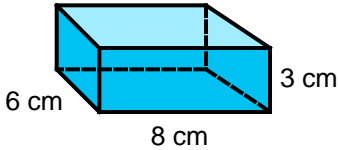


## Surface Area: Skill 5 - 23B

Surface area is the total area of the surface of a solid figure.

How to find the surface area of a rectangular prism.

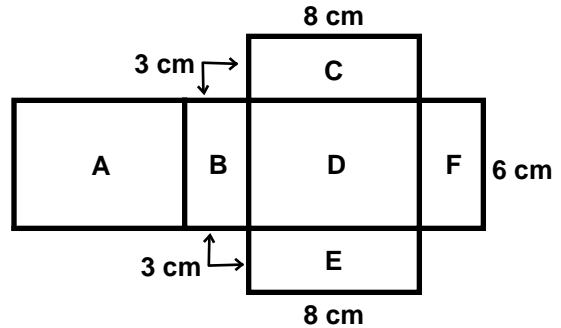
Find the surface area of the rectangular prism by first finding area of each face. Then find the sum of the areas of the faces to find the surface area.



Each face is a rectangle.  
The formula for finding the area of a rectangle is  $A = l \times w$

### Step 1

Draw a net of the figure. Label the faces as shown.



### Step 2 Make a table. Use the formula $A = l \times w$ .

Face	Length (cm)	Width (cm)	Area
A	8	6	48 cm <sup>2</sup>
B	3	6	18 cm <sup>2</sup>
C	8	3	24 cm <sup>2</sup>
D	8	6	48 cm <sup>2</sup>
E	8	3	24 cm <sup>2</sup>
F	3	6	18 cm <sup>2</sup>

### Step 3

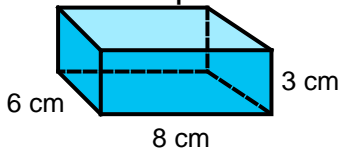
Find the sum of the faces to find the surface area of the rectangular prism.

$$48 + 18 + 24 + 48 + 24 + 18 = 180 \text{ cm}^2.$$

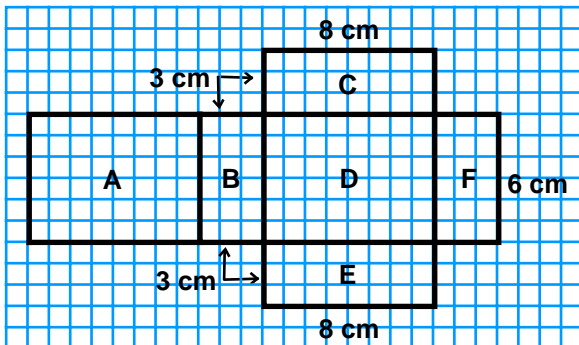
The surface area is 180 cm<sup>2</sup>

Use a model to find the surface area.

### Step 1



Draw the net on centimeter grid paper.



### Step 2

Looking at the net on grid paper count the number of square units in each face.

Fill in the blank lines.

A = \_\_\_\_\_ cm<sup>2</sup>

B = \_\_\_\_\_ cm<sup>2</sup>

C = \_\_\_\_\_ cm<sup>2</sup>

D = \_\_\_\_\_ cm<sup>2</sup>

E = \_\_\_\_\_ cm<sup>2</sup>

F = \_\_\_\_\_ cm<sup>2</sup>

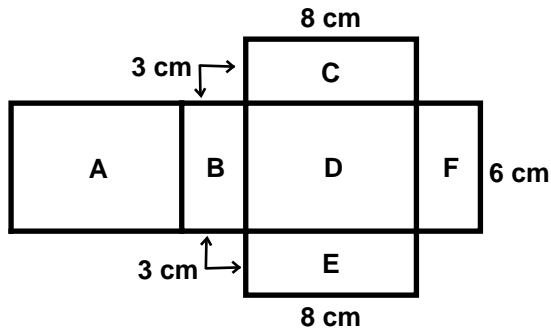
Add the areas of the faces.

The surface area of the rectangular prism is \_\_\_\_\_

## Surface Area: Skill 5 - 23B

Calculate the surface area of a rectangular prism using an easier method.

The opposite faces of a rectangular prism are congruent. Look at the net below. When folded A and D are opposite faces. Also, B and F are opposite faces and C and E are opposite faces.



