

**Positive and negative numbers.**

If positive represents above sea level, then negative represents below level. If positive represents a deposit, negative represents a withdrawal. If positive represents movement to the right, negative represents movement to the left.

Numbers to the left of zero on the number line are called **negative**. They are less than 0, and we write the “-” in front of them. The numbers to the right from zero are positive.



If we add a positive number to any number, we move to the right along the number line. For example:

$$1 + 3 = 4$$



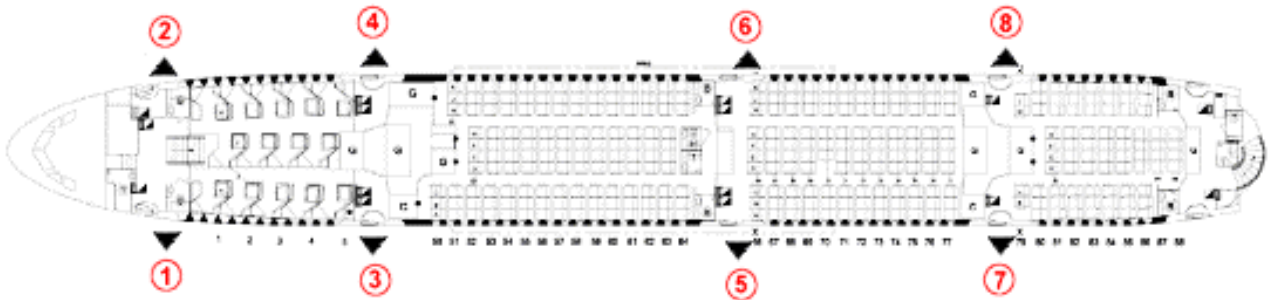
If we subtract a number, we move to the left along the number line. So, subtracting 5 units from 1 will move us to the left on the number line. For example:

$$1 - 5 = -4$$



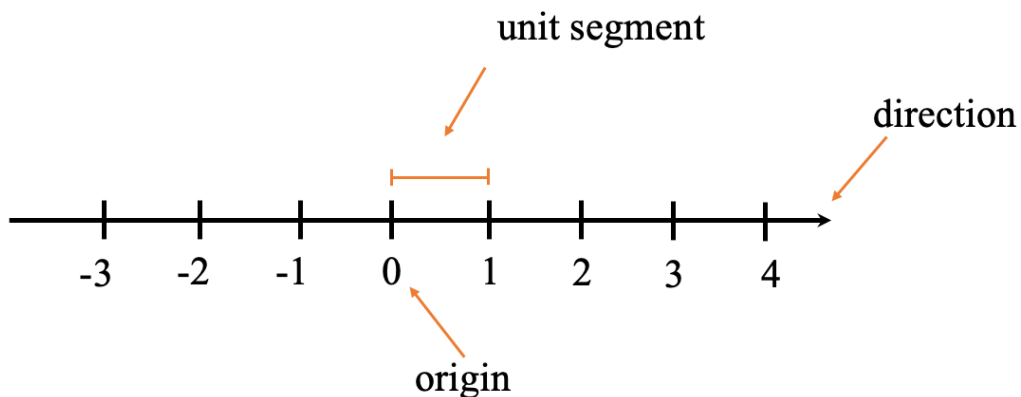
## Coordinates.

Coordinates are a set of values that show an exact position. How many values do we need to show the exact position of a 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?



## Coordinates on a number line.

On a number line each point represents a number. Each number is linked to a point if an origin (point at 0), a unit segment, and the positive direction are defined.



## Homework

1. Compare:

$$-4 < 4$$

$$6 > -4$$

$$\frac{2}{3} > -\frac{3}{2}$$

$$-4 < -2$$

$$-4 < 0$$

$$-\frac{2}{3} > -1$$

2. Compute:

$$3 - 5 =$$

$$23 - 24 =$$

$$-18 + 9 =$$

$$-8 + 10 =$$

$$-6 + 6 =$$

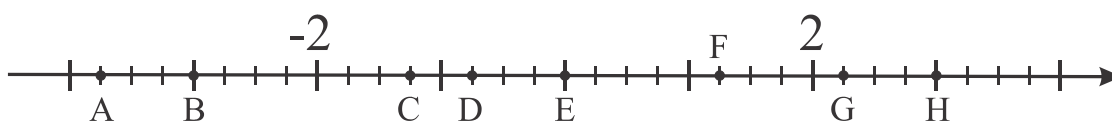
$$-7 - 11 =$$

$$-3 - 2 =$$

$$-10 - 10 =$$

$$8 - 16 =$$

3. Find the coordinates of points A, B, C, D, E, F, G, and H on the number line below. Example A:  $-3\frac{3}{4}$



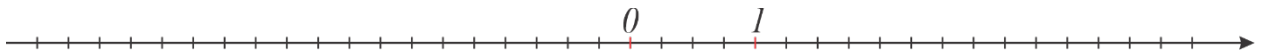
4. Mark the points A(0), B(1), C( $-1\frac{1}{2}$ ), D(5), E(-5), F(-3), G(3)



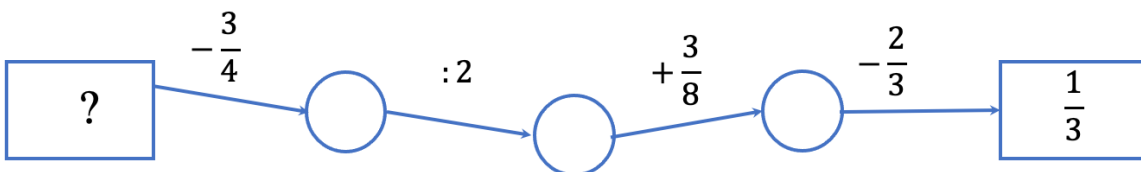
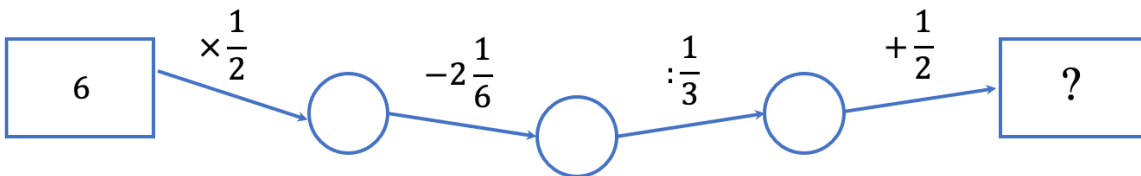
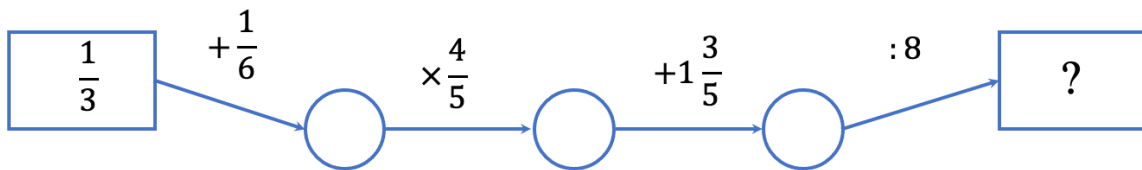
Is there anything in common between points F and G, D and E?

5. On the line below mark the points with coordinates

$2, -2, 4, -4, \frac{3}{4}, -\frac{3}{4}; 2\frac{1}{2}; -\frac{5}{2}; \frac{6}{8}; -\frac{10}{4}$



6. What numbers should be placed instead of ‘?’



7. Which of the pictures below are the cube nets (could be folded into the cube)?

