Math and Physics are easy!!!

09.05.2013.

PLAN OF THE LESSON

"WARMING-UP"

10 QUESTIONS ABOUT MATH

WORKSHEET ABOUT PHYSICISTS

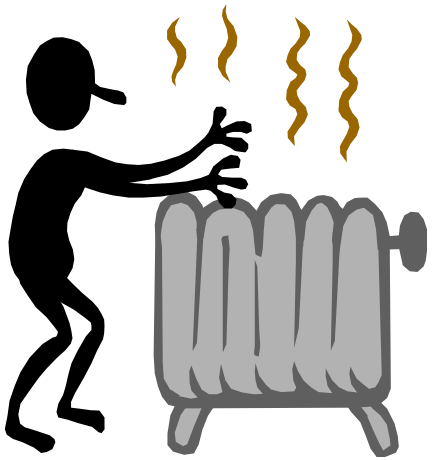
AWARDS

“WARMING-UP”

Each team has only 1 minute to answer as many questions as you can and each correct answer is worth 1 point.

If the team does not know the answer to the question, it should be passed, saying, “the next one“.

You have to score as many points as you can!



"WARMING-UP" QUESTIONS

- Rectangle with equal sides.
  - Square
- How many years are in one century?
  - One hundred
- With what number you cannot divide?
  - Zero
- Hundredth part of the number.
  - Percent
- What is the name of the upper part of the fraction?
  - Numerator

"WARMING-UP" QUESTIONS

- Sum of lengths of sides of the polygon.
  - Perimeter
- The result of multiplication.
  - Product
- The first letter of the Greek alphabet.
  - Alpha
- What is 1 % of a meter?
  - Centimeter
- Geometric body, which is similar to the earth.
  - Sphere

"WARMING-UP" QUESTIONS

- Segment connecting the center of the circle to any point.
  - Radius
- Quadrangle, in which all sides are equal.
  - Rhombus
- Name of the function $y = kx + b$.
  - Linear function
- A ray that divides the angle in two equal parts.
  - Bisectrix
- Graph of a quadratic function.
  - Parabola

"WARMING-UP" QUESTIONS

- The second letter of the Greek alphabet.
  - Beta
- What is 3 to the third power?
  - 27
- How many straight lines can be drawn through two points?
  - 1
- What is the smallest two-digit number?
  - 10
- The result of the addition.
  - Amount

"WARMING-UP" QUESTIONS

- How many months of the year contain 30 days?
  - 11
- What do a plant and the equation have?
  - Root
- What is the one-quarter of an hour?
  - 15 min.
- What is the name of the bottom part of the fraction?
  - Denominator
- A quarter of one hundred is …
  - 25

Next

"WARMING-UP" QUESTIONS

- What is the result of the subtraction?
  - Difference
- What is the sum of all the numbers from - 300 to 300?
  - 0
- What is the greatest negative number?
  - -1
- What is the sum of the angles of a parallelogram?
  - 360^{o}
- How many diagonals can be drawn in a triangle?
  - 0

Next

QUESTIONS ABOUT MATH

You will get questions related to mathematics.

You only get one minute to think, after which the answer should be written on a piece of paper and given to me. The correct answer is valued at 2 points.

We will evaluate correctness and completeness of the answers.

Question 1

Flags are placed in equal distances from each other from the start to the finish of the track. A person runs the distance from the first to the ninth flag in 9 seconds. How many seconds are required to reach the 25th flag?

