

Y7L U4 Order of Operations: Knowledge Organiser

The 4 operations for arithmetic are + - ÷ ×

The order of priority is the order in which you perform the operations

Addition and subtraction have equal priority

So when performing just addition and subtraction work from left to right

$$7 - 5 + 10$$

$$= 2 + 10$$

$$= 12$$

$$12 - 8 - 1 + 5$$

$$= 4 - 1 + 5$$

$$= 3 + 5$$

$$= 8$$

Multiplication and division have equal priority

So when performing just multiplication and division work from left to right

$$6 \times 5 \div 10$$

$$= 30 \div 10$$

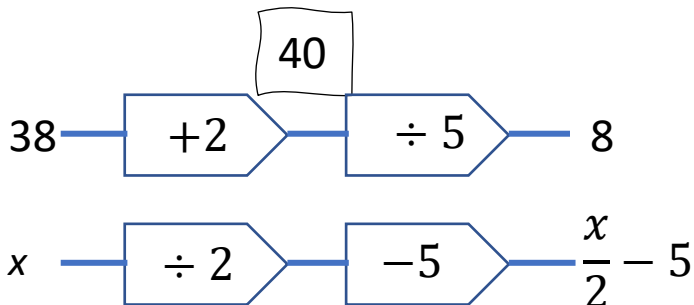
$$= 3$$

$$12 \div 3 \times 7$$

$$= 4 \times 7$$

$$= 28$$

Function machines can be used to represent and complete calculations



Multiplication and division have a higher priority than subtraction and addition

This means multiplication and division are calculated before addition and subtraction

$$17 - 5 \times 2$$

$$= 17 - 10$$

$$= 7$$

$$8 \times 10 - 20 \div 5$$

$$= 80 - 4$$

$$= 76$$

Calculations involving all four operations and brackets

Brackets first

then × or ÷

then + or -

$$\begin{aligned} & 2 \times (6 + 4) \div 5 \\ &= 2 \times 10 \div 5 \\ &= 20 \div 5 \\ &= 4 \end{aligned}$$

Calculations involving vincula

The **vinculum** is the horizontal line and it means divide.

The numerator and denominator are really in brackets

$$\begin{aligned} & \frac{12-4}{2} - 1 \quad \rightarrow \quad (12 - 4) \div 2 - 1 \\ &= \frac{8}{2} - 1 \\ &= 4 - 1 \\ &= 3 \end{aligned}$$