



Kangaroo 2015 Cadet

(8th and 9th grade)

NAME _____

CLASS _____

Points: _____ Kangaroo leap: _____

Separate this answer sheet from the test. Write your answer under each problem number.

From each wrong answer, $\frac{1}{4}$ of the points of the problem will be deducted, for example for a 4 points problem -1 point. If you leave the answer empty, no deduction will be made.

PROBLEM	1	2	3	4	5	6	7
ANSWER							

PROBLEM	8	9	10	11	12	13	14
ANSWER							

PROBLEM	15	16	17	18	19	20	21
ANSWER							



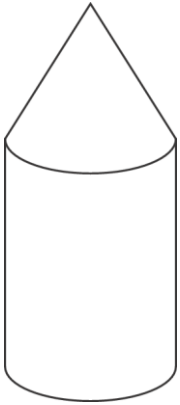
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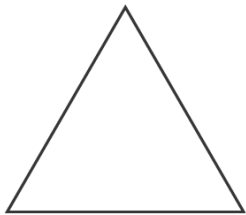
3 points

1.

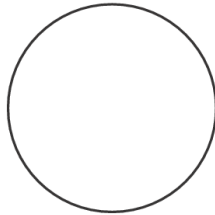
What does the round tower look like from above?



(A)



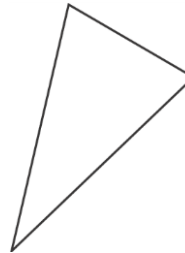
(B)



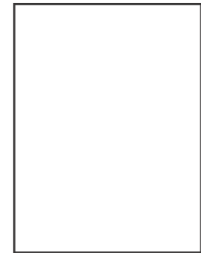
(C)



(D)



(E)



2.

Gera has 9 sweets and Ruben has 17 sweets. How many sweets does Ruben need to give to Gera so that each boy has the same number of sweets?

(A) 3

(B) 4

(C) 5

(D) 6

(E) 7



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3.

My umbrella has KANGAROO written on top, as shown in the picture.



One of the following pictures also shows my umbrella. Which one?

(A)



(B)



(C)



(D)



(E)



4.

A journey from Košice to Poprad through Prešov lasts 130 minutes. The part of the journey from Košice to Prešov lasts 35 minutes. How long does the part of the journey from Prešov to Poprad last?

(A) 95 minutes

(B) 105 minutes

(C) 115 minutes

(D) 165 minutes

(E) 175 minutes

5.

Which of the following numbers is closest to $2.015 \cdot 510.2$?

(A) 0.1

(B) 1

(C) 10

(D) 100

(E) 1 000

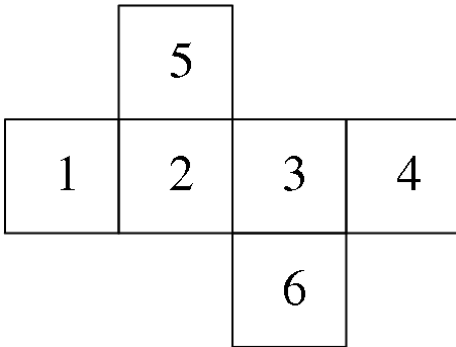


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6.

A cube is folded flat with numbered faces as shown in the diagram.

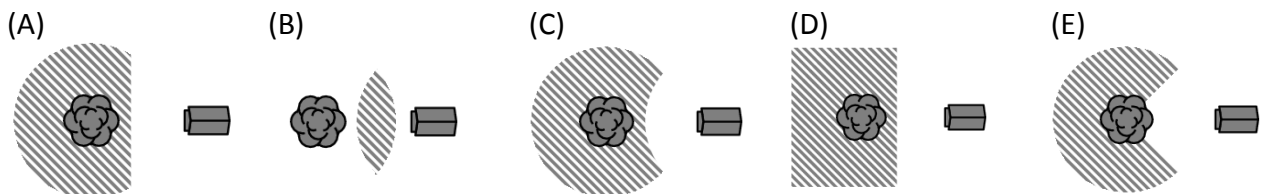


Bahar adds the numbers on opposite faces of this cube. What three totals does she get?

- (A) 4, 6, 11 (B) 4, 5, 12 (C) 5, 6, 10 (D) 5, 7, 9 (E) 5, 8, 8

7.

When Simon the squirrel comes down to the ground, he never goes further than 5 m from the trunk of his tree. However, he also stays at least 5 m away from the doghouse. Which of the following pictures most accurately shows the shape of the region on the ground where Simon might go?





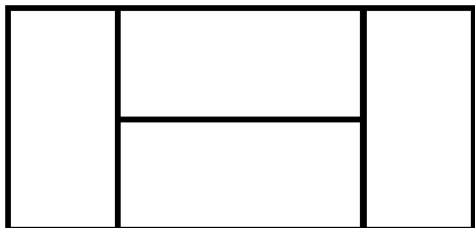
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4 points

8.

Four identical small rectangles are put together to form a large rectangle as shown. The length of the shorter side of the large rectangle is 10 cm. What is the length of the longer side of the large rectangle?



- (A) 10 cm (B) 20 cm (C) 30 cm (D) 40 cm (E) 50 cm

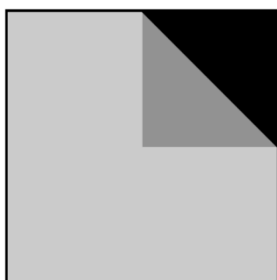
9.

In a class, no two boys were born on the same day of the week and no two girls were born in the same month. Were any new boy or any new girl to join this class, one of these two conditions would no longer be true. How many children are there in the class?

