



Expanding Brackets with Surds (1)

1 By expanding brackets first, write each of the following calculations in its simplest form.

Example

$$3(\sqrt{2} + 4)$$

X	$\sqrt{2}$	+ 4
3	$3\sqrt{2}$	+ 12

Use a multiplication grid and apply the laws of surds.

$$= 3\sqrt{2} + 12$$

a) $3(\sqrt{2} + 5)$

b) $4(\sqrt{2} + 5)$

c) $4(\sqrt{3} + 5)$

d) $8(\sqrt{3} + 5)$

e) $8(\sqrt{3} + 10)$

f) $4(2\sqrt{3} + 5)$

g) $4(5 + 2\sqrt{3})$

h) $2(10 + 2\sqrt{3})$

i) $2(\sqrt{100} + 2\sqrt{3})$

j) $2(\sqrt{16} + 2\sqrt{3})$

k) $2(\sqrt{10} + 2\sqrt{3})$

l) $2(\sqrt{12} + 2\sqrt{3})$

2 By expanding brackets first, write each of the following calculations in its simplest form.

Example

$$\sqrt{6}(\sqrt{2} + 3)$$

X	$\sqrt{2}$	+ 3
$\sqrt{6}$	$\sqrt{12}$	+ $3\sqrt{6}$

Use a multiplication grid and apply the laws of surds.

Make sure your final answer is in its simplest form.

$$= \sqrt{12} + 3\sqrt{6}$$

$$= 2\sqrt{3} + 3\sqrt{6}$$

a) $\sqrt{7}(\sqrt{2} + 3)$

b) $\sqrt{7}(\sqrt{2} + 4)$

c) $\sqrt{7}(\sqrt{2} + 5)$

d) $\sqrt{6}(\sqrt{2} + 5)$

e) $\sqrt{10}(\sqrt{2} + 5)$

f) $\sqrt{8}(\sqrt{2} + 5)$

g) $\sqrt{8}(\sqrt{5} + 5)$

h) $2\sqrt{2}(\sqrt{5} + 5)$

i) $3\sqrt{2}(\sqrt{5} + 5)$

j) $3\sqrt{2}(\sqrt{2} + 5)$

k) $3\sqrt{2}(\sqrt{8} + 5)$

l) $3\sqrt{2}(\sqrt{8} + \sqrt{2})$

