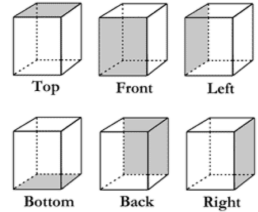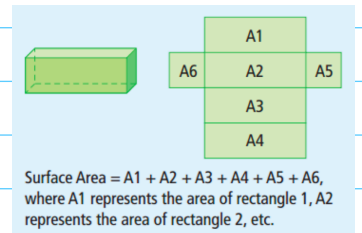# Surface Area: Prisms & Pyramids

SURFACE AREA → SUM of ALL THE AREAS of the faces of the objects

→ # of sq. units TO COVER A 3D OBJECT

**Surface Area of a Prism**

Top   Front   Left

Bottom   Back   Right

*REMEMBER → since 3D objects can be composed of different shaped faces... WE ADD the AREAS of ALL faces *

	A1	
A6	A2	A5
	A3	
	A4	

Surface Area = A1 + A2 + A3 + A4 + A5 + A6, where A1 represents the area of rectangle 1, A2 represents the area of rectangle 2, etc.

CONGRUENT FACES

- SOME OBJECTS HAVE SIDES THAT ARE CONGRUENT ⟶ = SAME SIZE & SHAPE
- ⬛ ...the SIDES are congruent JUST Multiply the AREA By # of FACES

where a is the edge of the cube.
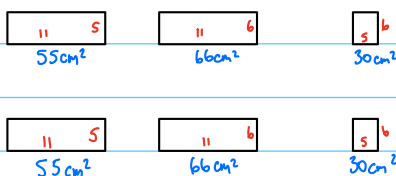
a^2

Ex: S. AREA of CUBE → 6 CONGRUENT FACES

$$= 6A^2$$
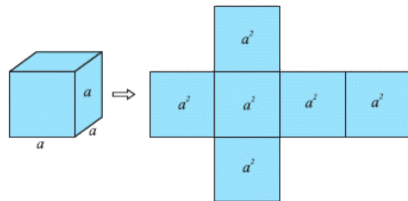
RECTANGULAR PRISM

6 cm
5 cm
11 cm
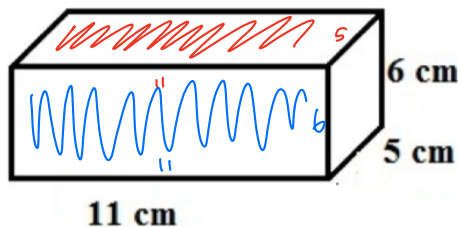
TOTAL FACES? 6 FACES

CONGRUENT FACES?

2 [11 5]   2 [5 6]
2 [11 6]

CALCULATIONS

• METHOD 1: EACH FACE SEPARATELY

[11 5]   [11 6]   [5 6]
$55 cm^2$ $66 cm^2$ $30 cm^2$

[11 5]   [11 6]   [5 6]
$55 cm^2$ $66 cm^2$ $30 cm^2$

• METHOD 2: WRITE A FORMULA

$$S. AREA = 2A1 + 2A2 + 2A3$$

$$= 2(55 cm^2) + 2(66 cm^2) + 2(30 cm^2)$$

$$= 302 cm^2$$

	A2	
A3	A1	A3
	A2	
	A1	
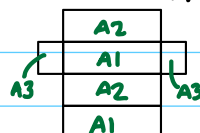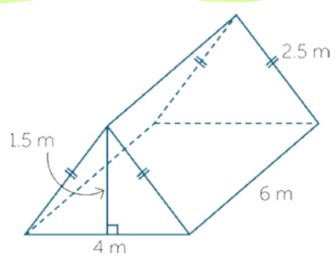
TRIANGULAR PRISM

2.5 m

1.5 m

6 m

4 m

TOTAL FACES? 5 FACES.

CONGRUENT FACES?

△ 2 CONGRUENT FACES

▭ 2 CONGRUENT FACES

CALCULATIONS

• **METHOD 1: EACH FACE SEPARATELY**

▭ 4 / 6

▭ 2.5 / 6

△ $\updownarrow$ 1.5 / 4

▭ 2.5 / 6

A2
A1
A2

A3   A3
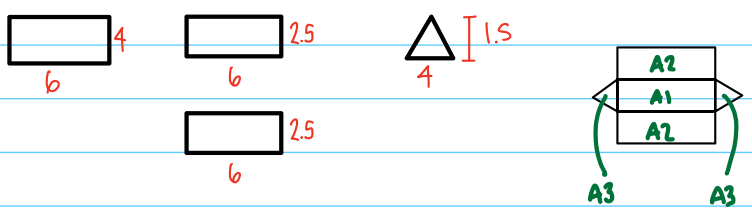
• **METHOD 2: WRITE A FORMULA**

$$SA = A1 + 2A2 + 2A3$$
$$= 24\ m^2 + 30\ m^2 + 6\ m^2$$
$$= 60\ m^2$$

SQUARE PYRAMID

10 in

8 in

8 in
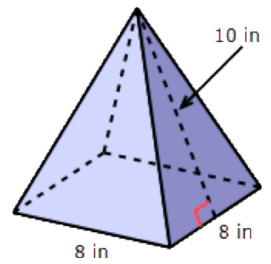
TOTAL FACES? 5 FACES

CONGRUENT FACES?

△ 4 CONGRUENT FACES

CALCULATIONS

• **METHOD 1: EACH FACE SEPARATELY**

△ 10in / 8in   △ 10in / 8in   △ 10in / 8in   △ 10in / 8in

▭ 8in / 8in

• **METHOD 2: WRITE A FORMULA**

A2
A2 A1 A2
A2
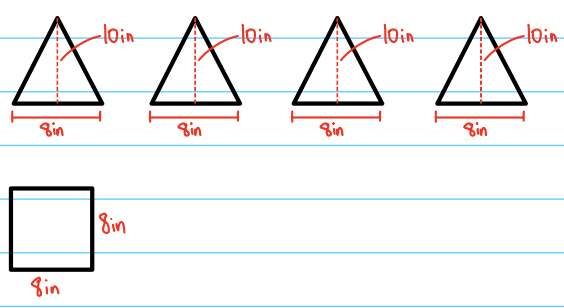
$$SA = A1 + 4A2$$
$$= 64\ in^2 + 4(40\ in^2)$$
$$= 224\ in^2$$