Adding and Subtracting Surds

Work out:

(a) $4\sqrt{2}+3\sqrt{2}$ (b) $10\sqrt{3}-2\sqrt{3}$

(c) $-3\sqrt{5}+7\sqrt{5}$ (d) $6\sqrt{2}-8\sqrt{2}$

(e) $4\sqrt{3}+7\sqrt{3}-\sqrt{3}$

(f) $2\sqrt{7}+5\sqrt{7}-8\sqrt{7}$

(g) $\frac{3}{2}\sqrt{5}+\frac{7}{2}\sqrt{5}-\frac{1}{2}\sqrt{5}$

(a) $7\sqrt{2}$ (b) $8\sqrt{3}$

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

(e) $10\sqrt{3}$

(f) $-\sqrt{7}$

(g) $\frac{9}{2}\sqrt{5}$

Express as a single surd:

(a) $3\sqrt{2}+\sqrt{8}$ (b) $\sqrt{40}+\sqrt{10}$

(c) $6\sqrt{5}-\sqrt{20}$ (d) $-2\sqrt{3}+\sqrt{48}$

(e) $\sqrt{8}+\sqrt{32}-10\sqrt{2}$

(f) $5\sqrt{3}-\sqrt{3}+2\sqrt{12}$

(g) $-3\sqrt{10}-\sqrt{90}-2\sqrt{160}$

(a) $5\sqrt{2}$ (b) $3\sqrt{10}$

(c) $4\sqrt{5}$ (d) $2\sqrt{3}$

(e) $-4\sqrt{2}$

(f) $8\sqrt{3}$

(g) $-14\sqrt{10}$

Simplify:

(a) $5+2\sqrt{3}+13+5\sqrt{3}$

(b) $5\sqrt{2}-3-2\sqrt{2}+11$

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

(d) $3\sqrt{5}-\sqrt{10}-6\sqrt{10}-\sqrt{5}$

(e) $\sqrt{8}+\sqrt{20}+6\sqrt{2}+3\sqrt{5}$

(f) $\sqrt{200}-3\sqrt{6}+6\sqrt{2}-\sqrt{486}$

(a) $18+7\sqrt{3}$

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

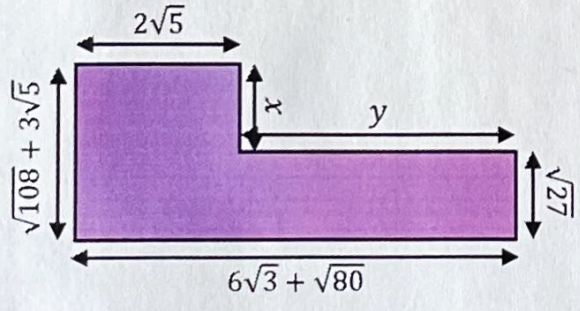
(c) $8\sqrt{3}+2\sqrt{2}$

(d) $2\sqrt{5}-7\sqrt{10}$

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

(f) $16\sqrt{2}-12\sqrt{6}$

Find the values of x and y and the perimeter of the compound shape in the form $a\sqrt{3}+b\sqrt{5}$.



$x = \sqrt{108}+3\sqrt{5}-\sqrt{27}$

$x = 3\sqrt{5}+3\sqrt{3}$

$y = 6\sqrt{3}+\sqrt{80}-2\sqrt{5}$

$y = 2\sqrt{5}+6\sqrt{3}$

$P = 2(\sqrt{108}+3\sqrt{5}+6\sqrt{3}+\sqrt{80})$

$P = 14\sqrt{5}+24\sqrt{3}$