

Worksheet

04/16/2020

Free on dw-math.com

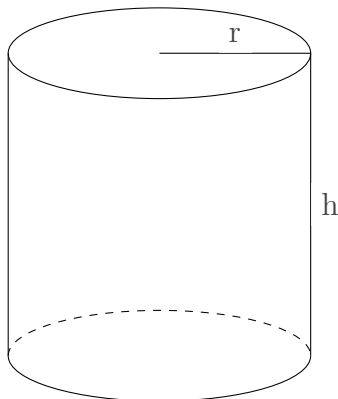
Problem quickname: 2200

1)

State the formulas for the required metrics of the given shape.

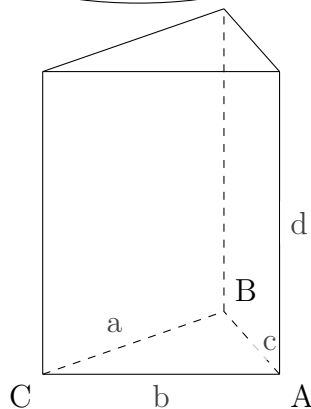
Quick:
2200

a)



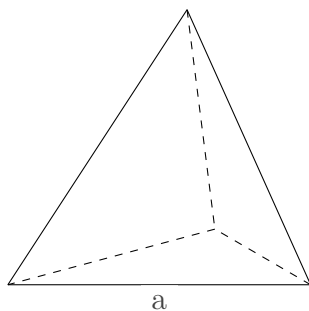
This is a cylinder. The base of this shape is formed by a circle. We have $r=5$ cm, $h=10$ cm. The volume is:
 $V = \Pi \cdot r^2 \cdot h = 785 \text{ cm}^3$.

b)



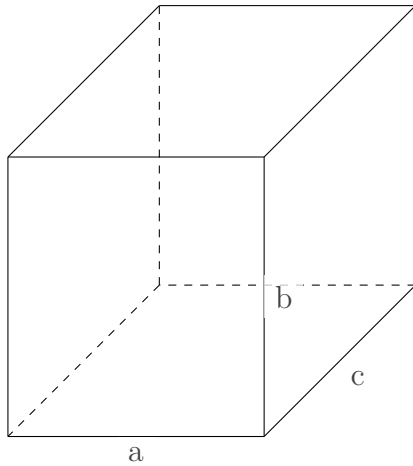
This is a prism. The base of this shape is formed by a triangle ABC which has an area of $A(\text{triangle})=486 \text{ m}^2$. We have $a=27$ m, $b=36$ m, $c=45$ m, $d=46$ m. The volume is: $V = A(\text{triangle}) \cdot d = 22356 \text{ m}^3$.

c)



This is a regular tetrahedron. All edges are of the same length with $a=14$ m. The volume is: $V = \frac{a^3}{12} \cdot \sqrt{2} = 323 \text{ m}^3$.

d)



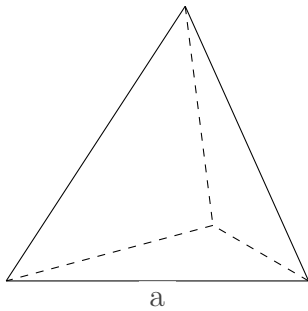
This is a cuboid. We have $a=11$ mm, $b=12$ mm, $c=13$ mm. The volume is: $V = a \cdot b \cdot c = 1716$ mm³.

2)

Calculate the approximate values of the shapes metrics as requested.

