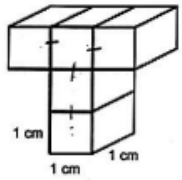
Surface Area of Composite Shapes

1) Calculate the surface area of the following shapes (SHOW ALL WORK)

a)

4 overlaps



A one face
$A = b^2$
$A = 1^2$
$A = 1cm^2$

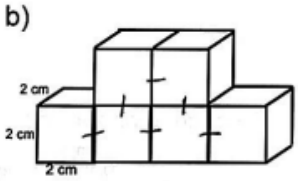
15 cubes x 6 faces

30 faces − 8 overlap faces

22 faces

$TSA = 22 \times 1$
$= 22cm^2$

b)



6 overlaps

A one face
$A = b^2$
$A = 2^2$
$A = 4cm^2$

6 cubes x 6 faces

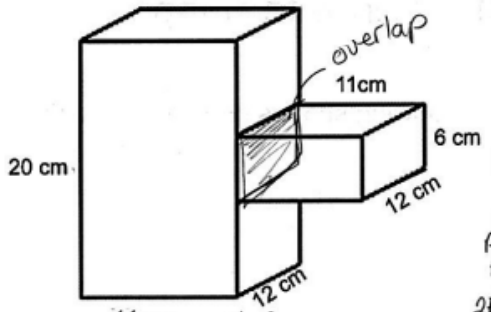
= 36 faces − 12 overlap faces

= 24 faces

$TSA = 24 \times 4$
$= 96cm^2$

2) Calculate the total surface area of the following: (Show all work)

Formulas and Diagrams of faces MUST BE INCLUDED



Big 20, 14, 12

14 | 2 | 20 — A = b×h, A = 20×14, A = 280, 2A = 560cm²

12 | 2 | 20 — A = b×h, A = 20×12, A = 240, 2A = 480cm²

12 | 2 | 14 — A = b×h, A = 14×12, A = 168, 2A = 336cm²

$SA_{big} = 560 + 480 + 336$
$= 1376 cm^2$

$TSA = 1376 + 540 - 144$
$= 1772 cm^2$

SA small 12, 11, 6

overlap

11 | 2 | 12 — A = b×h, A = 12×11, A = 132, A = 264cm²

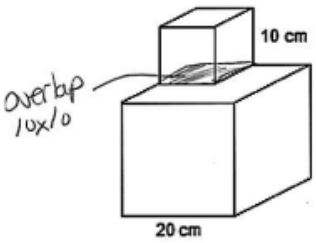
6 | 2 | 12 — A = b×h, A = 12×6, A = 72, 2A = 144cm²

6 | 2 | 11 — A = b×h, A = 11×6, A = 66, 2A = 132cm²

$SA_{sm} = 264 + 144 + 132 = 540 cm^2$

3) Calculate the total surface area of the following, a 10 cm cube on top of a 20 cm cube: (Show all work)

Formulas and Diagrams of faces MUST BE INCLUDED



SA_{big} — 6 | 20 | 20

A = b×h, A = 20×20, A = 400cm²

$SA_{big} = 6 \times 400$
$= 2400 cm^2$

SA_{sm} — 6 | 10 | 10

A = b×h, A = 10×10, A = 100cm²

$SA_{small} = 6 \times 100$
$= 600 cm^2$

Overlap — 2 | 10 | 10

A = b×h, A = 10×10, A = 100

2A = 200cm²

$TSA = 2400 + 600 - 200$
$= 2800 cm^2$