

Worksheet

12/06/2020

Free on dw-math.com

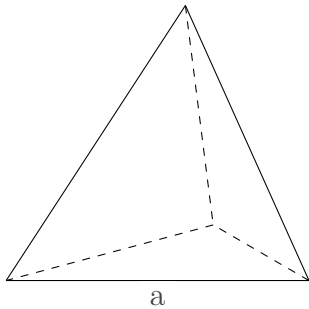
Problem quickname: 2200

1)

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

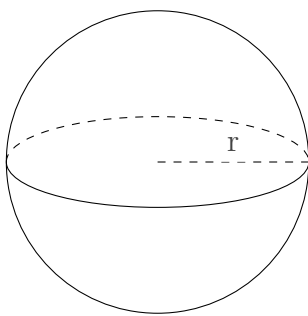
Quick:
2200

a)



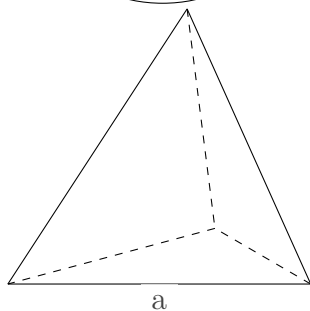
This is a regular tetrahedron. All edges are of the same length with $a=14$ cm. The volume is: $V = \frac{a^3}{12} \cdot \sqrt{2} = 323 \text{ cm}^3$.

b)



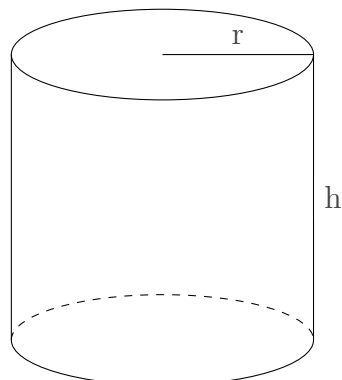
This is a sphere. We have $r=4$ cm. The volume is:
 $V = \frac{4}{3} \cdot \pi \cdot r^3 = 267 \text{ cm}^3$.

c)



This is a regular tetrahedron. All edges are of the same length with $a=15$ mm. The surface area is:
 $A = a^2 \cdot \sqrt{3} = 389 \text{ mm}^2$.

d)

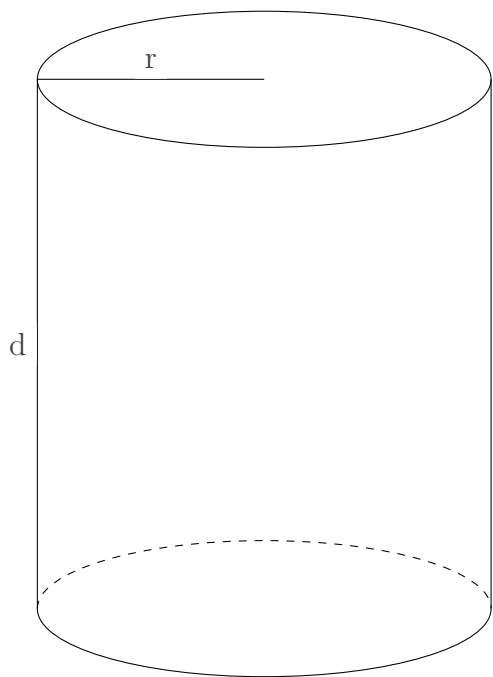


This is a cylinder. The base of this shape is formed by a circle. We have $r=9$ cm, $h=17$ cm. The volume is:
 $V = \pi \cdot r^2 \cdot h = 4323 \text{ cm}^3$.