- (A) 18 (B) 19 (C) 20 (D) 24 (E) 25

10.

One corner of a square is folded to its centre to form a pentagon.



The areas of the pentagon and of the square are consecutive integers. What is the area of the square?

- (A) 2 (B) 4 (C) 8 (D) 16 (E) 32



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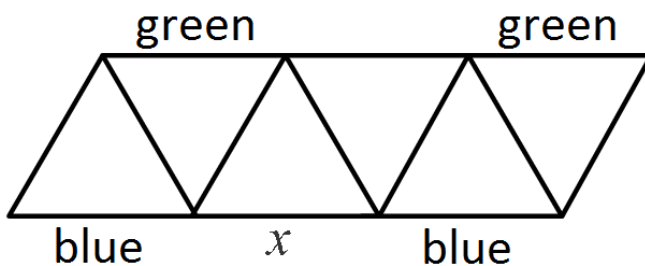
11.

Old MacDonald has 10 ducks. 5 of these ducks lay an egg every day. The other 5 lay an egg every second day. How many eggs do the 10 ducks lay in a period of 10 days?

- (A) 100 (B) 75 (C) 50 (D) 25 (E) 10

12.

The diagram indicates the colours of some segments of a pattern made of triangles.



Kafu wants to colour each remaining unit segment in the pattern either red or blue or green. Each triangle must have one side of each colour. What colour can he use for the segment marked with x ?

- (A) only green
(B) only red
(C) only blue
(D) either red or blue
(E) the task is impossible

13.

A bush has 10 branches. Each branch has either 5 leaves only or 2 leaves and 1 flower.



Which of the following could be the total number of leaves the bush has?

- (A) 45 (B) 39 (C) 37 (D) 31 (E) none of the previous



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14.

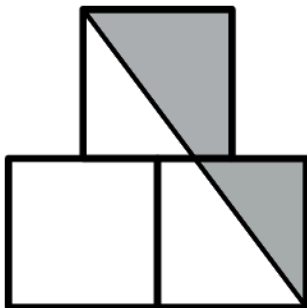
During a rainstorm, 15 litres of water fell per square metre. By how much did the water level rise in an open-air pool?

- (A) 150 cm (B) 0.15 cm (C) 15 cm (D) 1.5 cm (E) it depends upon the size of the pool

5 points

15.

In the diagram, the centre of the top square is directly above the common edge of the lower two squares.



Each square has sides of length 1. What is the area of the shaded region?

- (A) $\frac{3}{4}$ (B) $\frac{7}{8}$ (C) 1 (D) $1\frac{1}{4}$ (E) $1\frac{1}{2}$

16.

Petteri and Eino had 2015 nuts without sharing a single nut. Which of the following is impossible?

- (A) Petteri had 25 more nuts than Eino.
 (B) Petteri had 44 more nuts than Eino.
 (C) Petteri had 4 times as many nuts as Eino.
 (D) Petteri had 3 times as many nuts as Eino.
 (E) At least two of the above.



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17.

Irina asked five of her pupils how many of them had studied the day before. Pol said “none”, Berta said “only one”, Ona said “exactly two”, Eugeni said “exactly three” and Gerard said “exactly four”. Irina knew that those pupils who had not studied were lying, but those who had studied were telling the truth. How many of these pupils had studied the day before?

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

18.

In a group of kangaroos, the two lightest kangaroos weigh 25% of the total weight of the group. The three heaviest kangaroos weigh 60% of the total weight. How many kangaroos are there in the group?

- (A) 6 (B) 7 (C) 8 (D) 15 (E) 20

19.

Five points lie on a line. Miko finds the distances between every possible pair of points. He obtains, in increasing order, 2, 5, 6, 8, 9, k , 15, 17, 20 and 22. What is the value of k ?

- (A) 10 (B) 11 (C) 12 (D) 13 (E) 14

20.

Every positive integer is to be coloured according to the following three rules.

- (i) Each number is either red or green.
- (ii) The sum of any two different red numbers is a red number.
- (iii) The sum of any two different green numbers is a green number.

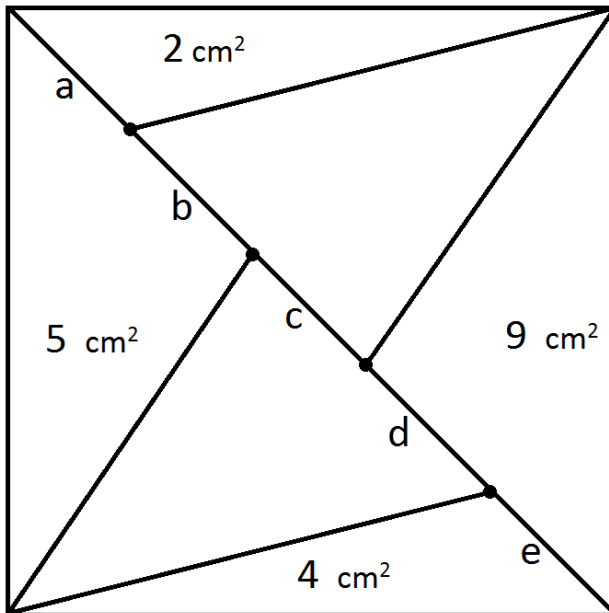
In how many different ways can this be done?

- (A) 0 (B) 2 (C) 4 (D) 6 (E) more than 6



21.

A square with area 30 cm^2 is divided in two by a diagonal and then into triangles, as shown.



The areas of some of these triangles are given in the diagram. Which part of the diagonal is the longest?

(A) a

(B) b

(C) c

(D) d

(E) e