N5 Maths: Surds

Non-calculator

Q1 Fully simplify each surd:

a) $\sqrt{12}$ **b)** $\sqrt{18}$ **c)** $\sqrt{50}$

d) $\sqrt{60}$ **e)** $\sqrt{48}$ **f)** $\sqrt{108}$

g) $\sqrt{32}$ **h)** $\sqrt{72}$ **i)** $\sqrt{96}$

Q2 Fully simplify each surd:

a) $3\sqrt{20}$ **b)** $2\sqrt{27}$ **c)** $4\sqrt{8}$

d) $-3\sqrt{24}$ **e)** $\frac{1}{2}\sqrt{80}$ **f)** $-\sqrt{90}$

Q3 Fully simplify each expression:

a) $2\sqrt{6}+\sqrt{24}$ **b)** $3\sqrt{48}-2\sqrt{12}$ **c)** $-\sqrt{20}-2\sqrt{45}$

d) $\sqrt{98}+3\sqrt{50}-2\sqrt{72}$ **e)** $4\sqrt{27}-3\sqrt{3}+2\sqrt{48}$ **f)** $2\sqrt{44}+\sqrt{11}-\sqrt{99}$

Q4 Fully simplify each expression:

a) $\sqrt{13}\sqrt{13}$ **b)** $\sqrt{8}\sqrt{4}$ **c)** $\sqrt{8}\sqrt{12}$

d) $\sqrt{20}\sqrt{48}$ **e)** $3\sqrt{6}\sqrt{12}$ **f)** $4\sqrt{27}\sqrt{5}$

Q5 Express each surd with a rational denominator. Give your answer in its simplest form.

a) $\frac{2}{\sqrt{3}}$ **b)** $\frac{6}{\sqrt{50}}$ **c)** $\frac{5}{\sqrt{54}}$

d) $\frac{1}{\sqrt{19}}$ **e)** $\frac{8}{\sqrt{8}}$ **f)** $\frac{6}{\sqrt{72}}$

Q6 Express each surd with a rational denominator. Give your answer in its simplest form.

a) $\frac{\sqrt{3}}{\sqrt{6}}$ **b)** $\frac{\sqrt{5}}{\sqrt{75}}$ **c)** $\frac{\sqrt{8}}{\sqrt{27}}$

d) $\frac{2\sqrt{8}}{\sqrt{7}}$ **e)** $\frac{\sqrt{2}}{4\sqrt{40}}$ **f)** $\frac{3\sqrt{12}}{2\sqrt{60}}$

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