

## Substituting into Formulae

### Part 1: (Physics and Mechanics)

At time  $t$ , the velocity of an object with constant acceleration  $a$  and initial velocity  $u$  is given by:

$$v = u + at$$

Find  $v$  when:

- |                                 |                             |                              |
|---------------------------------|-----------------------------|------------------------------|
| 1) $u=2$ , $a=5$ and $t=2$      | 2) $u=3$ , $a=6$ and $t=4$  | 3) $u=3$ , $a=0$ and $t=3.1$ |
| 4) $u=1.5$ , $a=10$ and $t=0.2$ | 5) $u=-3$ , $a=6$ and $t=2$ | 6) $u=10$ , $a=-3$ and $t=2$ |

### Part 2: (Physics)

In electronics; voltage is given by:  $V = IR$ .

$I$  = current and  $R$ =resistance

Find  $V$  when :

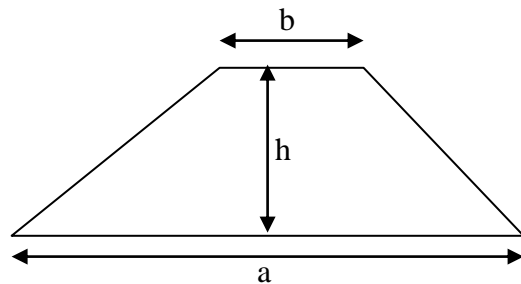
- |                         |                        |                         |
|-------------------------|------------------------|-------------------------|
| 1) $I=6$ and $R=10$     | 2) $I=16$ and $R=14$   | 3) $I=5.2$ and $R=2$    |
| 4) $I=100$ and $R=0.01$ | 5) $I=0.2$ and $R=0.2$ | 6) $I=10000$ and $R=15$ |

### Part 3: (Mathematics)

The area of a trapezium is given by  $A = \frac{1}{2}(a + b)h$

Find  $A$  when:

- 1)  $a=1$ ,  $b=2$  and  $h=6$
- 2)  $a=3$ ,  $b=5$  and  $h=2$
- 3)  $a=1.5$ ,  $b=2.5$  and  $h=5r$
- 4)  $a=6$ ,  $b=5$  and  $h=3$



### Part 4: (Physics and Mechanics)

At time  $t$ , the position of an object with constant acceleration  $a$  and initial velocity  $u$  is given by:

$$S = ut + \frac{1}{2}at^2$$

Find  $u$  when:

- |                               |                             |                             |
|-------------------------------|-----------------------------|-----------------------------|
| 1) $u=2$ , $t=5$ and $a=4$    | 2) $u=6$ , $t=4$ and $a=10$ | 3) $u=3$ , $t=9$ and $a=3$  |
| 4) $u=-3$ , $t=0$ and $a=1.4$ | 5) $u=4$ , $t=6$ and $a=-4$ | 6) $u=3$ , $t=-4$ and $a=5$ |

### Part 5: (Mathematics)

(Calculator required)

The Volume of a cylinder is given by  $V = \pi r^2 h$

Find  $V$  when:

- |                      |                    |                       |
|----------------------|--------------------|-----------------------|
| 1) $r=2$ , $h=5$     | 2) $r=3$ , $h=2$   | 3) $r=10$ , $h=6$     |
| 4) $r=0.1$ , $h=500$ | 5) $r=0.2$ , $h=8$ | 6) $r=15.2$ , $h=1.6$ |