

Simplify Square Roots

1. Simplify the following square roots as much as possible.

a) $\sqrt{18}$

b) $\sqrt{44}$

c) $\sqrt{169}$

d) $\sqrt{75}$

e) $\sqrt{108}$

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1. Simplify the following square roots as much as possible.

$$\begin{aligned} \text{a) } \sqrt{18} &= \sqrt{2 \times 3^2} \\ &= \sqrt{2} \times \sqrt{3^2} \\ &= 3\sqrt{2} \end{aligned}$$

$$\begin{aligned} \text{b) } \sqrt{44} &= \sqrt{2^2 \times 11} \\ &= \sqrt{2^2} \times \sqrt{11} \\ &= 2\sqrt{11} \end{aligned}$$

$$\begin{aligned} \text{c) } \sqrt{169} &= \sqrt{13^2} \\ &= 13 \end{aligned}$$

$$\begin{aligned} \text{d) } \sqrt{75} &= \sqrt{3 \times 5^2} \\ &= \sqrt{3} \times \sqrt{5^2} \\ &= 5\sqrt{3} \end{aligned}$$

$$\begin{aligned} \text{e) } \sqrt{108} &= \sqrt{2^2 \times 3^3} \\ &= \sqrt{2^2} \times \sqrt{3^2} \times \sqrt{3} \\ &= 2 \times 3\sqrt{3} \\ &= 6\sqrt{3} \end{aligned}$$

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