

Rationalising the Denominator Proof

(a) Show that $\frac{5+\sqrt{3}}{2-\sqrt{3}}$ can be written in the form $a + b\sqrt{3}$, where a and b are integers to be found.

(b) Show that $\frac{8-\sqrt{2}}{2+\sqrt{2}}$ can be written in the form $a + b\sqrt{2}$, where a and b are integers to be found.

(c) Show that $\frac{4\sqrt{2}-1}{3+\sqrt{8}}$ can be written in the form $a\sqrt{2} + b$, where a and b are integers to be found.

(d) Show that $\frac{2+\sqrt{20}}{3-\sqrt{5}} \times 3\sqrt{5}$ can be written in the form $a + b\sqrt{5}$, where a and b are integers to be found.

(e) Show that $\frac{(2+2\sqrt{7})^2}{3-\sqrt{7}}$ can be written in the form $a + b\sqrt{7}$, where a and b are integers to be found.

(f) Show that $\frac{\sqrt{8}(4-3\sqrt{2})}{\sqrt{2}+1} + 5(4-\sqrt{2})$ can be written in the form $a + b\sqrt{2}$, where a and b are integers to be found.

(g) Given that $\frac{a+\sqrt{12}}{2-\sqrt{3}} = b + 10\sqrt{3}$

find the values of a and b .

(h) Given that

$$\frac{a}{(1+\sqrt{3})^2} + (a\sqrt{3})^3 = 2 + b\sqrt{3}$$

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