

## Algebraic Direct Proportion

(a)  $y$  is directly proportional to  $x$ .

When  $x = 80, y = 100$ .

(i) Find an equation for  $y$  in terms of  $x$

(ii) Find the value of  $y$  when  $x = 50$

(b)  $f$  is directly proportional to  $g$ .

Complete the table of values.

$g$	2	5	8	25
$f$	6	15	24	75

$$(ai) y = 0.8x$$

$$(a ii) y = 40$$

(c)  $a$  is directly proportional to  $b^2$ .

When  $b = 4, a = 40$ .

(i) Find an equation for  $a$  in terms of  $b$

(ii) Find the value of  $a$  when  $b = 7$

(d)  $w$  is directly proportional to the square of  $t$ . Complete the table of values.

$t$	2	4	8	10
$w$	3	12	48	75

$$(ci) a = 2.5b^2$$

$$(cii) a = 122.5$$

(e)  $y$  is directly proportional to  $x^3$ .

When  $x = 3, y = 540$ .

(i) Find an equation for  $y$  in terms of  $x$

(ii) Find the value of  $y$  when  $x = 5$

(f)  $c$  is directly proportional to  $\sqrt{d}$ .

When  $d = 25, c = 1$ .

(i) Find an equation for  $c$  in terms of  $d$

(ii) Find the value of  $c$  when  $d = 121$

$$(ei) y = 20x^3$$

$$(eii) y = 2500$$

$$(fi) c = 0.2\sqrt{d}$$

$$(fii) c = 2.2$$

(g)  $m$  is directly proportional to the cube root of  $n$ . When  $n = 27, m = \frac{9}{2}$ .

(i) Find an equation for  $m$  in terms of  $n$

(ii) Find the value of  $n$  when  $m = 6$

(h)  $y$  is directly proportional to  $\sqrt[3]{x}$ . Complete the table of values.

$x$	27	125	343	1000
$y$	18	30	42	60

$$(gi) m = 1.5\sqrt[3]{n}$$

$$(gii) n = 64$$