11/2 - Multiplying Square Roots

2 methods

① Multiply then simplify

$\sqrt{8} \cdot \sqrt{12}$

$= \sqrt{\underset{16 \cdot 6}{96}}$

$= \sqrt{16} \cdot \sqrt{6}$

$= 4\sqrt{6}$

② Simplify then multiply

$\sqrt{\underset{4 \cdot 2}{8}} \cdot \sqrt{\underset{4 \cdot 3}{12}}$

$= 2\sqrt{2} \cdot 2\sqrt{3}$

$= 4\sqrt{6}$

$$3\sqrt{\underset{4\cdot 5}{20}}\cdot\sqrt{6}$$

$$= 3\cdot 2\sqrt{5}\cdot\sqrt{6}$$

$$= 6\sqrt{30}$$

$$-4\sqrt{\underset{9\cdot 2}{18}}\cdot 2\sqrt{6}$$

$$= -4\cdot 3\sqrt{2}\cdot 2\sqrt{6}$$

$$= -24\sqrt{\underset{4\cdot 3}{12}}$$

$$= -24\cdot 2\sqrt{3}$$

$$= -48\sqrt{3}$$

$$-4\sqrt{18}\cdot 2\sqrt{6}$$

$$= -8\sqrt{\underset{36\cdot 3}{108}}$$

$$= -8\cdot 6\sqrt{3}$$

$$= -48\sqrt{3}$$