2)

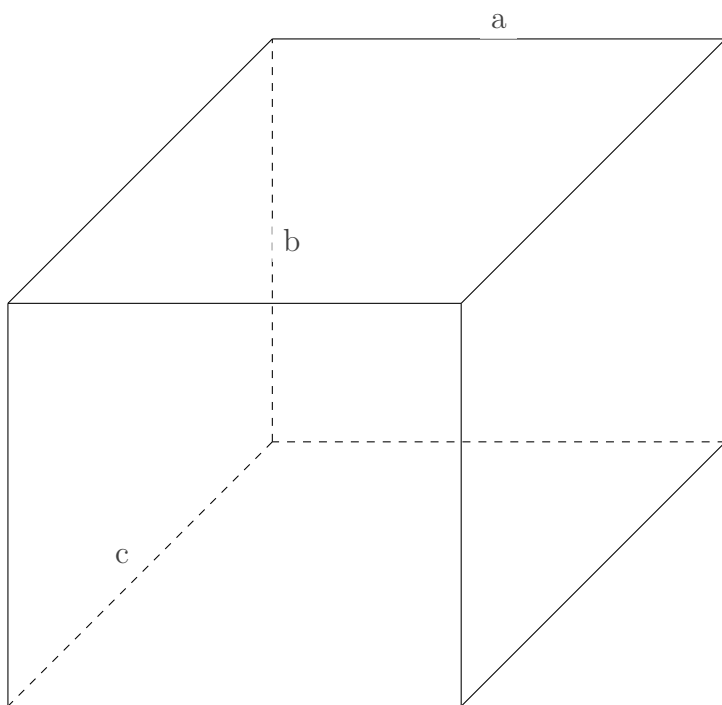
Calculate the approximate values of the shapes metrics as requested.

a)



This is a cylinder. The base of this shape is formed by a circle. We have $r = 6$, $d = 14$. The surface area is:
 $A = 2 \cdot \pi r^2 + 2 \cdot \pi \cdot r \cdot d = 754$.

b)

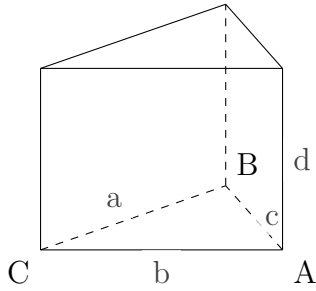


This is a cuboid. We have $a = 18$, $b = 16$, $c = 21$. The volume is:
 $V = a \cdot b \cdot c = 6048$.

3)

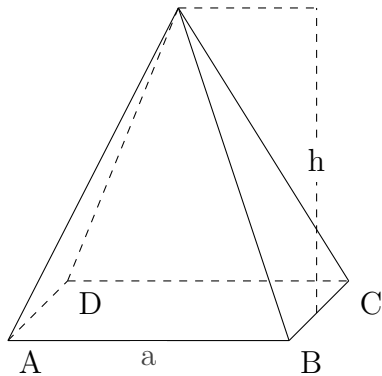
State the formulas for the required metrics of the given shape.

a)



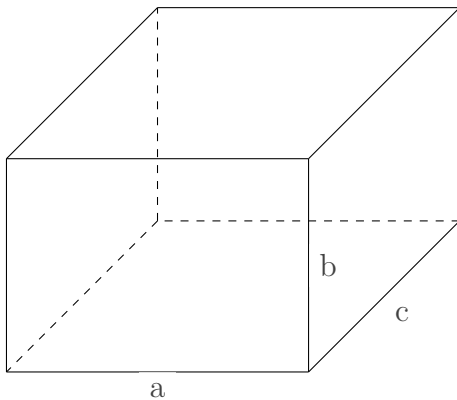
This is a prism. The base of this shape is formed by a triangle ABC which has an area of $A(\text{triangle})=24 \text{ mm}^2$. We have $a=6 \text{ mm}$, $b=8 \text{ mm}$, $c=10 \text{ mm}$, $d=6 \text{ mm}$. The volume is: $V = A(\text{triangle}) \cdot d = 144 \text{ mm}^3$.

b)



