

UNIT 5

SURFACE AREA



POLYHEDRON: IS A 3D FIGURE IN WHICH ALL FACES ARE POLYGONS.

1 - POLYHEDRON

MORE THAN 1 - POLYHEDRA

PRISM: 2 BASES; LATERAL FACES ARE RECTANGLES

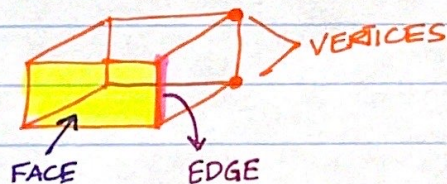
PYRAMID: 1 BASE; LATERAL FACES ARE TRIANGLES

PRISMS + PYRAMIDS ARE NAMED FOR THEIR BASES

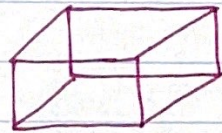
VERTEX (VERTICES): THE POINT AT WHICH TWO LINE SEGEMENTS, LINES OR RAYS MEET TO FORM AN ANGLE

EDGE: THE LINE SEGMENT WHERE TWO FACES OF A SOLID FIGURE MEET

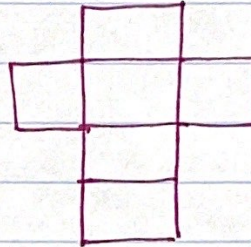
FACE: A FLAT SURFACE OF A POLYHEDRON



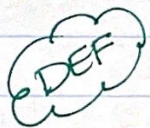
NET: A 2D FIGURE THAT REPRESENTS ALL SIDES OF A 3D FIGURE



RECTANGULAR PRISM

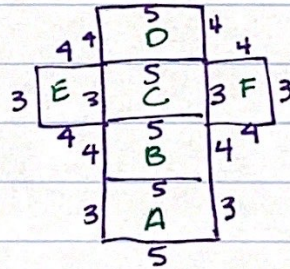
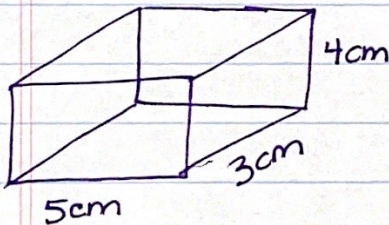


NET



SURFACE AREA: THE SUM OF ALL THE AREAS OF ALL THE FACES (SURFACES) THAT ENCLOSE A SOLID FIGURE (POLYHEDRON)

$$A = bh$$



$$A_A = 5 \cdot 3 = 15$$

$$A_B = 5 \cdot 4 = 20$$

$$A_C = 5 \cdot 3 = 15$$

$$A_D = 5 \cdot 4 = 20$$

$$A_E = 4 \cdot 3 = 12$$

$$A_F = 4 \cdot 3 = 12$$

3, 4, 5

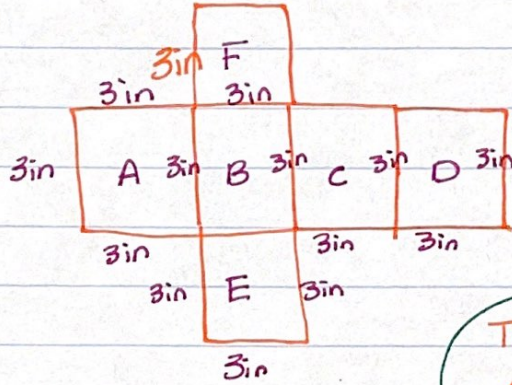
$$\boxed{94 \text{ cm}^2}$$

$$3 \cdot 4 \checkmark \quad 4 \cdot 3 \checkmark$$

$$5 \cdot 3 \checkmark \quad 3 \cdot 5 \checkmark$$

$$4 \cdot 5 \checkmark \quad 5 \cdot 4 \checkmark$$

CUBE



$$A_A = bh$$

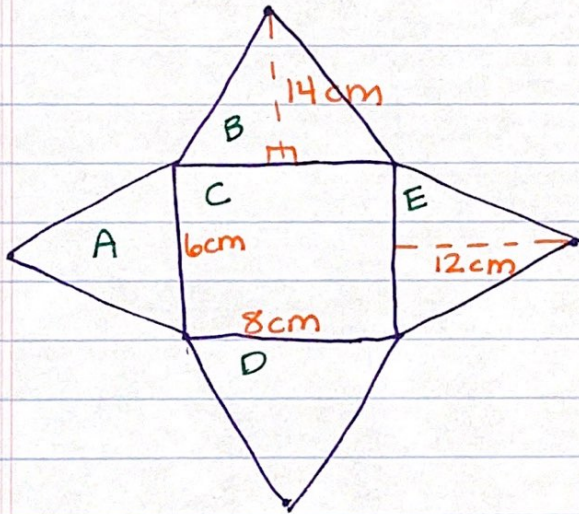
$$A_A = 3 \cdot 3$$

$$A_A = 9$$

THERE ARE 6 SIDES IN A CUBE AND THEY ARE ALL THE SAME.

$$\text{SURFACE AREA} = 9 \cdot 6 = \boxed{54 \text{ in}^2}$$

RECTANGULAR PYRAMID



A + E ARE THE SAME
B + D ARE THE SAME

$$A_A = \frac{bh}{2} = \frac{6 \cdot 12}{2} = \frac{72}{2} = 36$$

$$A_E = 36$$

$$A_B = \frac{bh}{2} = \frac{8 \cdot 14}{2} = \frac{112}{2} = 56$$

$$A_D = 56$$

$$A_C = bh = 6 \cdot 8 = 48$$

$$36 + 36 + 56 + 56 + 48 = 232 \text{ cm}^2$$

$$\boxed{232 \text{ cm}^2}$$