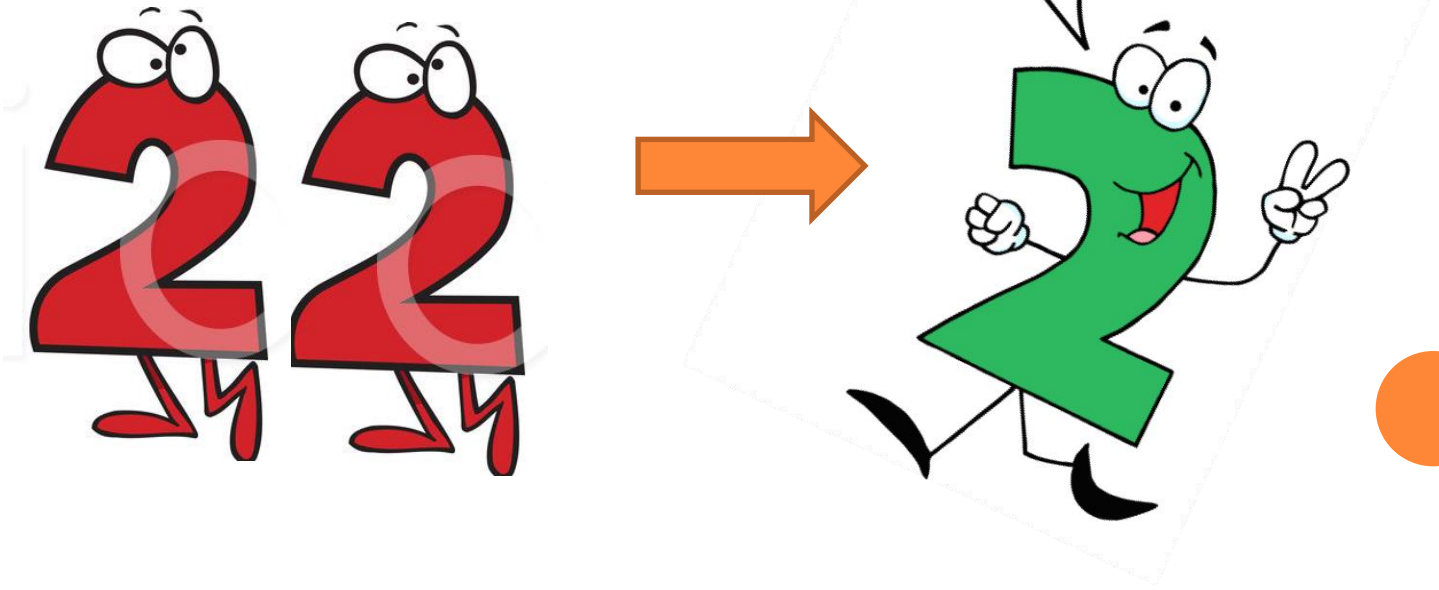
Answer 1

27 seconds

Question 2

Use numbers 2 and 2 to make mathematical equation so the result is 2.

(You can use any mathematical operations!)



Answer 2

For example $\left(\sqrt{2}\right)^2$

Question 3

At the stock exchange the price of the shares initially increased by 20 percent, and then decreased by 20 percent.

By what percentage has the price changed? And how has the share price changed (increased or decreased)?

What happens if the price at first decreases, then increases?

Answer 3

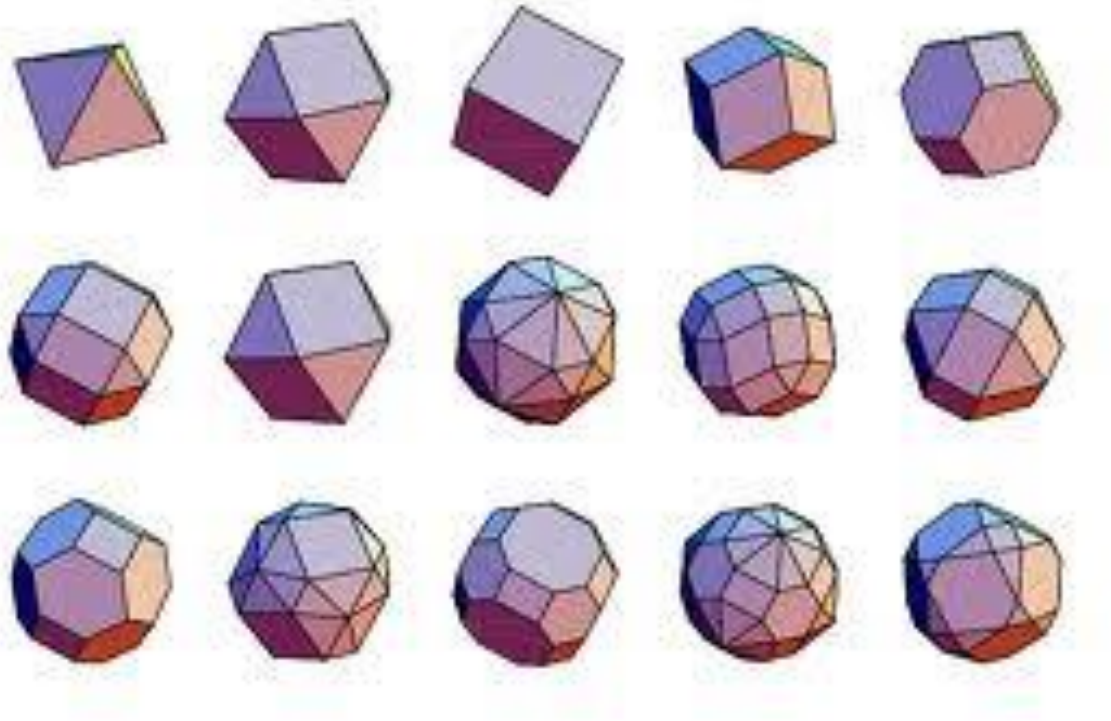
In both cases the price has decreased by 4 percent.

