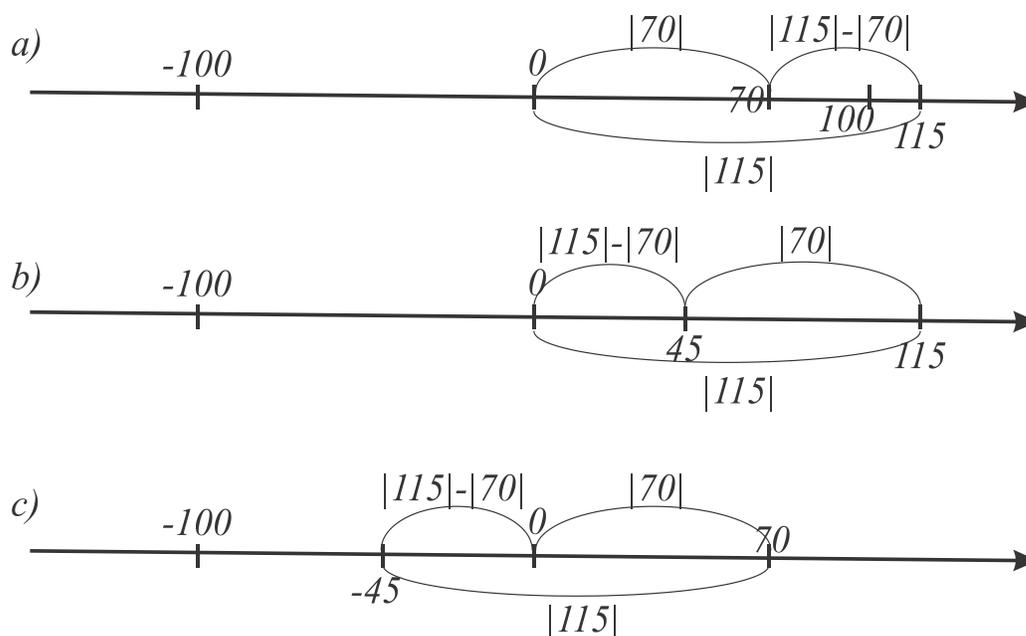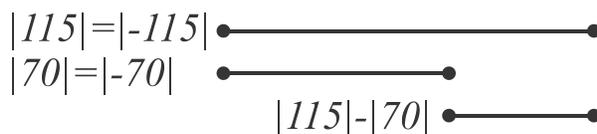## Algebra.

Now let's try to add 2 numbers, one positive and one negative. (Subtraction is always can be seen as an addition of a negative number; subtraction of a negative number, as we all know, is an addition of a positive number.) As an example we will add 115 and (-75) and 75 and (-115) . In both cases absolute values of summands are the same, but in the first case the absolute value of the negative number is smaller than that of the positive summand and in the second case absolute value of the negative summand is greater. Look at the picture below:

a) represents absolute values of $|115| = |-115|$, $|70| = |-70|$ and their difference $|115| - |70|$. Another visual representation of the same absolut valus is shown on the picture below.

b) represents subtraction of 70 (or addition of -70) from (to) 115. If we subtract (or add negative) number which absolute value is smaller from the one which absolute value is grater we will do the usual operation of subtraction as we did before when we only operated with natural numbers.

c) represents the operation of subtraction (or addition of a negative number) of a number which absolute value is grater then the one of the number from which we are subtracting. The **absolute value** of the result will be exactly the same, as in previous example, but the result itself will be the negative number, opposite to the result in the previous example.

Exercises.

1. Compare (replace … with >, <, or =) if possible, if it is known that a and b are positive numbers and x and y are negative numbers:

$0 \ \ldots \ x$	$a \ \ldots \ 0$	$-b \ \ldots \ 0$	$0 \ \ldots \ -x$
$a \ \ldots \ x$	$y \ \ldots \ b$	$-y \ \ldots \ x$	$-a \ \ldots \ b$
$|x| \ \ldots \ x$	$-|y| \ \ldots \ y$	$a \ \ldots \ |a|$	$|b| \ \ldots \ |-b|$
$|x| \ \ldots \ a$	$|x| \ \ldots \ -x$	$|x| \ \ldots \ -|y|$	$a \ \ldots \ |-b|$

2. Positive or negative value of m will make the following equalities true statements?

$$|m| = m$$
$$|m| = -m$$
$$-m = |-m|$$
$$m = |-m|$$

$$m = -m$$
$$m + |m| = 0$$
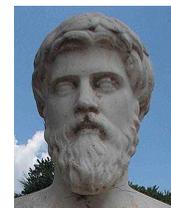$$m + |m| = 2m$$
$$m - |m| = 2m$$

3. Ancient Greek scientist Aristotle was born in 384 and died in 322. Another Greek scientist Pythagoras was born in 570 and dies in year 495. Ancient Greek historian Plutarch was born in 46 and died in 120. How among them was born earlier? For how long did they live?
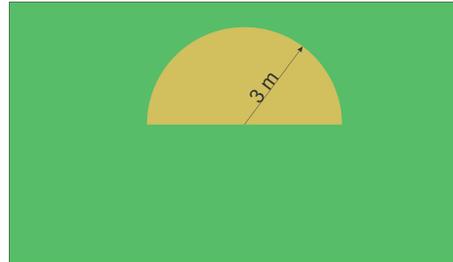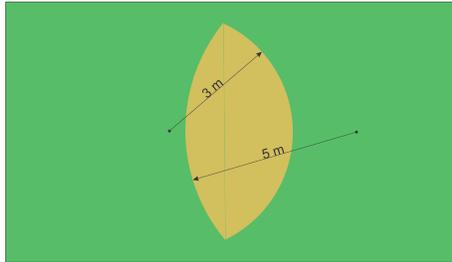
Plutarch

Aristotle

Pythagoras

Geometry.

1. How should be tied a goat to be able to graze the grass inside the shape

2. How the square was cut to combine the figures below.