

Surface Area Worksheets

1. Given a cube with edges that are $\frac{3}{4}$ inch long:

a) Find the surface area of the cube.

$$SA = 6s^2 \quad SA = 6 \left(\frac{3}{4} \text{ in.} \right)^2$$

$$SA = 6 \left(\frac{3}{4} \text{ in.} \right) \cdot \left(\frac{3}{4} \text{ in.} \right)$$

$$SA = 6 \left(\frac{9}{16} \text{ in}^2 \right)$$

$$SA = \frac{27}{8} \text{ in}^2 \text{ or } 3\frac{3}{8} \text{ in}^2$$

b) Joshua makes a scale drawing of the cube using a scale factor of 4. Find the surface area of the cube that Joshua drew.

$\frac{3}{4} \text{ in.} \cdot 4 = 3 \text{ in.}$; *The edge lengths of Joshua's drawing would be 3 inches.*

$$SA = 6(3 \text{ in.})^2$$

$$SA = 6(9 \text{ in}^2)$$

$$SA = 54 \text{ in}^2$$

c) What is the ratio of the surface area of the scale drawing to the surface area of the actual cube, and how does the value of the ratio compare to the scale factor?

$$54 \div 3\frac{3}{8}$$

$$54 \div \frac{27}{8}$$

$$54 \cdot \frac{8}{27}$$

$2 \cdot 8 = 16$. *The ratios of the surface area of the scale drawing to the surface area of the actual cube is 16:1. The value of the ratio is 16. The scale factor of the drawing is 4, and the value of the ratio of the surface area of the drawing to the surface area of the actual cube is 4^2 or 16.*

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