

SURFACE AREA WORD PROBLEMS

Jimmy has a Sea Can. It is a rectangular Prism.

Length = 14'

Width = 8'

Height = 8'

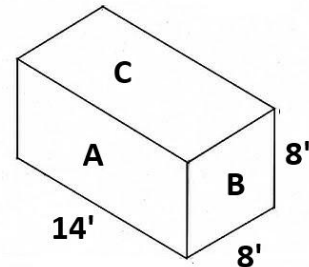
He wants to paint it. A can of paint covers 80sqft. And costs \$8.99. How much will it cost to paint it with two coats of paint?

Question to ask yourself – “Is this a Surface Area or Volume question?”

Since he wants to COVER the SURFACE (and not FILL IT UP), it is a Surface Area question.

First thing to do – DRAW A PICTURE – *It helps you VISUALIZE IT*

Let's label the sides A B and C.



We have TWO of each side, and each side is: $l \times w$

$$\begin{aligned}
 SA &= 2[A] + 2[B] + 2[C] \\
 SA &= 2(l \times w) + 2(l \times w) + 2(l \times w) \\
 SA &= 2(14 \times 8) + 2(8 \times 8) + 2(14 \times 8) \\
 SA &= 224 + 128 + 224 \\
 SA &= 576 \text{ sqft} \\
 &\quad \times 2 \text{ Coats of paint} \\
 &= \boxed{1152} \text{ sqft} \\
 &\quad \div 80 \text{ sqft per can} \\
 &= 14.4 \text{ Cans (but you can't buy 0.4 of a can)} \\
 &= \boxed{15} \text{ Cans} \\
 &\quad \times \$8.99 \text{ Cost per can} \\
 &= \boxed{\$134.85} \text{ Total Cost}
 \end{aligned}$$

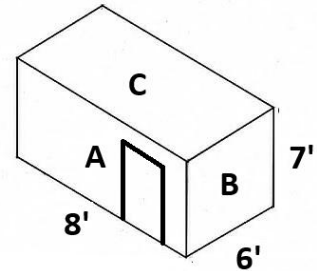
Mr. Wellwood Built a garden shed in his back yard. The floor is 6' x 8', and the walls are 7' tall. There is a 7' x 3' door. He needs to buy vinyl siding. A single length of siding costs \$13.94 each, but a case of 20 costs \$250. Which is cheapest?

QUESTION: am I FILLING it with siding? Or putting siding ON it?

This is a **SURFACE AREA** question.

STEP 1: Draw a picture and label it.

LOGIC QUESTION: Is he going to put siding on EVERY surface? No – not the **bottom**, not the **top**, not the **door**.



So this will be the FRONT and BACK [A], and both SIDES [B], minus the DOOR

$$\begin{aligned}
 SA &= 2[A] + 2[B] - \text{DOOR} \\
 SA &= 2(l \times w) + 2(l \times w) - (l \times w) \\
 SA &= 2(8 \times 7) + 2(6 \times 7) - (7 \times 3) \\
 SA &= 112 + 84 - 21 \\
 SA &= \boxed{175} \text{ sqft} \\
 &\div 10 \quad \text{A length of siding covers 10 sqft} \\
 &= 17.5 \quad \text{you can't buy 0.4 of a length} \\
 &= \boxed{18} \text{ Lengths} \\
 &= \text{X } \$13.94 \quad \text{Cost per length} \\
 &= \boxed{\$250.92} \text{ Total Cost}
 \end{aligned}$$

A case of 20 costs \$250, or \$0.92 cheaper than individual.

Mr. Wellwood will **LIKELY** make a mistake in doing the siding, so having two extra lengths is very wise.