

Do not use your calculator for this exercise.

1 Simplify:

a $\sqrt{28}$

b $\sqrt{72}$

c $\sqrt{50}$

d $\sqrt{32}$

e $\sqrt{90}$

f $\frac{\sqrt{12}}{2}$

g $\frac{\sqrt{27}}{3}$

h $\sqrt{20} + \sqrt{80}$

i $\sqrt{200} + \sqrt{18} - \sqrt{72}$

j $\sqrt{175} + \sqrt{63} + 2\sqrt{28}$

k $\sqrt{28} - 2\sqrt{63} + \sqrt{7}$

l $\sqrt{80} - 2\sqrt{20} + 3\sqrt{45}$

m $3\sqrt{80} - 2\sqrt{20} + 5\sqrt{45}$

n $\frac{\sqrt{44}}{\sqrt{11}}$

o $\sqrt{12} + 3\sqrt{48} + \sqrt{75}$

2 Expand and simplify if possible:

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

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

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

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

e $(2 - \sqrt{3})(3 - \sqrt{7})$

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

g $(5 - \sqrt{3})(1 - \sqrt{3})$

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

i $(7 - \sqrt{11})(2 + \sqrt{11})$

E 3 Simplify $\sqrt{75} - \sqrt{12}$ giving your answer in the form $a\sqrt{3}$, where a is an integer.

(2 marks)