

Signed numbers knowledge organiser

Pearson Edexcel GCSE Mathematics 1MA1 • L001

Foundation and Higher • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

The number line

Numbers increase to the right. Equal spaces represent equal differences. For example, $-7 < -2 < 0 < 3$. The distance from -7 to -2 is 5 units.

Methods and reasons

Add a positive: $-3 + 5 = 2$. Move five right.

Add a negative: $2 + (-5) = -3$. Move five left.

Subtract a positive: $-2 - 4 = -6$. Add its opposite, -4 .

Subtract a negative: $-2 - (-4) = 2$. Add its opposite, $+4$.

The general rule is $a - b = a + (-b)$. It works because adding b to the result returns a . Check $-2 - (-4) = 2$ by calculating $2 + (-4) = -2$.

Vocabulary and notation

Integer: a whole number, including zero and negative whole numbers.

Opposite: the same distance from zero on the other side, such as 5 and -5 .

Inverse: an operation that undoes another. Addition undoes subtraction.

Counterexample: an example that disproves an “always” claim.

Common traps

-7 is smaller than -2 . Subtraction does not always make a number smaller: $1 - (-2) = 3$. Do not apply a sign slogan without identifying the operation. Keep brackets around a negative number after a subtraction sign.

Check and retrieve

For $a - b = c$, check $c + b = a$. Include units in context. A temperature rise is positive even when the starting temperature is negative. Tomorrow, calculate $-6 + 8$ and $3 - (-4)$; check again in one week. Intentional practice answers: 2 and 7.