

8.6 SA of Sphere HW

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Pg 459 # 2, 4, 7, 11

2b) d of ball = 40 mm so $r = 20$ mm
$$SA = 4\pi r^2$$
$$= 4\pi (20)^2$$
$$= 5026.5 \text{ mm}^2$$

4a) d ball = 24.8 cm $r = 12.4$ cm

"covering" relates to surface area

$$SA = 4\pi r^2$$
$$= 4\pi (12.4)^2$$
$$= 1932.2 \text{ cm}^2$$

$\therefore 1932.2 \text{ cm}^2$ of leather is needed to cover

b) cost of leather: \$28/m².

① convert 1932.2 cm² to m²: $1 \text{ cm}^2 = 0.0001 \text{ m}^2$

$$\frac{x \text{ m}^2}{1932.2 \text{ cm}^2} = \frac{0.0001 \text{ m}^2}{1 \text{ cm}^2}$$

$$x = (0.0001)(1932.2)$$
$$= 0.19 \text{ m}^2$$

② cost of 0.19 m²: $\frac{\$28}{1 \text{ m}^2} = \frac{x}{0.19 \text{ m}^2}$

$$28(0.19) = x$$
$$\$5.41 = x$$

\therefore It costs \$5.41 to cover the ball

7. diameter of crystal ball is 60 cm so $r = 30$ cm
1 jar crystals covers 1 m².

b) $SA = 4\pi r^2$
$$= 4\pi (30)^2$$
$$= 11309.7 \text{ cm}^2$$

If 1 jar covers 1 m², is that enough?

1 m² = 10000 cm², $11309.7 > 10000$ so 1 jar is not quite enough $\ddot{\smile}$

11. The balloon grows from 10 cm to 30 cm. This means it has grown in diameter by a factor of 3 (3 times)

Since area is square units, the growth factor will also be squared.
 $3^2 = 9$.

The surface area will increase by a factor of 9 $\ddot{\smile}$