Area Conversion

1. Davidson is selling his 3 acre property. Bill wants to buy the property, but he does not understand the imperial system. Convert this measurement to hectares so that Bill will know how large the property is.

$$\frac{y}{3\ acre} = \frac{0.405\ ha}{1\ acre}$$

$$\frac{y}{\cancel{3\ acre}} \times \cancel{3\ acre} = \frac{0.405\ ha}{1\ \cancel{acre}} \times 3\ \cancel{acre}$$

$$y = 1.2\ ha$$

Davidson's property is approximately 1.2 hectares.

2. The town of High River covers an area of 14.27 square kilometres. To the nearest tenth, how many square miles does the town cover?

Step 1: Calculate the conversion ratio for square kilometres and square miles.

$$\text{conversion ratio} = \left(\frac{1\ mi}{1.609\ km}\right)^2$$

$$= \left(\frac{1\ mi \times 1\ mi}{1.609\ km \times 1.609\ km}\right)$$

$$= \frac{1\ mi^2}{2.59\ km^2}$$

Step 2: Calculate the number of square miles in 14.27 km^2.

$$\frac{y}{14.27\ km^2} = \frac{1\ mi^2}{2.59\ km^2}$$

$$\frac{y}{\cancel{14.27\ km^2}} \times \cancel{14.27\ km^2} = \frac{1\ mi^2}{2.59\ \cancel{km^2}} \times 14.27\ \cancel{km^2}$$

$$y = 5.5\ mi^2$$

The town covers an area of approximately 5.5 square miles.