3 point problems

PROBLEM 01

Basil wants to paint the word KANGAROO. He paints one letter each day. He starts on Wednesday. On what day will he paint the last letter?

(A)Monday   (B)Tuesday   (C) Wednesday
(D)Thursday   (E)Friday

PROBLEM 02

A motorcyclist rode a distance of 28 km in 30 minutes at a constant speed. At what speed did he drive, in km per hour?

(A)28   (B)36   (C)56   (D)58   (E)62

PROBLEM 03

A square of paper is cut into two pieces using a single straight cut.
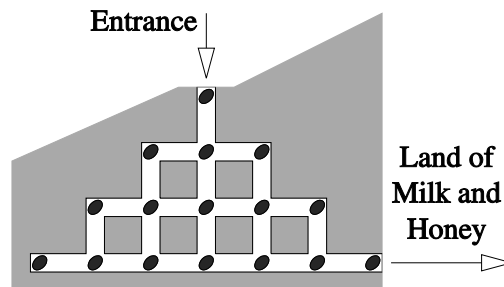

Which of the following cannot be the shape of either piece?

(A) a square   (B) a rectangle   (C) a right-angled triangle   (D) a pentagon   (E) an isosceles triangle

PROBLEM 04

Hamster Fridolin sets out for the Land of Milk and Honey. His way to the legendary Land passes through a system of tunnels. There are 16 pumpkin seeds spread through the tunnels, as shown in the picture.

What is the highest number of pumpkin seeds Fridolin can collect if he is not allowed to visit any junction more than once?

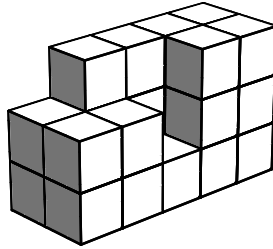(A)12   (B)13   (C)14   (D)15   (E)16

PROBLEM 05

In Crazytown, all the houses on the right side of Number Street have odd numbers. However, Crazytowners don't use numbers containing the digit 3, though they use every other number. The first house on the right side of the street is numbered 1, and the houses are numbered in increasing order. What is the number of the fifteenth house on the right side of the street?

(A)29   (B)41   (C)43   (D)45   (E)47

PROBLEM 06
The picture shows a partially built cuboid.
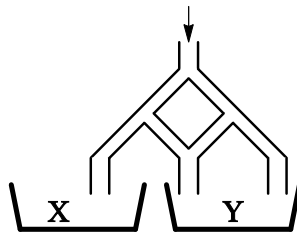

Which of the following pieces will complete the cuboid?

(A)   (B)   (C)   (D)   (E)

PROBLEM 07
We pour 1000 litres of water into the top of the pipework shown in the picture.

Every time a pipe forks, the water splits into two equal parts. How many litres of water will reach container Y?

(A)500   (B) 660   (C)666.67   (D) 750   (E) 800

PROBLEM 08
The date 01-03-05 (1 March 2005) consists of three consecutive odd numbers in increasing order. This is the first date with this feature in the 21st century. Including 01-03-05, how many dates in the 21st century, when expressed in the form dd-mm-yy, have this feature?

(A) 5   (B) 6   (C) 16   (D) 13   (E) 8

PROBLEM 09
The picture shows four cardboard pieces.

All four pieces are put together without gaps or overlaps to form various shapes. Which of the following shapes cannot be made in this way?

(A)   (B)   (C)   (D)   (E)

PROBLEM 10

When Liza the cat just lazes around, she drinks 60 ml of milk per day. But each day that she catches mice, she drinks a third more milk. In the last two weeks she has been catching mice every other day. How much milk did she drink in the last two weeks?

(A)840 ml   (B)980 ml   (C)1050 ml   (D)1120 ml   (E)1960 ml

4 point problems

PROBLEM 11

Andrew wrote the letters of the word KANGAROO in cells. He can write the first letter in any cell he wants. He writes every subsequent letter in a cell that has at least one point in common with the cell in which the previous letter was written. Which of the tables can Andrew not create in this way?