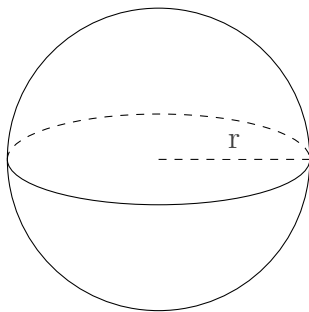
Quick:
2200

a)



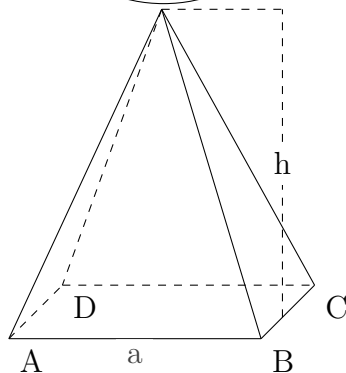
This is a regular tetrahedron. All edges are of the same length with $a=3$ mm. The surface area is:
 $A = a^2 \cdot \sqrt{3} = 15$ mm².

b)



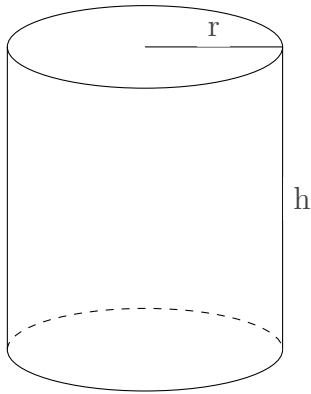
This is a sphere. We have $r=5$ mm. The volume is:
 $V = \frac{4}{3} \cdot \Pi \cdot r^3 = 523$ mm³.

c)



This is a square pyramid. The base of this shape is formed by a square. We have $a=5$ mm, $h=6$ mm. The volume is: $V = \frac{1}{3} \cdot a^2 \cdot h = 50$ mm³.

d)



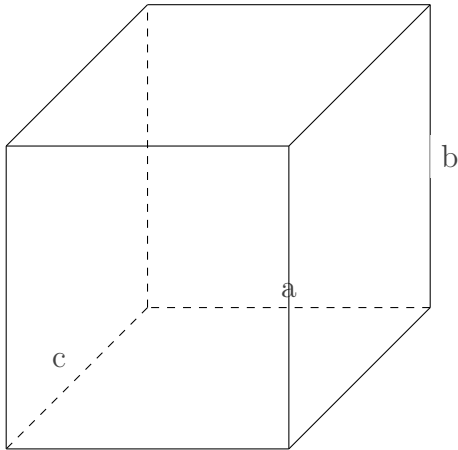
This is a cylinder. The base of this shape is formed by a circle. We have $r=5$ mm, $h=1$ cm 1 mm. The volume is:
 $V = \Pi \cdot r^2 \cdot h = 863 \text{ mm}^3$.

3)

State the formulas for the required metrics of the given shape and calculate their approximate values.

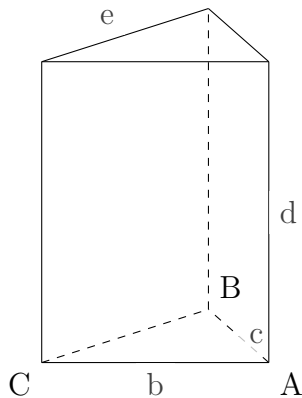
Quick:
2200

a)



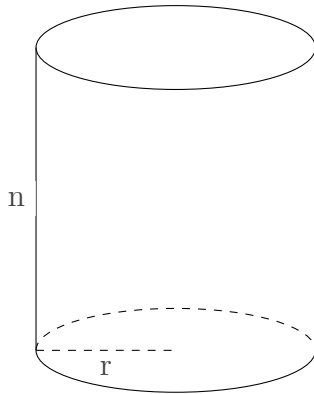
This is a cuboid. We have $a = 14$, $b = 15$, $c = 14$. The surface area is: $A = 2 \cdot (a \cdot b + b \cdot c + a \cdot c) = 1232$.
 The volume is: $V = a \cdot b \cdot c = 2940$.

b)



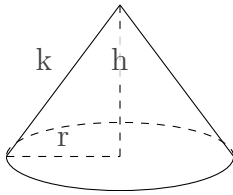
This is a prism. The base of this shape is formed by a triangle ABC which has an area of $A(\text{triangle})=1386$. We have $e = 36$, $b = 77$, $c = 85$, $d = 102$. The surface area is: $A = 2 \cdot A(\text{triangle}) + d \cdot (e + b + c) = 22968$.
 The volume is: $V = A(\text{triangle}) \cdot d = 141372$.