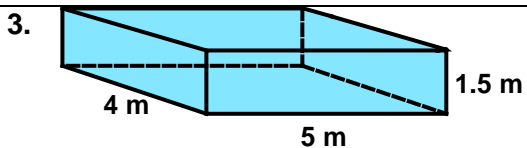
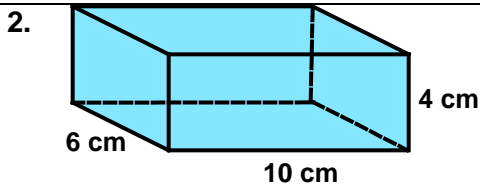
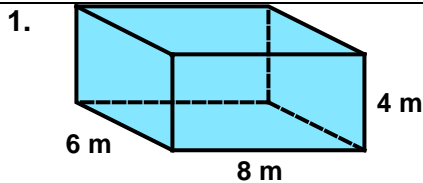
Faces A and D are congruent.  
 $A = 2 \times (8 \times 6) = 2 \times 48 = 96 \text{ cm}^2$

Faces B and F are congruent.  
 $A = 2 \times (3 \times 6) = 2 \times 18 = 36 \text{ cm}^2$

Faces C and E are congruent.  
 $A = 2 \times (8 \times 3) = 2 \times 24 = 48 \text{ cm}^2$

Total surface area =  $96 + 36 + 48 = 180 \text{ cm}^2$

**Directions:** Find the surface area of each rectangular prism. Draw a net to help.



Answer Key Skill 23B Grade 5

Example 2 page 1

$A = 48 \text{ cm}^2$

$B = 18 \text{ cm}^2$

$C = 24 \text{ cm}^2$

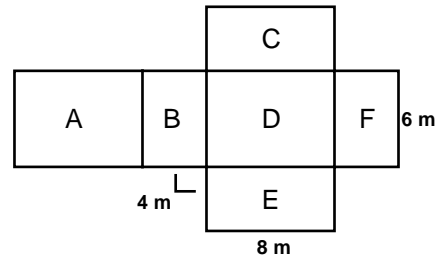
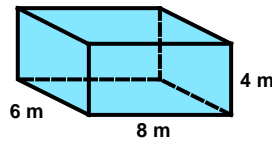
$D = 48 \text{ cm}^2$

$E = 24 \text{ cm}^2$

$F = 18 \text{ cm}^2$

The surface area of the rectangular prism is  $180 \text{ cm}^2$

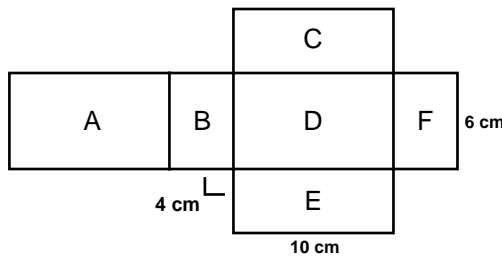
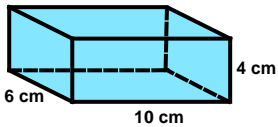
Question 1 page 2



Face	Length	Width	Area
A	8	6	$48 \text{ m}^2$
B	4	6	$24 \text{ m}^2$
C	8	4	$32 \text{ m}^2$
D	8	6	$48 \text{ m}^2$
E	8	4	$32 \text{ m}^2$
F	4	6	$24 \text{ m}^2$

The surface area is  $208 \text{ m}^2$

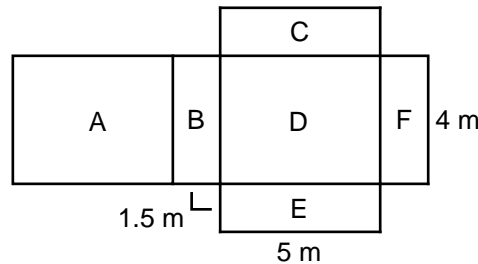
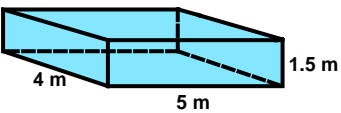
2.



Face	Length	Width	Area
A	10	6	$60 \text{ cm}^2$
B	4	6	$24 \text{ cm}^2$
C	10	4	$40 \text{ cm}^2$
D	10	6	$60 \text{ cm}^2$
E	10	4	$40 \text{ cm}^2$
F	4	6	$24 \text{ cm}^2$

The surface area is  $248 \text{ cm}^2$

3.



Face	Length	Width	Area
A	5	4	$20 \text{ m}^2$
B	1.5	4	$6 \text{ m}^2$
C	5	1.5	$7.5 \text{ m}^2$
D	5	4	$20 \text{ m}^2$
E	5	1.5	$7.5 \text{ m}^2$
F	1.5	4	$6 \text{ m}^2$

The surface area is  $67 \text{ m}^2$