MEMO 2020-10ℰM-00001(1) Surface area

(1) Calculate the total surface area of the following:
[If necessary, round off to the nearest integer.]

(a) a prism on a rectangular base with length 18 cm and breadth 14 cm and a height of 7 cm.

Total surface area = $2LH + 2BH + 2LB$
$= 2(18)(7) + 2(14)(7) + 2(18)(14)$
$= 252 + 196 + 504$
$= 952\ cm^2$

(b) a pyramid on a square base with sides 5 mm each and the slant height of the pyramid is 6,5 mm.

Total surface area = $A + \frac{1}{2}ph$
$= 5^2 + \frac{1}{2} \times (4 \times 5) \times 6,5$
$= 25 + 65$
$= 90\ mm^2$

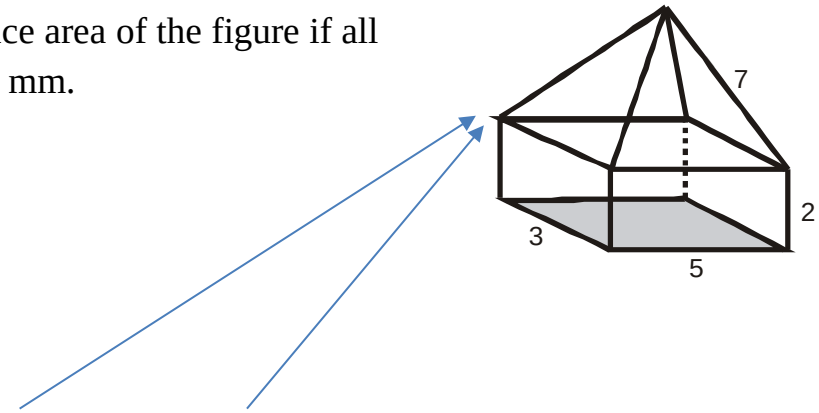
(c) a sphere with diameter 18 mm $\rightarrow r = 9$ mm.

Total surface area = $4\pi r^2$
$= 4\pi \times 9^2$
$= 1\,017,87\ldots$
$\approx 1\,018\ mm^2$

(d) a cone where the radius of the base is 4 cm and the slant height of the cone is 8 cm.

Total surface area = $\pi r(h + r)$
$= \pi(4)(8 + 4)$
$= 150,796\ldots$
$= 151\ cm^2$

(2) Calculate the total surface area of the figure if all dimensions are given as mm.



Total surface area = Open prism + Open pyramid

$$= [(2LH + 2BH + 2LB) - LB] + [(A + \frac{1}{2}ph) - A]$$

$$= [2LH + 2BH + LB] + [\frac{1}{2}ph]$$

$$= [2(5)(2) + 2(3)(2) + (5)(3)] + \left[\frac{1}{2} \times (2 \times 3 + 2 \times 5) \times 7\right]$$

$$= [20 + 12 + 15] + \left[\frac{1}{2} \times (16) \times 7\right]$$

$$= [47] + [56]$$

$$= 103 \text{ mm}^2$$