

1.61 - EQ - 5.2 Dividing Radical Expressions (Part 2)

Q1: Simplify each expression (1 mark each)

$$\sqrt{18} + \sqrt{20} - \sqrt{2} + \sqrt{45}$$

$$\sqrt{2 \cdot 3^2} + \sqrt{2^2 \cdot 5} - \sqrt{2} + \sqrt{3^2 \cdot 5}$$

$$3\sqrt{2} + 2\sqrt{5} - \sqrt{2} + 3\sqrt{5}$$

$$\boxed{2\sqrt{2} + 5\sqrt{5}}$$

$$\begin{array}{l} 18 \\ \swarrow \searrow \\ 2 \quad 9 \\ \swarrow \searrow \\ 3 \quad 3 \end{array}$$

$$\begin{array}{l} 20 \\ \swarrow \searrow \\ 2 \quad 10 \\ \swarrow \searrow \\ 2 \quad 5 \end{array}$$

$$\begin{array}{l} 45 \\ \swarrow \searrow \\ 3 \quad 15 \\ \swarrow \searrow \\ 3 \quad 5 \end{array}$$

$$(5 - 3\sqrt{2})(\sqrt{2} + 6)$$

$$5\sqrt{2} + 30 - 3(2) - 18\sqrt{2}$$

$$5\sqrt{2} + 30 - 6 - 18\sqrt{2}$$

$$\boxed{-13\sqrt{2} + 24}$$

Q2: Rationalize the Denominator (1 mark each)

$$\frac{4}{3\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{4\sqrt{2}}{3(2)}$$

$$= \frac{4\sqrt{2}}{6} = \boxed{\frac{2\sqrt{2}}{3}}$$

$$\left(\frac{1}{2+\sqrt{6}}\right) \cdot \frac{(2-\sqrt{6})}{(2-\sqrt{6})} = \frac{2-\sqrt{6}}{4-6}$$

$$= \frac{2-\sqrt{6}}{-2} = \boxed{\frac{-2+\sqrt{6}}{2}}$$

$$\left(\frac{2+\sqrt{3}}{2\sqrt{5}-1}\right) \cdot \frac{(2\sqrt{5}+1)}{(2\sqrt{5}+1)}$$

$$= \frac{4\sqrt{5} + 2 + 2\sqrt{15} + \sqrt{3}}{2(5) - 1}$$

$$= \boxed{\frac{4\sqrt{5} + 2 + 2\sqrt{15} + \sqrt{3}}{9}}$$

MARKING:

Beginning	0.0 - 2.0
Progressing	2.5 - 3.0
Competent	3.5 - 4.5
Exemplary	5.0