

Calculate with Negative Numbers with & without a Calculator using + - x ÷ NA3

Two negatives **multiplied** together are positive. Similarly, two negatives one **divided** by the other are positive. The results are summarised as follows:

+	x	+	=	+	+	÷	+	=	+
-	x	-	=	+	-	÷	-	=	+
-	x	+	=	-	-	÷	+	=	-
+	x	-	=	-	+	÷	-	=	-

Example

- $-2 \times -4 = 8$
- $-4 \div 2 = -2$
- $4 \times -2 = -8$
- $4 \div 2 = 2$

Also use the rules when + - symbols are **next to each other!**

Example

- $3 - -3$ or written $3 - (-3) = 3 + 3 = 6$
- $3 + -3$ or written $3 + (-3) = 3 - 3 = 0$

Your Turn!!

- Find a) -8×-3 b) -12×9 c) $\frac{10}{-2}$ *Hint: This is a way of writing $10 \div -2$* d) $-8 \div -4$ e) $5 - -6$

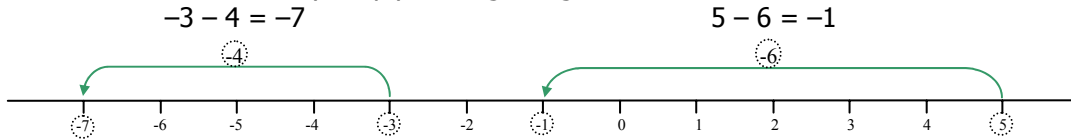
Calculator Check – Make sure you can use your calculator – each one is different

Do the examples 1-4 above on your calculator. Check you get the 4 results shown. To enter a negative number use the \pm button or the $(-)$ button, e.g. To enter -1×-6 , press, $(-)$ 1 \times $(-)$ 6 OR 1 \pm \times 6 \pm .

Reminder

Normal subtractions are calculated by simply moving along the number line.

Example



RAPID 'ACID' TEST – Blank out the page above before answering these!

- Find 1. -8×-4 2. $3 - -12$ 3. $-1 - 4$ 4. $\frac{-10}{-5}$ 5. $\frac{-4}{2}$ 6. $3 - +12$

Substitute Numbers into a Formula – NA4

Example 1

For the equation, $y = 3x + 7$, find y when x is -2 .

Solution

$$y = 3 \times (-2) + 7$$

$$y = -6 + 7$$

$$y = 1$$

Reminder

+	x	+	=	+
-	x	-	=	+
-	x	+	=	-
+	x	-	=	-

Replace the letter, x , with its specified value, -2 .

It's an excellent habit to place the substituted values in brackets!!

Look at the sign to the left of the number to help you do the multiplication.

$$-7 \times (-2) = 14$$

Example 2

For the equation, $y = 3x^2 - 7x + 2$, find y when x is -2

Solution

$$y = 3(-2)^2 - 7(-2) + 2$$

$$y = 3 \times 4 + 14 + 2$$

$$y = 12 + 14 + 2 = 28$$

Remember

$$(-2)^2 = (-2) \times (-2) = 4$$

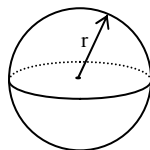
Your Turn!!

- a) In Examples 1) and 2) above, find y when x is 2. b) In Examples 1) and 2) above, find y when x is -3 .

Extra You need also to substitute into the formulae on the formula sheet. These include volumes and surface areas of spheres and cones indicated below and also the Quadratic Formulae, Volume of a Prism, Sine & Cosine Rules and Area of Triangle = $\frac{1}{2}ab\sin C$, which are covered within their appropriate topic.

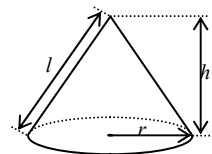
Volume of sphere = $\frac{4}{3}\pi r^3$

Surface area of sphere = $4\pi r^2$



Volume of cone = $\frac{1}{3}\pi r^2 h$

Curved surface area of cone = $\pi r l$



RAPID 'ACID' TEST – Blank out the page above before answering these!

1. Find y when x is -2 , where $y = 7 - 3x$ 2. Find y when x is -5 , where $y = 1 - 3x^2$