
ISTITUTO ISTRUZIONE SUPERIORE

UMBERTO POMILIO - CHIETI

***III fashion;***
***III mechanics.***

# Who we are

*We come from Chieti, a city on the East Coast of Abruzzo Region.*
*Our school is a vocational Institute. We have Fashion Course, Mechanical Course, Electronic Course and many others.*
*Our school is dedicated to Mr. Umberto Pomilio, an important Italian chemist. He was born in Abruzzo, in Chieti, in 1890 . He is considered the father of cellulose. This was his greatest discovery.*
*During his life he created many companies where they produced cellulose.*
*So, he was very clever also in Math studies!*
*And today we will speak about Math!*

A Cartesian plane is defined by two perpendicular lines: the x axis, (or horizontal axis) and the y axis, which is vertical.
Now the plane is divided in 4 parts:

In the first space (I quadrant) we have positive X and positive Y

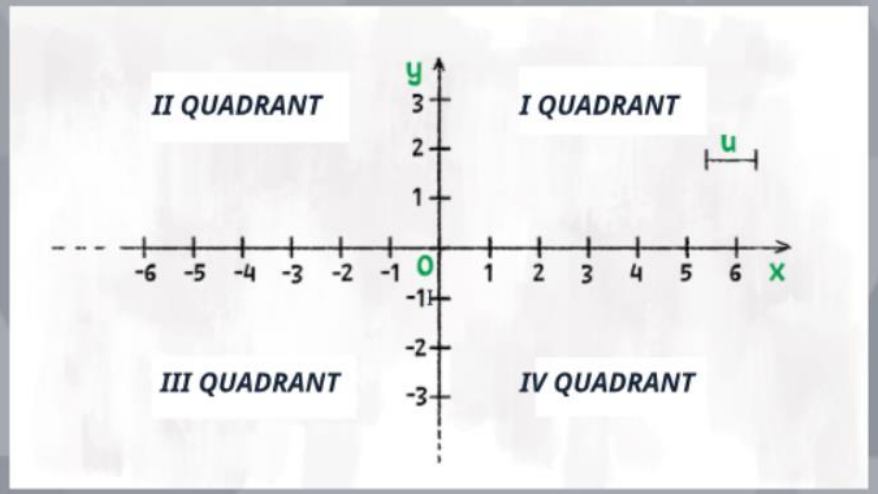
In the second space (II quadrant) we have negative X and positive Y

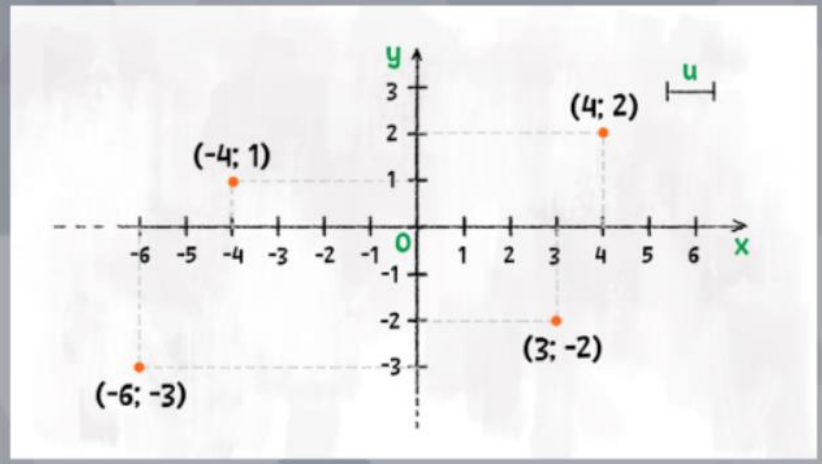
In the third space (III quadrant) we have negative X and Y

In the fourth space (IV quadrant) we have positive X and negative Y

We can draw many points on this plane.
Each point has two coordinates ( x and y): "x coordinate" gives us the horizontal position and "Y coordinate" gives us the vertical position.
We have a "central" point called the origin, and there the coordinates are (0,0).