$$a \Rightarrow a + 0{,}2a = 1{,}2a \Rightarrow 1{,}2a - 0{,}2 \cdot 1{,}2a = 0{,}96a$$

$$a \Rightarrow a - 0{,}2a = 0{,}8a \Rightarrow 0{,}8a + 0{,}2 \cdot 0{,}8a = 0{,}96a$$

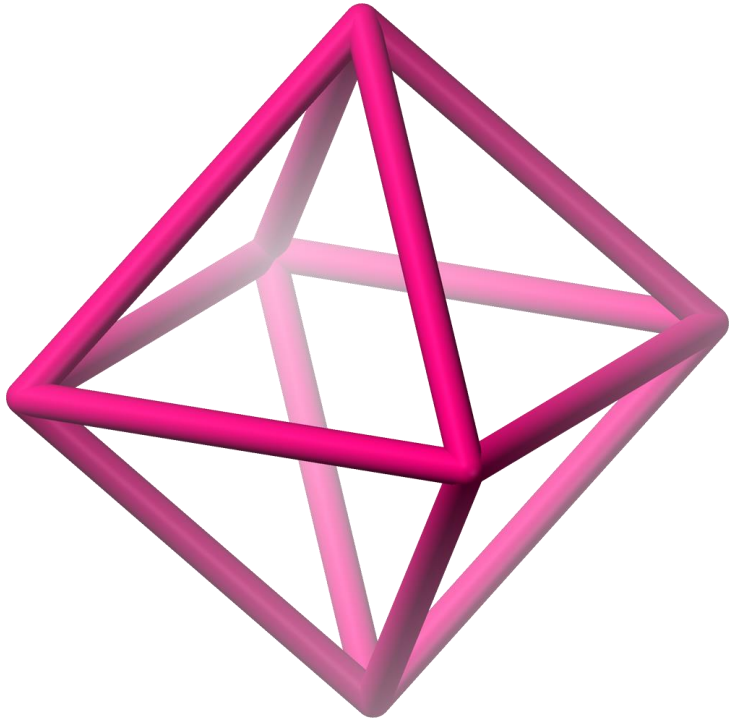
Question 4

How many vertices does an octahedron have?



Answer 4

Octahedron has 6 vertices, 8 faces and 12 edges.



Question 5

On one of the old houses you can see the inscription:

MDCCCXLIV.

