Exercise 24

Radicals and Exponents Evaluate each expression.

$$\text{(a)} \ \ 2\sqrt[3]{81} \qquad\qquad \text{(b)} \ \ \frac{\sqrt{18}}{\sqrt{25}} \qquad\qquad \text{(c)} \ \ \sqrt{\frac{12}{49}}$$

Solution

<u>**Part (a)**</u>

Since the root is 3, it takes three of the same number to move out of it.

$$2\sqrt[3]{81} = 2\sqrt[3]{3 \times 3 \times 3 \times 3}$$

$$= 2(3)\sqrt[3]{3}$$

$$= 6\sqrt[3]{3}$$

<u>**Part (b)**</u>

The root is 2, so it takes two of the same number to move out of it.

$$\frac{\sqrt{18}}{\sqrt{25}} = \frac{\sqrt{2 \times 3 \times 3}}{\sqrt{5 \times 5}}$$

$$= \frac{3\sqrt{2}}{5}$$

<u>**Part (c)**</u>

The root is 2, so it takes two of the same number to move out of it.

$$\sqrt{\frac{12}{49}} = \frac{\sqrt{12}}{\sqrt{49}}$$

$$= \frac{\sqrt{2 \times 2 \times 3}}{\sqrt{7 \times 7}}$$

$$= \frac{2\sqrt{3}}{7}$$