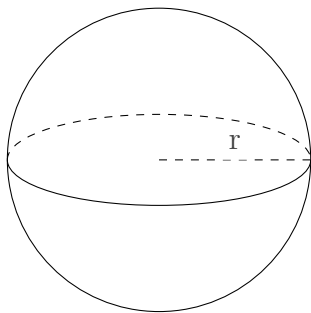
This is a square pyramid. The base of this shape is formed by a square. We have $a=13 \text{ mm}$, $h=14 \text{ mm}$. The volume is: $V = \frac{1}{3} \cdot a^2 \cdot h = 788 \text{ mm}^3$.

c)



This is a cuboid. We have $a=17 \text{ m}$, $b=12 \text{ m}$, $c=17 \text{ m}$. The volume is: $V = a \cdot b \cdot c = 3468 \text{ m}^3$.

d)

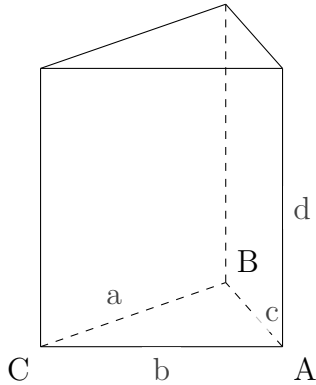


This is a sphere. We have $r=17 \text{ mm}$. The volume is: $V = \frac{4}{3} \cdot \pi \cdot r^3 = 20569 \text{ mm}^3$.

4)

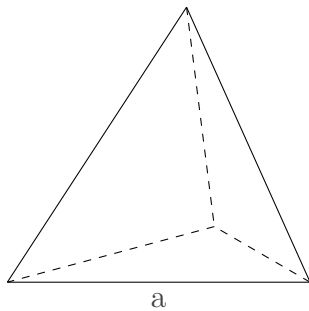
Calculate the approximate values of the shapes metrics as requested.

a)



This is a prism. The base of this shape is formed by a triangle ABC which has an area of $A(\text{triangle})=6 \text{ cm}^2$. We have $a=3 \text{ cm}$, $b=4 \text{ cm}$, $c=5 \text{ cm}$, $d=4 \text{ cm}$. The surface area is: $A = 2 \cdot A(\text{triangle}) + d \cdot (a + b + c) = 67 \text{ cm}^2$.

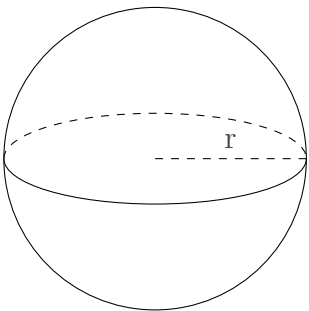
b)



This is a regular tetrahedron. All edges are of the same length with $a=1 \text{ cm}$. The volume is:

$$V = \frac{a^3}{12} \cdot \sqrt{2} = 323 \text{ mm}^3.$$

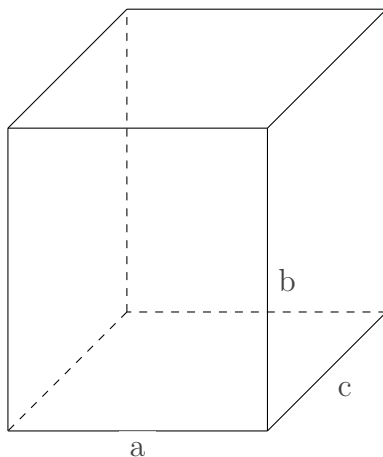
c)



This is a sphere. We have $r=2 \text{ mm}$. The volume is:

$$V = \frac{4}{3} \cdot \pi \cdot r^3 = 33 \text{ mm}^3.$$

d)



This is a cuboid. We have $a=1 \text{ cm}$, $b=4 \text{ mm}$, $c=1 \text{ mm}$. The volume is: $V = a \cdot b \cdot c = 4 \text{ cm}^3$.

Good Luck!