

Algebra.

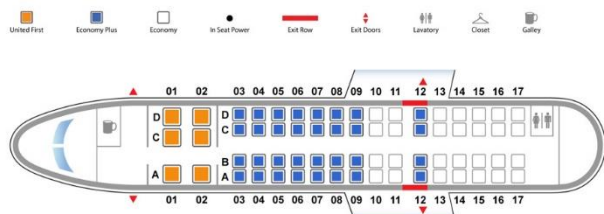
number	Opposite number	number	Inverse number
5		5	
4		$\frac{1}{5}$	
-20		$\frac{3}{2}$	
-1000		1000	
a		a	
-a		$\frac{1}{a}$	
$-(-a)$		$5x$	
$-(-(-a))$			

1. A swimming pool can be filled with one pipe in 10 hours. Full pool can be drain out with another pipe in 20 hours. How long it will take to fill up the pool with opened drain pipe?
2. Jane and Mary are planting flowers. Jane can plant all flowers in 2 hours, Mary can do it in 3 hours. How many hours they need to plant all flowers together?
3. Jane and Mary are doing fall clean up in a backyard. Mary can do the job in 6 hours; together they can do it in 4 hours. How many hours does Jane need to clean up the backyard?
4. 5 hamsters will eat 5 bags of hamster food in 5 days. How many days 10 hamsters need to eat 10 bags of food?

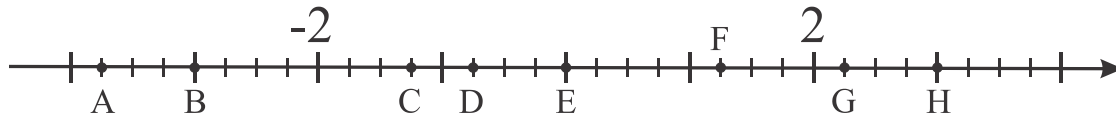
Positive and negative numbers. Absolute value of a number.

Coordinates are a set of values that show an exact position in space. How many values do we need to show the exact position of the point on the

number line? How many values do we need to find our place in a theater? In a plane? What we can use as values?



Find the coordinates of points A, B, C, D, E, F, G, and H on the number line below:



Mark the points A(0), B(1), C(-1 $\frac{1}{2}$), D(5), E(-5), F(-3), G(3)



Is there anything in common between points F and G, D and E?

Absolute value of a number is

$$\begin{cases} |a| = a, & \text{if } a \geq 0 \\ |a| = -a, & \text{if } a < 0 \end{cases}$$

$|5| =$

$|-5| =$

$|10| =$

$|-10| =$

What does absolute value of a number represent?

Does a fraction have an absolute value?

$\left| \frac{1}{2} \right| =$

$\left| -\frac{1}{2} \right| =$

Can we solve the following equation? How many solutions does it have.

$|x| = 5$

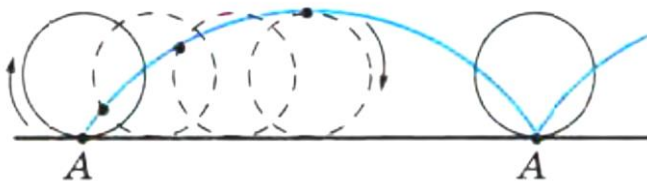
To solve an equation means to find all possible values which will give us a true statement when put into the equation instead of a variable.

$|x| = 3$

$|y| = 10$

$|z| = -2$

Geometry.



Circle is running along the line. At a starting time point A was the point of contact of the circle and the line. The curve which point A will trace is called cycloid.

What line the center of the circle will trace?

Imagine the “square wheel” – a square which is staying on a road. Draw a line traced by the point A (vertex) in a process of “rolling”? The diagonals’ intersection?

