Using Bounds

The internal dimensions of a shipping container are $2m$ by $2m$ by $6m$, to the nearest metre.

1. a) What is the greatest possible volume of the container?

b) What is the least possible volume of the container?

c) What is the largest volume of goods you could guarantee would fit inside?

2. a) What is the greatest possible surface area of the container?

b) What is the least possible surface area of the container?

c) How many $2m^2$ area panels should you buy to be certain of having enough to line all 6 sides?

The exact dimensions of the shipping container are $2.352m$ by $2.395m$ by $5.898m$.

3. a) What is the actual surface area?

b) What is the actual volume?

Using Bounds SOLUTIONS

The internal dimensions of a shipping container are $2m$ by $2m$ by $6m$, to the nearest metre.

1. a) What is the greatest possible volume of the container?

$$2.5 \times 2.5 \times 6.5 = \mathbf{40.625m^3}$$

b) What is the least possible volume of the container?

$$1.5 \times 1.5 \times 5.5 = \mathbf{12.375m^3}$$

c) What is the largest volume of goods you could guarantee would fit inside?

$$\mathbf{12.375m^3}$$

2. a) What is the greatest possible surface area of the container?

$$2(2.5 \times 2.5 + 2.5 \times 6.5 + 2.5 \times 6.5) = \mathbf{77.5m^2}$$

b) What is the least possible surface area of the container?

$$2(1.5 \times 1.5 + 1.5 \times 5.5 + 1.5 \times 5.5) = \mathbf{37.5m^2}$$

c) How many $2m^2$ area panels should you buy to be certain of having enough to line all 6 sides?

$$\frac{57.5}{2} = 28.75 \implies \mathbf{29\ panels}$$

The exact dimensions of the shipping container are $2.352m$ by $2.395m$ by $5.898m$.

3. a) What is the actual surface area?

$$\mathbf{67.261692m^2}$$

b) What is the actual volume?

$$\mathbf{33.22366992m^3}$$