MATH CATEGORY - JUNIOR GROUPS (Grade 4-5-6)

1.

a·b·c	b·c	c
−128	32	−4

What is $\dfrac{a \cdot c}{b}$ according to the table?

A) 2   B) 4   C) −4   D) −2

3. A student solved 121 problems in math on Monday. On Tuesday he solved 34 more problems than he did on Monday. On Thursday, he solved 21 less problems than he did on Tuesday. On Saturday, he solved 14 more problems than he did on Thursday. How many problems did the student solve in total?

A) 458   B) 558   C) 658   D) 858

2. According to the latest sale offer at a tire shop, you can buy one tire and get the second one for half the price. If the price for one tire is $90, and sales tax is 10%, how much does a customer pay for four tires including the tax?

A) $127   B) $148   C) $214   D) $297

4.
$$x \cdot y = 18$$
$$x^2 \cdot y = 54$$
$$y^2 \cdot z = 72$$

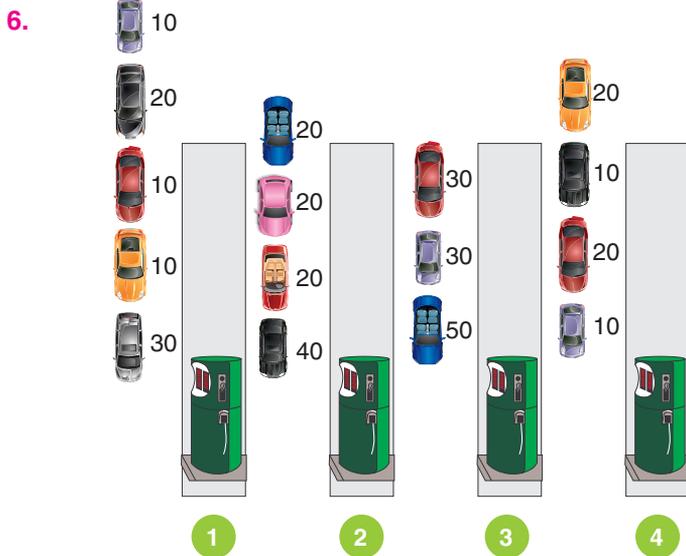What is the sum of $x + y + z$ for integers x, y, z that satisfy the above equations?

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

5.

$$\frac{x}{4} \qquad \frac{1}{y} \qquad \frac{3}{z} \qquad \frac{k}{3}$$
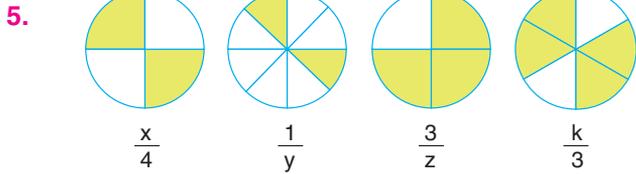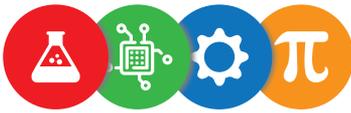
The fractional values of the figures are written below them.
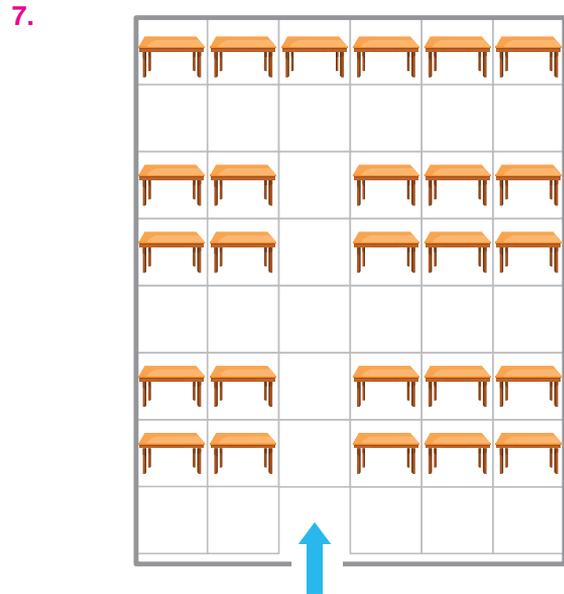
Accordingly, what's the sum of x + y + z + k?

