

Definition

An **INTEGER** is the more mathematical name for what you already know as a **negative** number.


Strictly speaking, an **integer** is simply a **NEGATIVE** or **POSITIVE** whole number (including 0).

Examples :-

-3, -29, 7, 31, 0, -1, 10000, -1903, etc. are all **INTEGERS**.

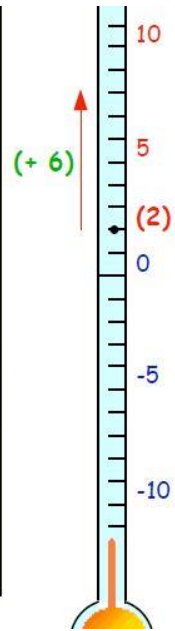
$3\cdot5$, $\frac{3}{4}$, $2\frac{1}{2}$, $-4\cdot1$, $1\frac{3}{4}$, $-22\cdot7$, etc., are **NOT** integers. (Can you see why?)

When adding and subtracting positive and negative numbers, the best way is to draw or imagine them as temperatures on a thermometer.

Example 1 :- To find $2 + 6$,
 imagine the **2** on a thermometer. 
 To do the "+6" bit, you go **UP** by 6 $\rightarrow 2 + 6 = \mathbf{8}$

Example 2 :- To find $2 + (-6)$,
 imagine the **2** on a thermometer.
 To do the "+(-6)" bit, you go **DOWN** by 6 $\rightarrow 2 + (-6) = \mathbf{-4}$

Example 3 :- To find $7 - 10$,
 imagine the **7** on a thermometer.
 To do the "-10" bit \rightarrow you go **DOWN** by 10 $\rightarrow 7 - 10 = \mathbf{-3}$



3. A Mixture !! The rule is simple.

Picture the **first** number on your thermometer.

If you add a **positive** number move **UP**.

If you add a **negative** number or take away a number move **DOWN**.

a $3 + 8$

b $5 + (-9)$

c $1 - 8$

d $(-2) + 12$

e $-4 + (-6)$

f $13 - 15$

g $(-4) - 8$

h $(-30) + (-20)$

i $-20 + 35$

j $0 - 19$

k $0 + (-19)$

l $(-18) + (-3)$

m $18 + (-3)$

n $(-18) + 3$

o $(-37) + 37$

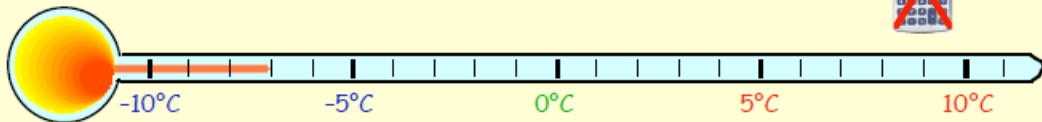
p $54 - 86$

Topic in a Nutshell

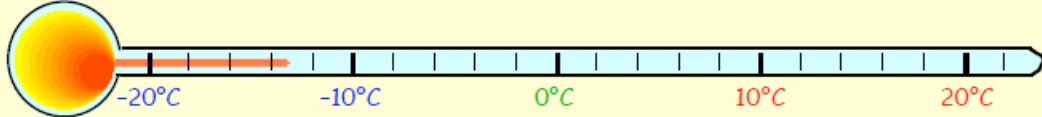
1. State what temperatures are represented on these thermometers :-



a



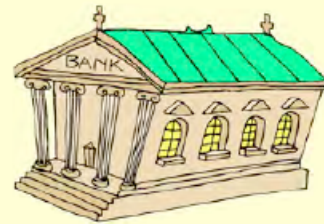
b



2. Jack's bank balance last month was (-£210).

This month his wage of £600 was paid into his account, but he also paid a phone bill of £145.

What is Jack's new bank balance ?



3. Write down what number is :-

a 4 up from -1

b 5 down from 3

c 8 down from -4

d 15 up from -9.

4. Find :-

a $5 + (-3)$

b $7 + (-7)$

c $(-4) + 9$

d $(-9) + 9$

e $(-9) + (-9)$

f $(-5) + (-17)$

g $(-12) + 11$

h $(-101) + 102.$

5. The temperature at midday in Gran Canaria was 24°C .

At midnight it had fallen to -3°C .

By how many degrees had the temperature fallen ?



6. Find :-

a $6 - 8$

b $5 - 12$

c $(-1) - 6$

d $(-4) - 9$

e $0 + (-5)$

f $(-6) - 1$

g $(-48) + 50$

h $23 - 52.$

7. a Copy this coordinate diagram.

b Plot the points :-

$A(-2, 1)$, $B(1, 3)$ and $C(3, 0)$.

c Find a 4th point, (call it D) so that figure ABCD is a **SQUARE**.

Show point D on your diagram and complete the drawing of the square.

