Grade 6

Problem №1.

When discussing rules of divisibility, Jennie learns that a number is divisible by 3 if the sum of its digits is divisible by 3. For example, the number 225 is divisible by 3, because 2+2+5=9 is divisible by 3. Following this idea, Jesse writes down the following 10-digit number, with one of the digits erased completely:

How many possible digits, from 0 to 9, can Jennie insert for the erased digit (between the 3 and the 4) to make sure that the long 10-digit number is indeed divisible by 3.

A) 8 B) 7 C) 6 D) 5 E) 4

Problem №2.

The numbers in the middle column are related in some way to the numbers in the right and left columns.

3	**42**	8
5	**51**	3
8	**61**	2
7	**53**	5
6	**21**	X

Find out how they are related and find the missing number, marked with X, in the table.

A) 4 B) 2 C) 6 D) 8 E) 10

Problem №3.

The Island of Atlantis had no currency, which means they had a system of trading items for other items. Their exchange rates were as follows:

50 bananas = 20 coconuts
30 coconuts = 12 fish
100 fish = 1 hammock

What was the exchange rate between bananas and hammocks, i.e. how many bananas equal 1 hammock?

A) 625 B) 635 C) 525 D) 535 E) 640

Problem №4.

Two snails, Speedy and Hasty, are one kilometer apart and directly facing each other. Speedy moves forward continuously at 0.5 meters per second and Hasty moves forward continuously at 0.75 meters per second.

How many seconds does it take for Speedy and Hasty to touch?

A) 650 s B) 700 s C) 750 s D) 800 s E) 850 s

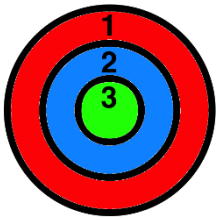
Problem №5.

Peter has 3 cards in front of him on a table. On each of the cards there is a different whole number shown. When the numbers are added, two at a time, the sums are 39, 47, and 58, respectively. If the difference between the smallest and the largest numbers is 19, what is the middle number?

A) 20 B) 25 C) 30 D) 35 E) 40

Problem №6.

In a dart tournament, contestants throw dart at a 3-ring dartboard, where they may gain 1, 2, or 3 points when hitting the board, as shown (outer ring is worth 1-point, middle ring is worth 2 points, and the inner circle is worth 3 points).



If the contestants throw 3 darts and all of them land on the board (without any landing on the black rings between the circular regions), how many different total points are possible to gain?

A) 8 B) 7 C) 6 D) 5 E) 4

Problem №7.

Andrea, Breonna, and Ciara were the three representatives for their school in a team cross country race. (Each school was represented by exactly three runners.)

Andrea finished the race in middle position, Breonna finished after Andrea, in the 19th position, and Ciara finished in the 28th position. How many schools took part in the race?

A) 11 B) 12 C) 13 D) 14 E) 15

Problem №8.

What two numbers have a sum of one thousand and a difference of one hundred? *(Write the two numbers in increasing order, separated by a comma.)*

A) 400, 500 B) 440, 560 C) 450, 550 D) 430, 570 E) 420, 580

Problem №9.

In a supermarket, an item with the price tag $250 was marked down by 20% in October, then the new price was marked up by 30% in November. However, the store had a change in management and this latest price was marked down by 40% in December, in preparation for the holidays. What is the new price of this item in December?

A) 146 B) 156 C) 166 D) 176 E) 167

Problem №10.

A store advertises that everything is half price during the sale period. In addition, those with VIP cards may enjoy an additional 30% discount on the already discounted sale prices. Using the VIP card, the price during the sale period represents what percentage of the original price?

A) 80 B) 65 C) 50 D) 35 E) 45

Problem №11

A bag contains 20 candies: 4 chocolate candies, 6 mint candies, and 10 butterscotch candies. Candies are removed randomly from the bag and eaten. What is the minimum number of candies that must be removed to be *certain* that at least two candies of each flavor have been eaten?

A) 20 B) 19 C) 18 D) 17 E) 16

Problem №12.

The Lower School section of Archimedes Academy has two elevators in its building: one used by students and the other used by adults. Each elevator can hold a maximum of 227 kilograms.

If the average weight of a 9-year old is 28 kilograms and the average weight of an adult is 73 kilograms, **how many more** 9-year old students can ride the student elevator than adults the adult elevator (when both elevators are full)?

A) 3 B) 4 C) 5 D) 6 E) 7

Problem №13.

At one point in the game of poker, Steve has 5 red poker chips and 7 blue poker chips. At the same time, Tom has 9 red poker chips and 3 blue poker chips.

If Steve's chips are worth a total of 69 coins, and Tom's chips are worth a total of 57 coins, how many coins is a single blue poker chip worth?

A) 7 B) 8 C) 9 D) 10 E) 11

Problem №14.

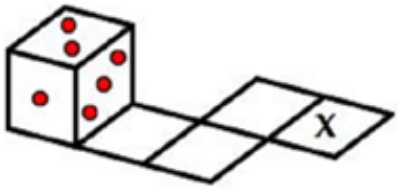
The cameraman at a local wedding ceremony charged $76.35 for 100 photographs and charged $2.35 for each extra photograph.

If the total bill was $198.55, how many extra photographs were taken?

A) 35 B) 52 C) 48 D) 67 E) 25

Problem №15.

On a deice the numbers on opposite faces add up to 7. The die shown in the diagram is rolled edge over edge along a path until it rests on the square labeled ***X***. In that position what number is on the top of the die?



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