A) 16   B) 12   C) 10   D) 8

6.

The cars are lined up at the gas station as shown in the diagram. The diagram also shows how many liters each vehicle will take. The time to fill 1 liter gas is 1 second, and each vehicle's payment time is 20 seconds. Which line would you prefer to refuel your vehicle earlier?

A) line 1   B) line 2   C) line 3   D) line 4

7.

In a restaurant, a room is split into 6x8=48 squares, to place 1 table in each square or leave a space for a corridor to the tables. The picture shows an example placement for 26 tables. What is the maximum possible number of tables that can be placed in the restaurant so that each table can be reached from a corridor?

A) 22 people   B) 26 people
C) 30 people   D) 34 people

8. **By putting suitable signs + , - , x , ÷ , (,) in-between the digits 5 5 5 5 many numbers can be generated, for example, 5 x (5 + 5) + 5 = 55. Which of the following numbers cannot be generated this way?**

A) 7   B) 26   C) 70   D) 120

9.
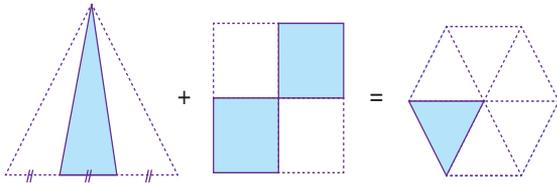
The total areas of the triangle and the square in the figure are equal to each other. Both of these polygons are divided into equal parts. The sum of the shaded areas in the triangle and the square is equal to the shaded area of the regular hexagon. **Accordingly, how many times is the total area of the hexagon bigger than the total area of the triangle?**

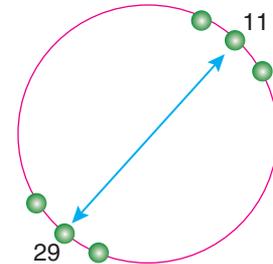A) 3   B) $\frac{7}{2}$ C) 4   D) 5

10.

The picture shows the rectangular floor plan of the first level of a house. Both the bathroom and the kitchen are square with areas of 4 m^2 and 64 m^2, respectively. The dining room is rectangular with an area of 96 m^2. What is the area of the foyer?
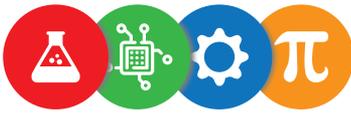
A) 30 m^2 B) 32 m^2 C) 36 m^2 D) 38 m^2

11.

On the ferris wheel the 11th cabin is directly opposite the 29th cabin. How many cabins are there in total?

A) 48   B) 36   C) 32   D) 40

12. **Tim bought 37 apples and 23 oranges from the market. He eats 5 apples and 3 oranges every day. In how many days will there be the same number of apples and oranges left?**

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

13. A wooden cube with edges of length 6 cm is cut into smaller cubes with edges of length 1 cm. What is the total combined length of all the edges of all the smaller 1-centimeter cubes?

A) 6^3 cm   B) 6^4 cm   C) $2 \cdot 6^3$ cm   D) $2 \cdot 6^4$ cm

15. Find the value of x, if $\dfrac{3(x-2)}{5} = \dfrac{1}{2}$.

A) $\dfrac{1}{2}$ B) $\dfrac{2}{3}$ C) $\dfrac{5}{6}$ D) $\dfrac{17}{6}$

14. a, b, c are integers. If $a + \dfrac{1}{b + \dfrac{1}{c}} = \dfrac{16}{7}$,

find the product of a · b · c

A) 6   B) 8   C) 12   D) 18

16.

Vanessa travels from Frankfurt to Budapest in her electric car. It takes 30 minutes to fully charge the battery of the vehicle and it can travel 320 km in total with a full battery. Considering that Vanessa travels at a constant speed of 120 km/h, how soon can she complete the 960 km Frankfurt-Budapest journey? (The vehicle's battery was fully charged at the start.)

A) 8.5 hours   B) 9 hours
C) 10.5 hours   D) 12 hours