

Expand Double Brackets Containing Surds



Expand Double Brackets Containing Surds

1. Use the grids to expand & simplify.

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

	$\sqrt{5}$	2
4		
$\sqrt{5}$		

b) $(\sqrt{3} + 7)(\sqrt{5} - 2)$

2. Expand and simplify.

a) $(6 + \sqrt{5})(\sqrt{5} + 1)$

b) $(6 + \sqrt{5})(\sqrt{5} - 1)$

c) $(6 - \sqrt{5})(\sqrt{5} + 1)$

d) $(6 - \sqrt{5})(\sqrt{5} - 1)$

e) $(6 + \sqrt{5})(\sqrt{3} - 1)$

What is the same and what is different about each?



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3. Expand and simplify.

a) $(a + \sqrt{3})(\sqrt{3} + b)$

b) $(c + \sqrt{5})(\sqrt{5} - c)$

c) $(4 - \sqrt{d})(\sqrt{d} + 1)$

d) $(e - \sqrt{f})(\sqrt{5} - 1)$

4. Mo is attempting to expand and simplify $(7 + \sqrt{11})(\sqrt{11} - 11)$

Here is his working out.

	$\sqrt{11}$	-11
7	$7\sqrt{11}$	-77
$\sqrt{11}$	11	-11

$$7\sqrt{11} - 77 + 11 - 11 = 7\sqrt{11} - 77$$



Answers



Expand Double Brackets Containing Surds

1. Use the grids to expand & simplify.

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

	$\sqrt{5}$	2	
4	$4\sqrt{5}$	8	
$\sqrt{5}$	5	$2\sqrt{5}$	$=6\sqrt{5}+13$

b) $(\sqrt{3} + 7)(\sqrt{5} - 2)$

$=\sqrt{15} - 2\sqrt{3} + 7\sqrt{5} - 14$

	$\sqrt{5}$	- 2	
$\sqrt{3}$	$\sqrt{15}$	$-2\sqrt{3}$	
+7	$+7\sqrt{5}$	-14	

2. Expand and simplify.

a) $(6 + \sqrt{5})(\sqrt{5} + 1) = 7\sqrt{5} + 11$

b) $(6 + \sqrt{5})(\sqrt{5} - 1) = 5\sqrt{5} - 1$

c) $(6 - \sqrt{5})(\sqrt{5} + 1) = 5\sqrt{5} + 1$

d) $(6 - \sqrt{5})(\sqrt{5} - 1) = 7\sqrt{5} - 11$

e) $(6 + \sqrt{5})(\sqrt{3} - 1) = 6\sqrt{3} - \sqrt{5} + \sqrt{15} - 6$

What is the same and what is different about each?



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3. Expand and simplify.

$$a)(a + \sqrt{3})(\sqrt{3} + b) = ab + a\sqrt{3} + b\sqrt{3} + 3$$

$$b)(c + \sqrt{5})(\sqrt{5} - c) = 5 - c^2$$

$$c)(4 - \sqrt{d})(\sqrt{d} + 1) = 3\sqrt{d} - d + 4$$

$$d)(e - \sqrt{f})(\sqrt{5} - 1) = e\sqrt{5} - e - \sqrt{5f} + \sqrt{f}$$

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Here is his working out.

	$\sqrt{11}$	-11
7	$7\sqrt{11}$	-77
$\sqrt{11}$	11	-11

$$7\sqrt{11} - 77 + 11 - 11 = 7\sqrt{11} - 77$$