*examples*



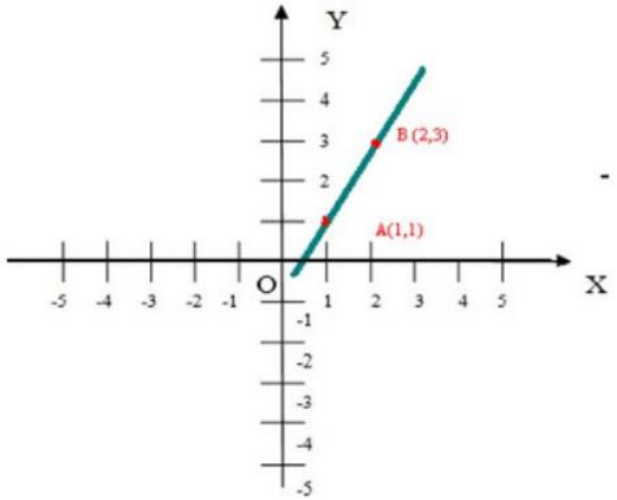
We spoke about the Cartesian Plane, now we can draw some lines on this plane.
The following one is the function of the straight line:
$y = mx + q$.

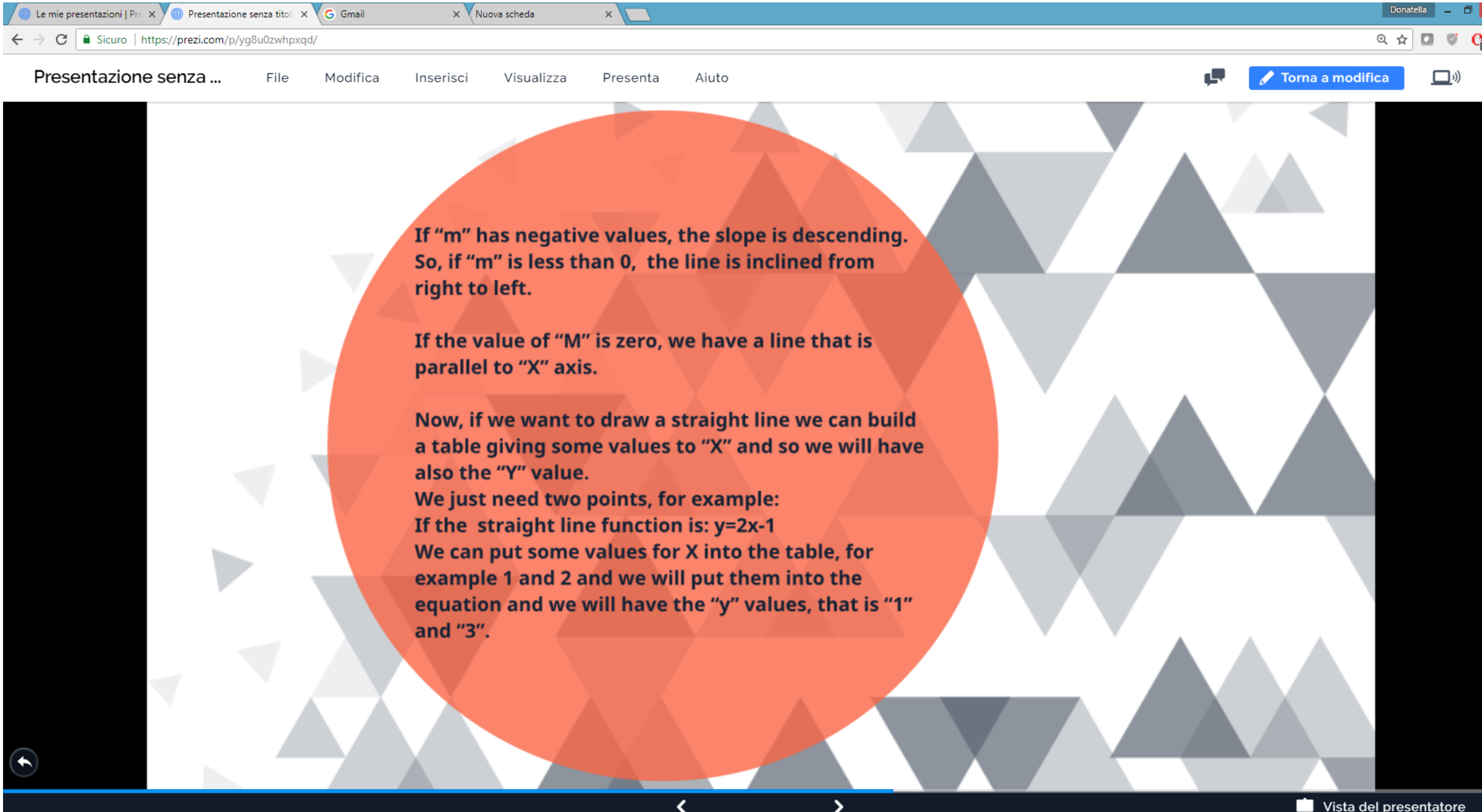
Now we will speak about "m".
"m" is called "angolar coefficient" and it shows the slope of the line.
"q" is the point where the straight line meets the vertical axis (or "Y" axis)
"q" is also said "Constant term".
"m" can have positive or negative values:

If "m" is positive, the slope is increasing. So, if "m" is greater than 0, the line is inclined from left to right.