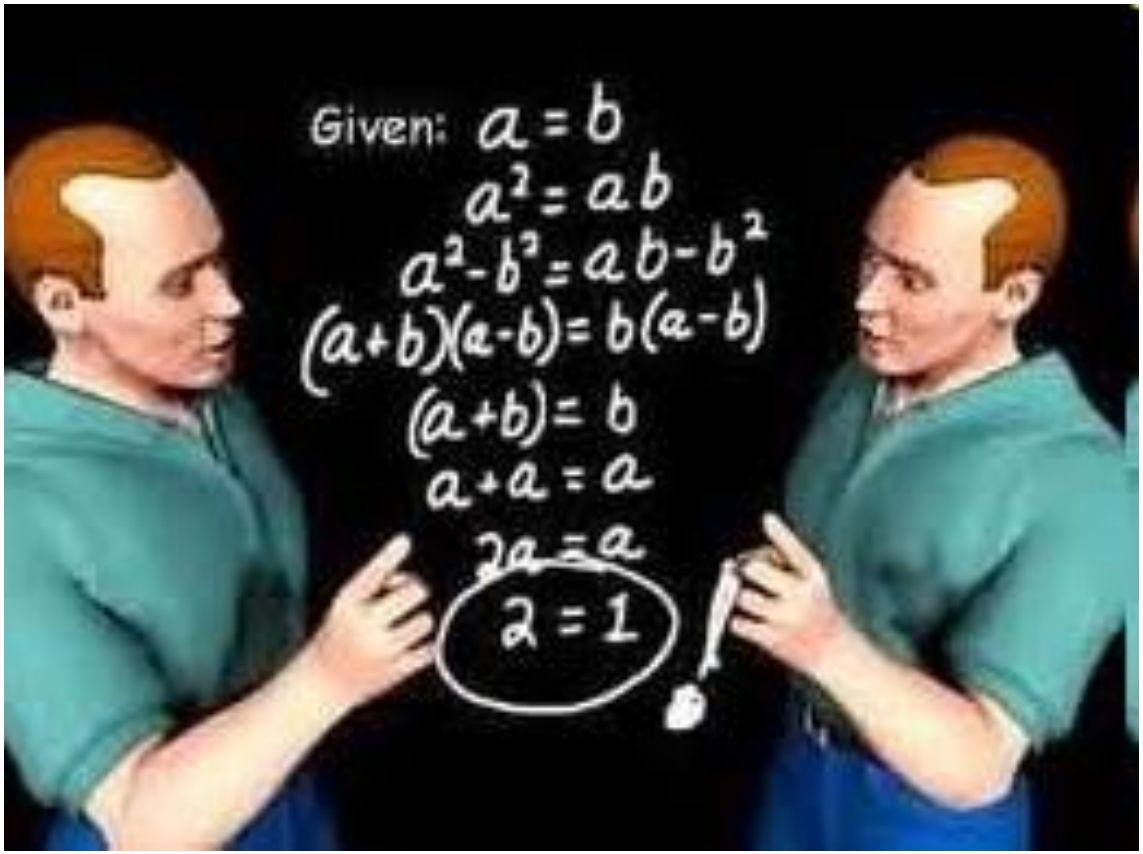
What does it mean?

Answer 5

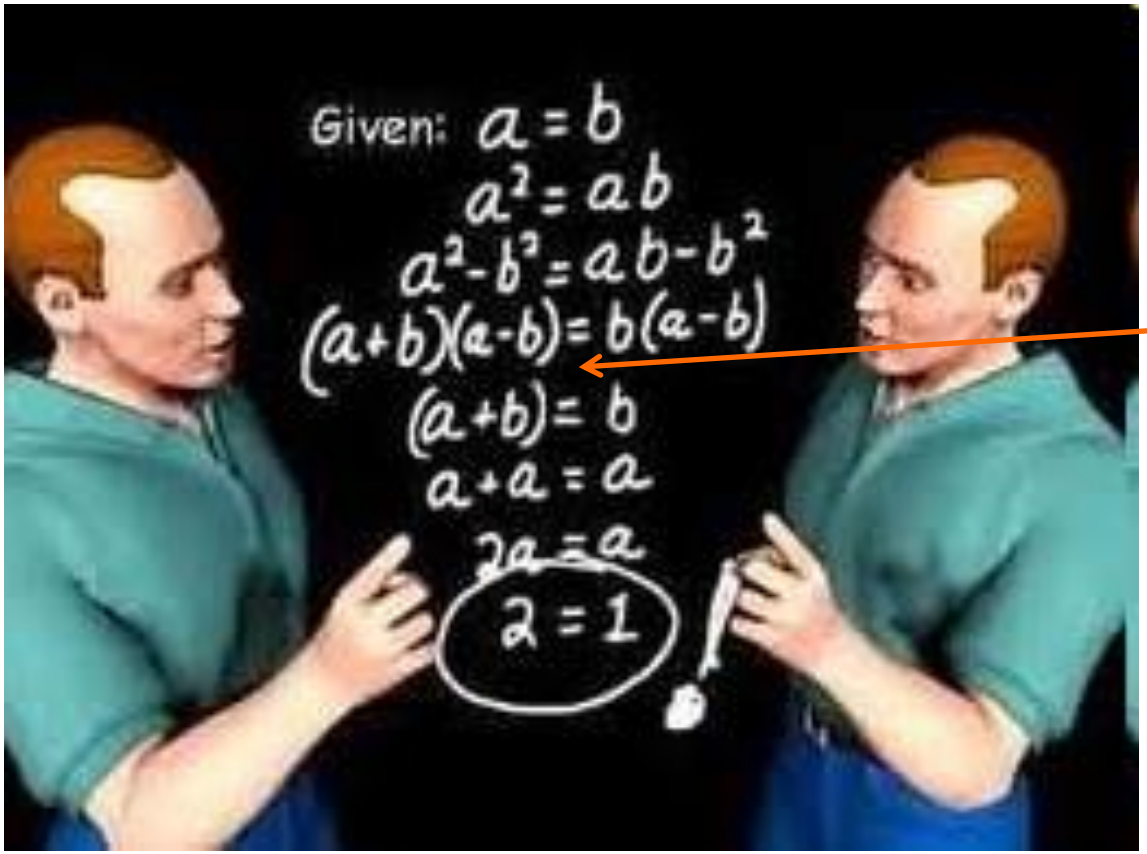
MDCCCXLIV=1844

Question 6

You can see some calculations in the picture and an unexpected result. Where is the mistake?



