

## Functions

$$f(x) = 3x^2 - 2x + 5$$

Find  $f(3)$

## Order of operations

Evaluate  $3 * 4 - \frac{5 * 2}{6 + 4 / 2}$

## Rearranging – find x in each case

1.  $\frac{x+10}{2x+3} = 2$

2.  $x^3 + x^2 - 6x = 0$

## Logic

1. Write a mathematical expression for Y equals A and B. Write a truth table for this function and the circuit symbol for the logic gate.

2. Repeat for the or logic function.

## Composite Functions and Inverses

1.  $f(x) = x^2 + 3$

Find  $f(1)$  and  $f(2)$ .

2.  $f(x) = x^2 + 3$  and  $g(t) = 3 \sin(t)$

Find  $f(g(t))$  and  $g(f(x))$

3.  $f(t) = t^3 - 3$  and  $g(t) = 3e^t$

Find  $f(g(t))$  and  $g(f(t))$

4. Find the inverse of  $f(x) = 3x + 4$ . Show all steps.

5. Find the inverse of  $f(z) = \frac{3z-5}{6}$ . Show all steps.

### Sets and Logic

1. Consider the sets  $A = \{7, 8, 9, p, g\}$  and  $B = \{5, 8, 12, 7, g\}$  within the universe  $\{c, 5, 6, 7, 8, 9, 12, 13, q, g, p\}$

Find  $A \cup B$  and  $A \cap B$

Find  $\bar{A}$  and  $\bar{B}$

2. Union is related to the logic function \_\_\_\_\_

3. Intersection is related to the logic function \_\_\_\_\_