms and tightened together by blue bands.

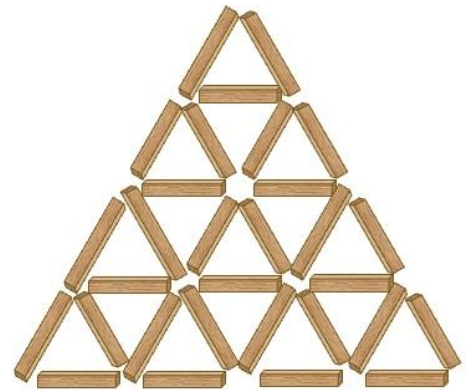
For which set is the band shorter?



Answer: aplusclick.org/t.htm?q=16294

91. There are 16 small triangles, 7 triangles with the side length of 3 sticks, 3 triangles with the side length of 4 sticks, and 1 large triangle with the side length of 4 sticks in the set of wooden sticks. Remove certain sticks so that there are no triangles (of any size) remaining.

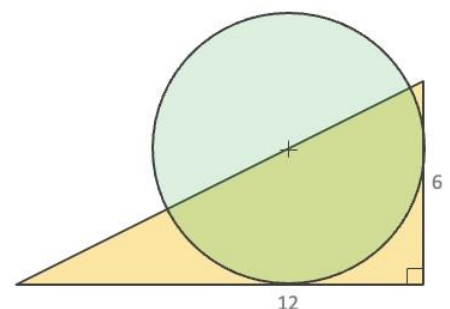
What is the largest number of sticks that can be left in their places?



Answer: aplusclick.org/t.htm?q=16284

92. The center of the circle is on the hypotenuse of the right-angled triangle.

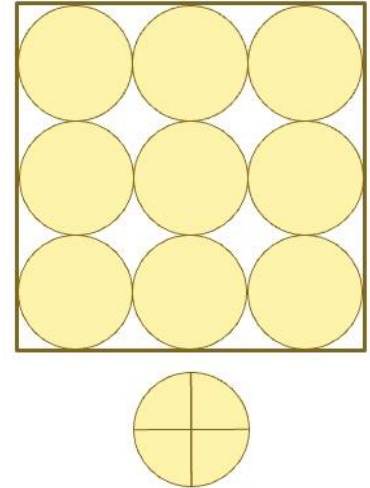
Find the radius of the circle.



Answer: aplusclick.org/t.htm?q=16237

93. We have several logs and put nine of them in a crate.

If we cut each log into 4 pieces as the picture shows, what is the largest number of such pieces that fit into the crate?

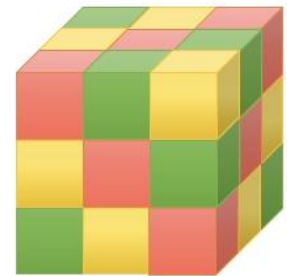


Answer: aplusclick.org/t.htm?q=16236

94. The 3x3x3 cube is made of 9 green, 9 yellow, and 9 red small cubes that are glued together. There are no small cubes of the same colour in a column or a row.

How many different 3x3x3 cubes of this type are there?

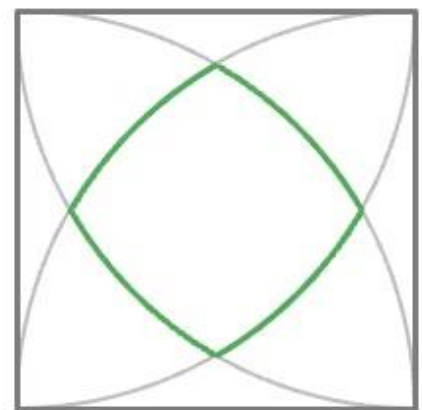
You can rotate the large cubes when comparing them.



Answer: aplusclick.org/t.htm?q=16233

95. Four circles, with their centers in the vertexes of the 1x1 square, form the green shape.

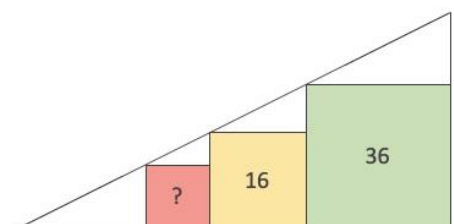
What is the total length of its sides (its perimeter)?



Answer: aplusclick.org/t.htm?q=16205

96. The green square has an area of 36 square cm and the yellow square has an area of 16 square cm.

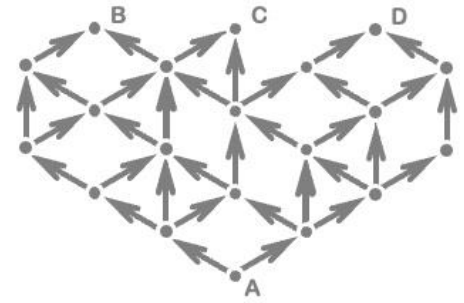
Estimate the area of the red square.



Answer: aplusclick.org/t.htm?q=16188

97. We move from point A randomly choosing one of the available directions.

In which point is the probability to finish the journey the highest?



Answer: aplusclick.org/t.htm?q=16186

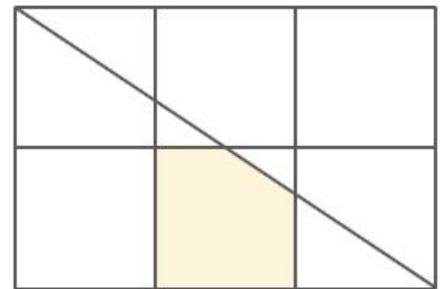
98. Find X.

$$X = 2^{0^{2^2}}$$

Answer: aplusclick.org/t.htm?q=16165

99. Six 1x1 squares form a rectangle.

Find the yellow area.

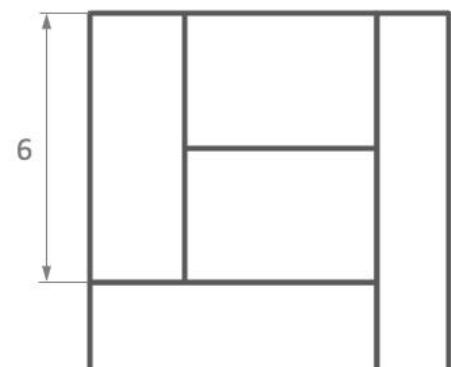


Answer: aplusclick.org/t.htm?q=16118

100. Five rectangles of the same area form a square.

We know only the height of one of the rectangles - 6 cm.

Find the side length of the square.



Answer: aplusclick.org/t.htm?q=16110