

Questions - Surds

1 Simplify.

a $\sqrt{45}$

b $\sqrt{125}$

c $\sqrt{48}$

d $\sqrt{175}$

e $\sqrt{300}$

f $\sqrt{28}$

g $\sqrt{72}$

h $\sqrt{162}$

2 Simplify.

a $\sqrt{72} + \sqrt{162}$

b $\sqrt{45} - 2\sqrt{5}$

c $\sqrt{50} - \sqrt{8}$

d $\sqrt{75} - \sqrt{48}$

e $2\sqrt{28} + \sqrt{28}$

f $2\sqrt{12} - \sqrt{12} + \sqrt{27}$

3 Expand and simplify.

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

b $(3 + \sqrt{3})(5 - \sqrt{12})$

c $(4 - \sqrt{5})(\sqrt{45} + 2)$

d $(5 + \sqrt{2})(6 - \sqrt{8})$

4 Rationalise and simplify, if possible.

a $\frac{1}{\sqrt{5}}$

b $\frac{1}{\sqrt{11}}$

c $\frac{2}{\sqrt{7}}$

d $\frac{2}{\sqrt{8}}$

e $\frac{2}{\sqrt{2}}$

f $\frac{5}{\sqrt{5}}$

g $\frac{\sqrt{8}}{\sqrt{24}}$

h $\frac{\sqrt{5}}{\sqrt{45}}$

5 Rationalise and simplify.

a $\frac{1}{3 - \sqrt{5}}$

b $\frac{2}{4 + \sqrt{3}}$

c $\frac{6}{5 - \sqrt{2}}$

Extend

6 Expand and simplify $(\sqrt{x} + \sqrt{y})(\sqrt{x} - \sqrt{y})$

7 Rationalise and simplify, if possible.

a $\frac{1}{\sqrt{9} - \sqrt{8}}$

b $\frac{1}{\sqrt{x} - \sqrt{y}}$