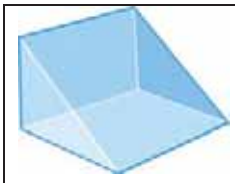
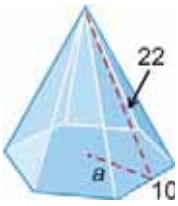
Surface Area



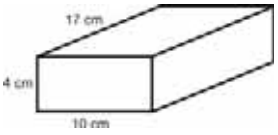
1. D

2. A

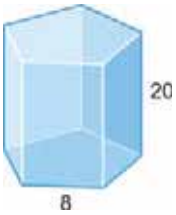


3. J

4. C



5. F



6. I

A. Cylinder

B. Cone

C. Tetrahedron or Triangular Pyramid

D. Triangular Prism

E. Rectangular Pyramid

F. Rectangular Prism

G. Square Prism

H. Pentagonal Pyramid

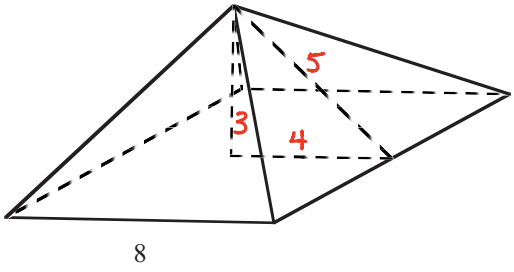
I. Pentagonal Prism

J. Hexagonal Pyramid

K. Hexagonal Prism

Find the total surface area of each object.

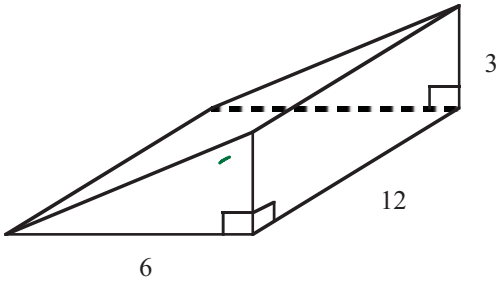
1.



$A_{base} = 8^2 = 64$ $A_{Triangular\ side} = \frac{1}{2}bh = \frac{1}{2}8(5) = 20$

$SA = 64 + 4(20) = 64 + 80 = 144$

2.

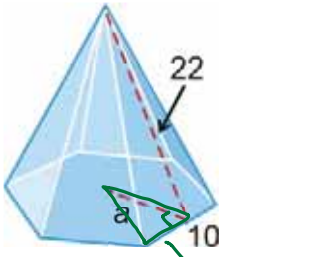


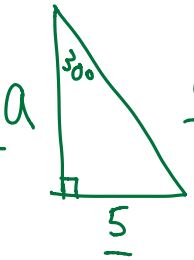
$A = 12(3\sqrt{5}) + 12(3) + 6(12) + 2(\frac{1}{2}6 \cdot 3)$

$= 36\sqrt{5} + 36 + 72 + 18$

$= 126 + 36\sqrt{5}$

3. Regular hexagonal pyramid





$A_{base} = \frac{1}{2}aP = \frac{1}{2}5\sqrt{3}(60) = 150\sqrt{3}$

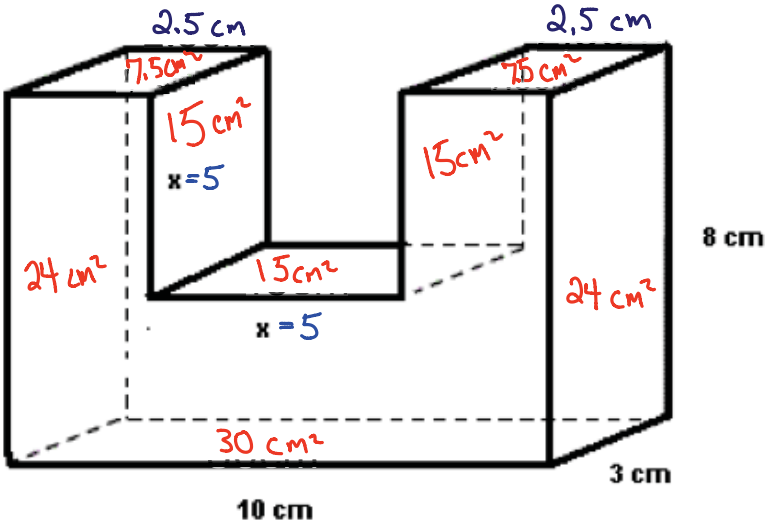
$a = 5\sqrt{3}$

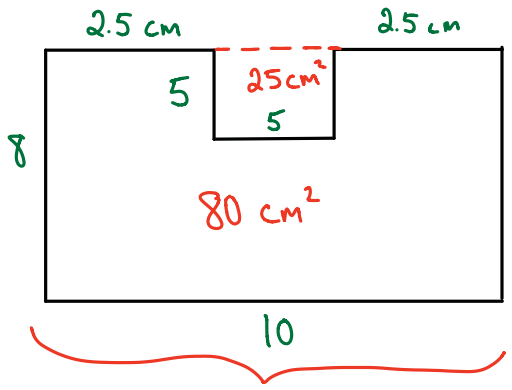
$A_{\Delta sides} = \frac{1}{2}(10)(22) = 110$

$A = 150\sqrt{3} + 6(110) = 150\sqrt{3} + 660$

4. Find the surface area of the model building.

(Use x = 5 cm.) You can use the prism formula or find the total of the areas of the 11 surfaces.





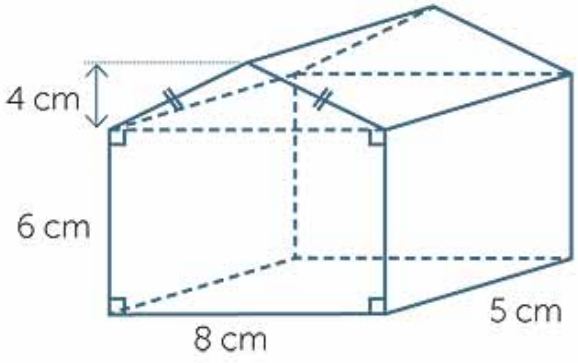
$80 - 25 = 55\text{ cm}^2$

Total Surface Area $= 2(55) + 7.5 + 7.5 + 15 + 15 + 15 + 24 + 24 + 30 = 248\text{ cm}^2$

5. Identify the shape of each side below for finding the surface area and volume. Then find both.

Shapes for surface area: rectangles, triangles

Shapes for volume: rectangular and triangular prisms



Surface Area

2 triangles with area $\frac{1}{2}(4)(8) = 16$

32 cm^2

Front and back rectangles with area $6 \cdot 8 = 48$

96 cm^2

Left and right rectangles with area $5 \cdot 6 = 30$

60 cm^2

Bottom Rectangle with area $8 \cdot 5 = 40$

40 cm^2

Slant Rectangles $5(4\sqrt{2}) \Rightarrow 40\sqrt{2}$

$V = V_{box} + V_{prism}$

$6 \cdot 8 \cdot 5 + \frac{1}{2} 8 \cdot 4 \cdot 5 = 240 + 80 =$

320 cm^3

Total Surface Area $= 32 + 96 + 60 + 40 + 40\sqrt{2} = 228 + 40\sqrt{2}\text{ cm}^2$