*example*

| x | y |
|---|---|
| 1 | 1 |
| 2 | 3 |
| | |

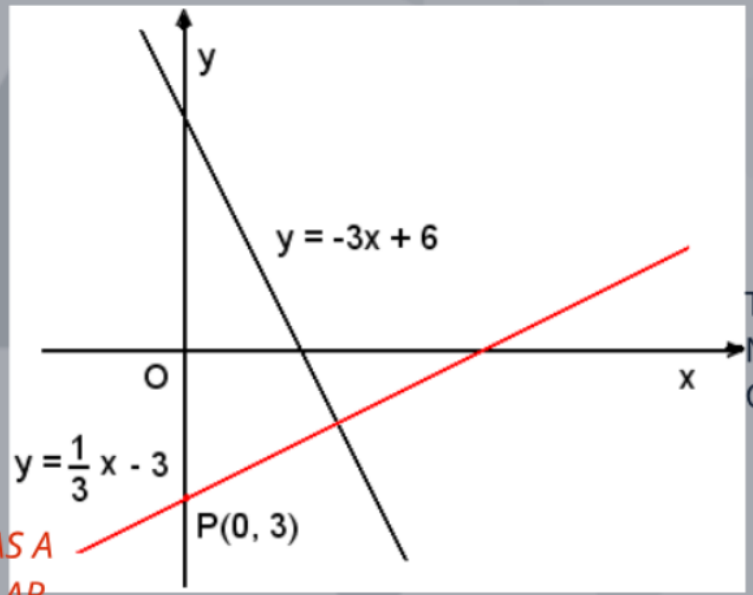



Le mie presentazioni | Pre
Presentazione senza titol
Gmail
Nuova scheda
Donatella
Sicuro | https://prezi.com/p/yg8u0zwhpxqd/
Presentazione senza ...
File
Modifica
Inserisci
Visualizza
Presenta
Aiuto
Torna a modifica
If “m” has negative values, the slope is descending. So, if “m” is less than 0, the line is inclined from right to left.
If the value of “M” is zero, we have a line that is parallel to “X” axis.
Now, if we want to draw a straight line we can build a table giving some values to “X” and so we will have also the “Y” value.
We just need two points, for example:
If the straight line function is: y=2x-1
We can put some values for X into the table, for example 1 and 2 and we will put them into the equation and we will have the “y” values, that is “1” and “3”.
Vista del presentatore

Two lines are parallel if they have the same slope.
1. So, given y=mx+q and y=m'x+q, the two lines are parallel if m=m'.
For example:
The two lines
Y= -2x and y= -2x+4
They have the same angular coefficient, so they are parallel.

The slopes of perpendicular lines have opposite signs and they are reciprocals of each other.
2. So, given y=mx+q and y=m'x+q', are perpendicular m*m'=-1 or m'=-1/m
For example:
The two lines
Y= -3x and y=1/3x +4
Have angular coefficient
M=-3 and m'=1/3
As mm' =(-3) * 1/3 = -1, two lines are perpendicular.

*example*




THE BLACK ONE HAS A NEGATIVE ANGULAR COEFFICIENT

*THE RED ONE HAS A POSITIVE ANGULAR COEFFICIENT*

***THEY ARE ALSO PERPENDICULAR, THEY CREATE AN ANGLE OF 90 DEGREES***

In trigonometry, they relate the angles of a triangle to the lengths of the sides. The most important functions are sine, cosine, and tangent.
The tangent is a function defined by "sine on cosine" (tan=sin/cos). This is the algebraic definition of sine and cosine: Given a point P in a circumference of radius 1 and center O(0; 0), we define "cos α" the abscissa of point P and "sin α" the ordinate of point P. For example, with a 45°(degrees) rising line we have a slope of +1, while with a 45° falling line we have a slope of −1.

*example*