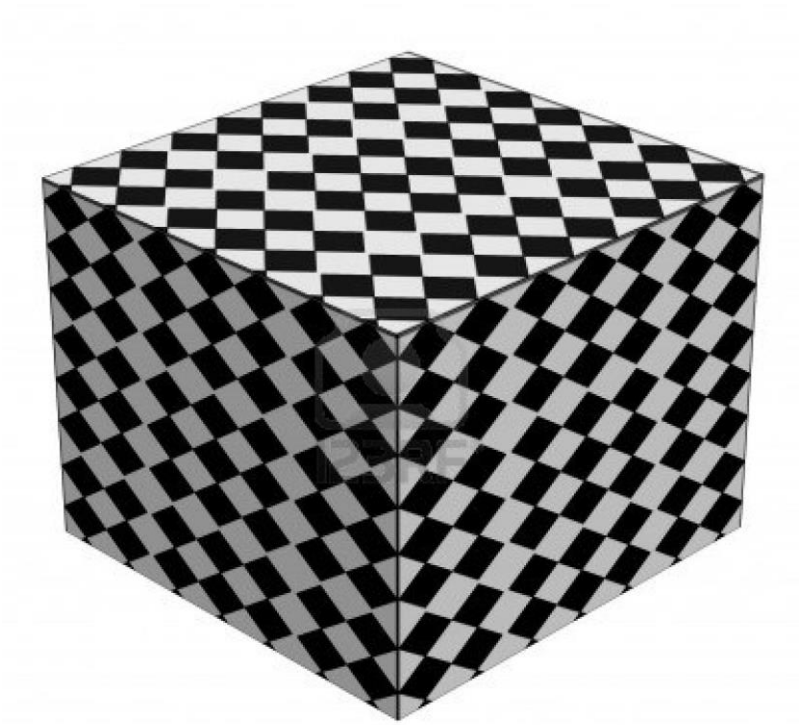
Answer 6



Remember, you can not divide by zero!

Question 7

Painted cube with an edge in 1 dm was sawed in cubes of edge 1 cm. How many cubes will be only with one – painted face?



Answer 7

384 cubes

Question 8

Imagine that you went around the Earth along the equator.

What part of your body: the head or feet went more distance and by how much?

Answer 8

The head has gone into $2\pi h$ greater (where h is the height of a man).

For instance, if your height is 1.7 m, than the head has gone $2 \cdot 3{,}14 \cdot 1{,}7 = 10.7$ m greater than the feet

Question 9

Move somewhere in the equality a single digit so that it becomes true:

$$101-102=1$$

ANSWER 9

$$101 - 10^2 = 1$$

Figure 1

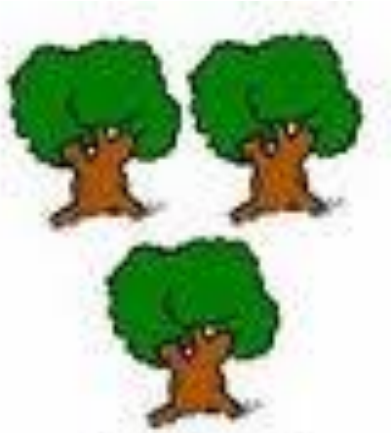


Figure 2

Question 10

In what area of science the Nobel Prize is not awarded?

In the name of who is the prize named which the scientists get for outstanding discoveries?

Answer 10

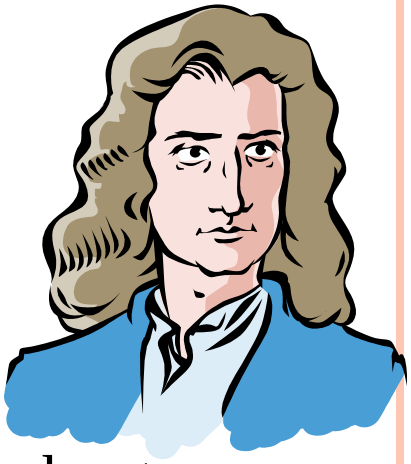
There is *no Nobel Prize in Mathematics*.

