

# SUMMER TASK

## MATHS



This task is designed as a recall activity, you should have done all or most of these things at GCSE. We'd like you to complete this over the Summer and hand in on your first week to your A Level Maths teacher.

### TASK: MATHS

#### You may NOT use a calculator

- Expand and simplify
  - $(2x + 3)(2x - 1)$  (2)
  - $(a + 3)^2$  (2)
  - $4x(3x - 2) - x(2x + 5)$  (2)
- Factorise
  - $x^2 - 7x$  (2)
  - $y^2 - 64$  (2)
  - $2x^2 + 5x - 3$  (2)
- Simplify
  - $\frac{4x^3y}{8x^2y^3}$  (2)
  - $\frac{3x+2}{3} + \frac{4x-1}{6}$  (2)
- Solve the following equations
  - $\frac{h-1}{4} + \frac{3h}{5} = 4$  (3)
  - $x^2 - 8x = 0$  (3)
  - $p^2 + 4p = 12$  (3)
- Write each of the following as single powers of x and/or y
  - $\frac{1}{x^4}$  (1)
  - $(x^2y)^3$  (1)
- Work out the values of the following, giving your answers as fractions
  - $4^{-2}$  (1)
  - $(\frac{8}{27})^{\frac{1}{3}}$  (2)
- Solve the following pairs of simultaneous equations
  - $3x - 5y = -11$   
 $5x - 2y = 7$  (3)
  - $y = x^2$   
 $y = 2x^2 + 7x + 12$  (3)
- Rearrange the following to make x the subject
  - $v^2 = u^2 + 2ax$  (2)
  - $v = \frac{1}{3}\pi x^2 h$  (2)
  - $y = \frac{x+2}{x+1}$  (3)
- Solve
 

$5x^2 - x - 1 = 0$  giving your solutions in surd form (3)
- Expand and simplify  
 $(7 + \sqrt{5})(3 - \sqrt{5})$  (2)
  - Express  $\frac{7+\sqrt{5}}{3+\sqrt{5}}$  in the form  $a + b\sqrt{5}$ , where a and b are integers (2)