

Scale + Scale Factor (4.2)

- Scale is a ratio showing how a drawing is compared to the real item

$$\text{Scale} \Rightarrow \frac{\text{drawing}}{\text{real}}$$

- A real horse has a length of 240cm. If I want to draw a picture of a horse using a scale of 1:30, how long will my drawing be?

$$\begin{array}{c} 1:30 \\ \uparrow \quad \uparrow \\ \text{draw} \quad \text{real} \end{array} \rightarrow \frac{1}{30} = \frac{?}{240}$$

$$240 \times 1 \div 30 = 8$$

The drawing will be 8cm long.

★ NOTE ★ when the REAL > Drawing, your picture is smaller than the real item, so you made a reduction.

- A dragonfly picture measures 9cm from wing tip to wing tip. Using a scale of 1:0.4, what is the length of the real wingspan.

$$\begin{array}{c} 1:0.4 \\ \uparrow \quad \uparrow \\ \text{draw} \quad \text{real} \end{array} \rightarrow \frac{1}{0.4} = \frac{9}{?}$$

$$9 \times 0.4 \div 1 = 3.6\text{cm}$$

The real wingspan is 3.6cm

★ NOTE ★ when the real < DRAWING, your picture is **LARGER** than the real item, so you made an **enlargement**.

• Find the Scale factor :

set it as $\frac{1}{x}$

a) $\frac{9}{36} = \square$

$\frac{9}{36} = \frac{1}{x}$

$1 \times 36 \div 9 = 4$

$x = 4$, then the

SCALE FACTOR IS

$\frac{1}{4}$ or $1 \div 4 = 0.25$

Shows a REDUCTION

because $1 \Rightarrow$ drawing
 $4 \Rightarrow$ real

so real > drawing

SF is under 1

(SF < 1) when divided

(TENTH)

b) $\frac{44}{8} = \square$

$\frac{44}{8} = \frac{1}{x}$

$1 \times 8 \div 44 = .18 = 0.2$

$x = 0.2$, then the

SCALE FACTOR IS

$\frac{1}{0.2}$ or $1 \div 0.2 = 5$

Shows an ENLARGEMENT

because $1 \Rightarrow$ drawing

$0.2 \Rightarrow$ real

so, real < drawing

SF is over 1 when divided

Do worksheet
and text pgs