The Fields Medals are awarded every four years by the International Mathematics Union (established in 1936).

The Abel Prize is an international prize presented by the King of Norway to outstanding mathematicians (established in 2001).

ABEL
PRISEN

About famous physicists…



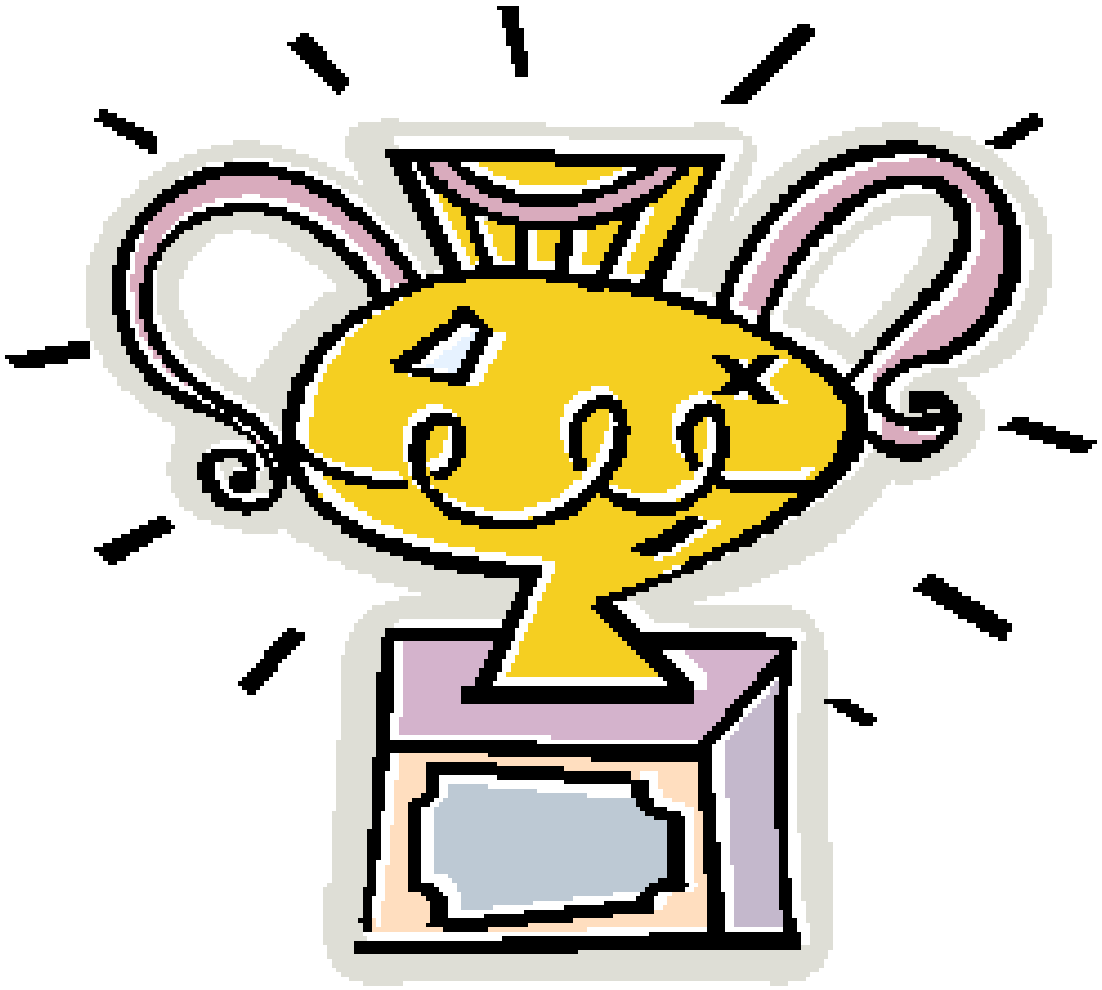
You will receive a worksheet with images of banknotes. Portraits of famous physicists are displayed on banknotes.

Your task is to calculate the cost of all these portraits in Lats (LVL) and give the name of every physicist.

That team which answers the first will receive 2 bonus points.

Answer

The total cost for all portraits is 255.32 LVL



Thank you for attention!!!