K	A
N	O
O	G
R	A

(A)

N	G
A	A
K	R
O	O

(B)

O	O
K	R
A	A
G	N

(C)

K	A
N	G
O	O
R	A

(D)

K	O
A	O
R	N
A	G

(E)

PROBLEM 12

All 4-digit integers with the same digits as the number 2011 are listed in increasing order (so each number in the list has two 1s, one 0 and one 2). What is the difference between the two numbers appearing on either side of 2011 in this list?

(A)890   (B)891   (C)900   (D)909   (E)990

PROBLEM 13

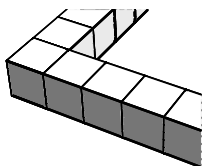Four of the numbers on the left are moved into the cells on the right so that the addition is correct.

17   167

30

49   96

Which number remains on the left?

(A)17   (B)30   (C)49   (D)96   (E)167

PROBLEM 14

Nina used 36 identical cubes to build a fence of cubes around a square region. Part of her fence is shown in the picture.
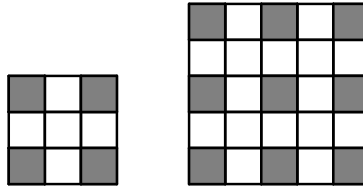
How many more cubes will Nina need in order to fill the region inside her fence?

(A)36   (B)49   (C)64   (D)81   (E)100

PROBLEM 15

Some square floors have been covered with white and grey tiles. Floors using 4 and 9 grey tiles are shown in the picture.

Each floor has a grey tile in every corner and all the tiles around a grey tile are white. How many white tiles are needed altogether for a floor using 25 grey tiles?

(A)25   (B)39   (C)45   (D)56   (E)72

PROBLEM 16

Paul wanted to multiply an integer by 301, but he forgot the zero and multiplied by 31 instead. The result he got was 372. (He did manage to multiply by 31 correctly!) What result was he supposed to get?

(A)3010   (B)3612   (C)3702   (D)3720   (E)30 720

PROBLEM 17

In three games FC Barcelona scored three goals and let one goal in. In these three games, the club won one game, drew one game and lost one game. What was the score in the game FC Barcelona won?

(A) 2-0   (B) 3-0   (C) 1-0   (D) 4-1   (E) 0-1
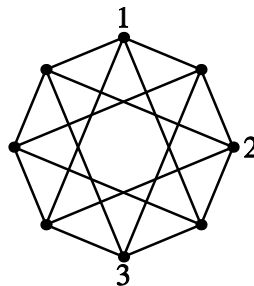
PROBLEM 18

We are given three points on a sheet of paper. The points are the vertices of a triangle. We want to draw another point so that the four points are the vertices of a parallelogram. How many possibilities are there for the fourth point?

(A)1   (B)2   (C)3   (D)4   (E)It depends on
                                                             the initial triangle

PROBLEM 19

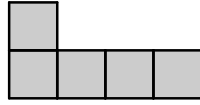The picture shows eight marked points connected by lines.

One of the numbers 1, 2, 3 or 4 is to be written at each of the marked points so that the two numbers at the ends of every line are different. Three numbers have already been written. How many times does 4 appear in the completed picture?

(A)1   (B)2   (C)3   (D)4   (E) 5

PROBLEM 20

Using only pieces like the one in the picture, Daniel wants to make a complete square without gaps or overlaps.

What is the smallest number of pieces he can use?

(A)8   (B)10   (C)12   (D)16   (E)20

5 point problems

PROBLEM 21

There are 10 pupils in a dance class. Their teacher has 80 jelly beans. After she gives the same number of jelly beans to each of the girls in the class, there are 3 jelly beans left over. How many boys are there in the class?