c)



This is a cylinder. The base of this shape is formed by a circle. We have $r = 6$, $n = 13$. The surface area is: $A = 2 \cdot \Pi r^2 + 2 \cdot \Pi \cdot r \cdot n = 716$. The volume is: $V = \Pi \cdot r^2 \cdot n = 1470$.

d)



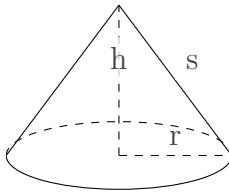
This is a cone. We have $h = 12$, $k = 15$, $r = 9$. The surface area is: $A = r \cdot \Pi \cdot (r + k) = 678$. The volume is: $V = \frac{1}{3} \cdot \Pi \cdot r^2 \cdot h = 1017$.

4)

State the formulas for the required metrics of the given shape and calculate their approximate values.

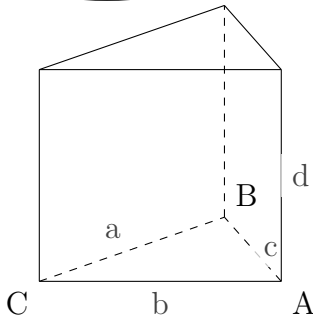
Quick:
2200

a)



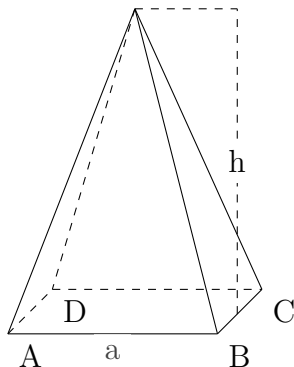
This is a cone. We have $h=28$ mm, $s=35$ mm, $r=21$ mm. The surface area is: $A = r \cdot \Pi \cdot (r + s) = 3692$ mm². The volume is: $V = \frac{1}{3} \cdot \Pi \cdot r^2 \cdot h = 12924$ mm³.

b)



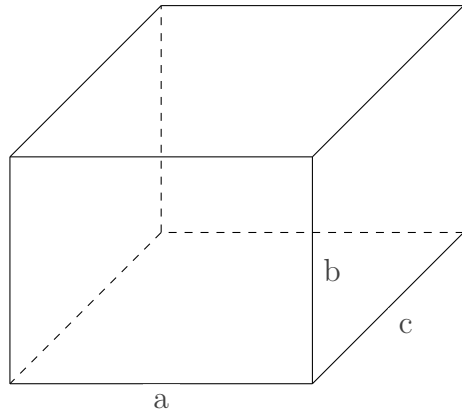
This is a prism. The base of this shape is formed by a triangle ABC which has an area of $A(\text{triangle}) = 24$ cm². We have $a=6$ cm, $b=8$ cm, $c=10$ cm, $d=7$ cm. The surface area is: $A = 2 \cdot A(\text{triangle}) + d \cdot (a + b + c) = 216$ cm². The volume is: $V = A(\text{triangle}) \cdot d = 168$ cm³.

c)



This is a square pyramid. The base of this shape is formed by a square. We have $a=9$ cm, $h=13$ cm. The surface area is: $A = a^2 + a \cdot \sqrt{4 \cdot h^2 + a^2} = 328$ cm². The volume is: $V = \frac{1}{3} \cdot a^2 \cdot h = 351$ cm³.

d)



This is a cuboid. We have $a=4$ cm, $b=3$ cm, $c=4$ cm. The surface area is: $A = 2 \cdot (a \cdot b + b \cdot c + a \cdot c) = 80$ cm^2 . The volume is: $V = a \cdot b \cdot c = 48$ cm^3 .

Good Luck!