

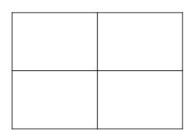


1. Use the grids to expand & simplify.

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



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?



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

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

 $\sqrt{11}$  11 -11

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

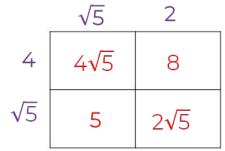


# **Answers**



1. Use the grids to expand & simplify.

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



$$=6\sqrt{5}+13$$

b) 
$$(\sqrt{3} + 7)(\sqrt{5} - 2)$$
  $\sqrt{5}$  - 2  
= $\sqrt{15} - 2\sqrt{3} + 7\sqrt{5} - 14$   $\sqrt{3}$   $\sqrt{15}$   $-2\sqrt{3}$   
+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?



3. Expand and simplify.

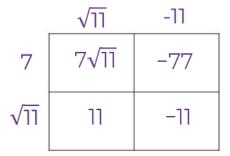
a)(a + 
$$\sqrt{3}$$
)( $\sqrt{3}$  + b) = ab + a $\sqrt{3}$  + b $\sqrt{3}$  + 3

b)(c + 
$$\sqrt{5}$$
)( $\sqrt{5}$  - c) = 5 - c<sup>2</sup>

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

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

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



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