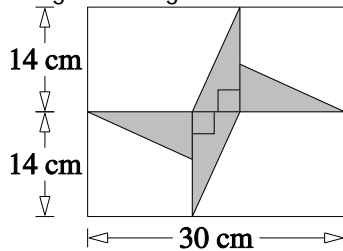(A) 1   (B) 2   (C) 3   (D) 5   (E) 6

PROBLEM 22

A cat has 7 differently-coloured kittens: white; black; red; black & white; red & white; black & red; and white, black & red. How many ways are there to put 4 kittens in a basket so that every pair in the basket has at least one colour in common?

(A)1   (B)3   **(C)**4   (D)6   (E)7

PROBLEM 23

The picture shows four identical right-angled triangles inside a rectangle.

What is the total area of all four triangles?

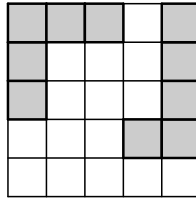(A)46 cm²   (B)52 cm²   (C)54 cm²   (D)56 cm²   (E)64 cm²

PROBLEM 24

Alex says Pelle is lying. Pelle says Mark is lying. Mark says Pelle is lying. Tony says Alex is lying. How many of these four boys are lying?
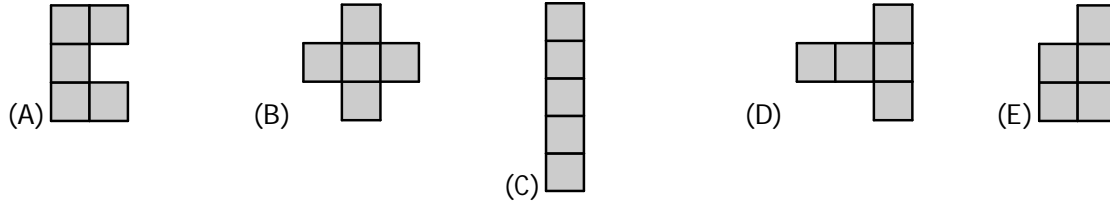
(A)0   (B)1   (C)2   (D)3   (E)4

PROBLEM 25
Lina has fixed two shapes on a 5 × 5 board, as shown in the picture.
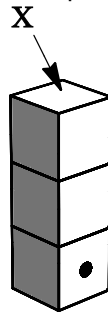

Which of the following 5 shapes should she place on the empty part of the board so that none of the remaining 4 shapes will fit in the empty space that is left? (The shapes may be rotated or turned over, but can only be placed so that they cover complete squares.)

(A)   (B)   (C)   (D)   (E)

PROBLEM 26
The picture shows three identical dice stacked on top of each other.

For each die, the total number of pips on every pair of opposite faces is 7. The stack was made so that the sum of the pips on every pair of faces that meet is 5. How many pips are on the face marked X?

(A)2   (B)3   (C)4   (D)5   (E)6

PROBLEM 27
I want to draw four circles on the blackboard so that every pair of circles has exactly one common point. What is the greatest number of points that can belong to more than one circle?

(A)1   (B)4   (C)5   (D)6   (E)8

PROBLEM 28
In a particular month there were 5 Saturdays and 5 Sundays, but only 4 Fridays and 4 Mondays. In the next month there were

(A)5 Wednesdays   (B)5 Thursdays   (C)5 Fridays
(D)5 Saturdays   (E)5 Sundays

PROBLEM 29
You are given four positive numbers a, b, c and d in ascending order of size. You are asked to increase one of them by 1 in such a way that the product of the four resulting numbers is as small as possible. Which number should you increase?

(A) a (B) b (C) c (D) d (E) either b or c

PROBLEM 30

The digits of a positive five-digit number are 1, 2, 3, 4, 5 in some order. The first digit of the number is divisible by 1, the first two digits (in order) form a number divisible by 2, the first three digits (in order) form a number divisible by 3, the first four digits (in order) form a number divisible by 4, and the whole number is divisible by 5. How many such numbers are there?

(A) 0 (B) 1 (C) 2 (D) 5 (E) 10