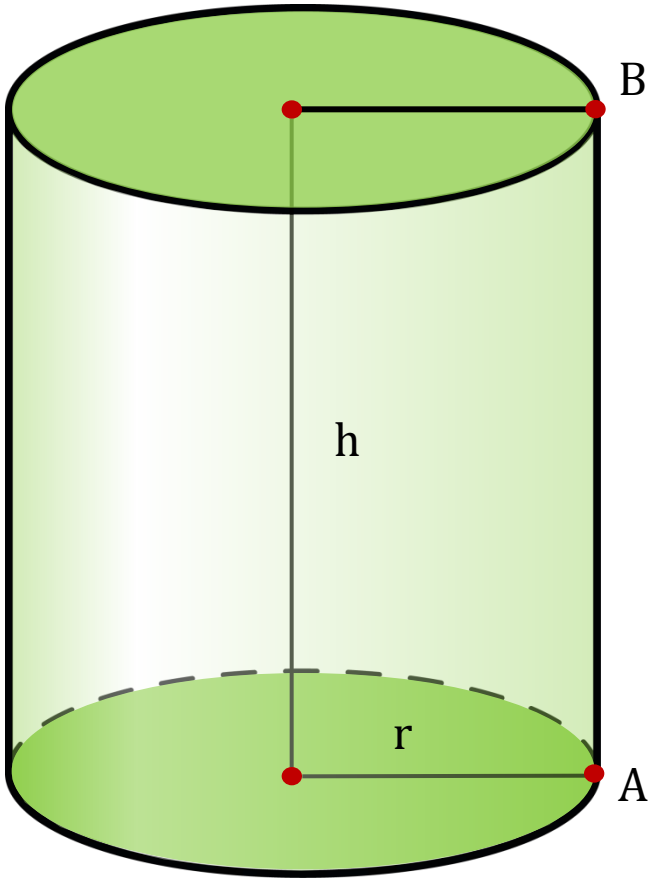
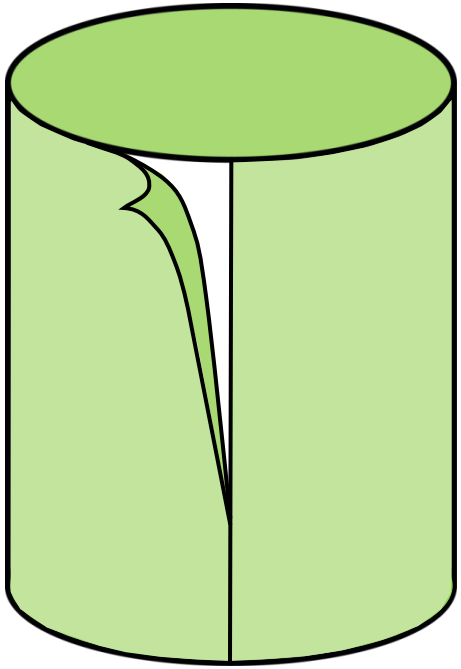
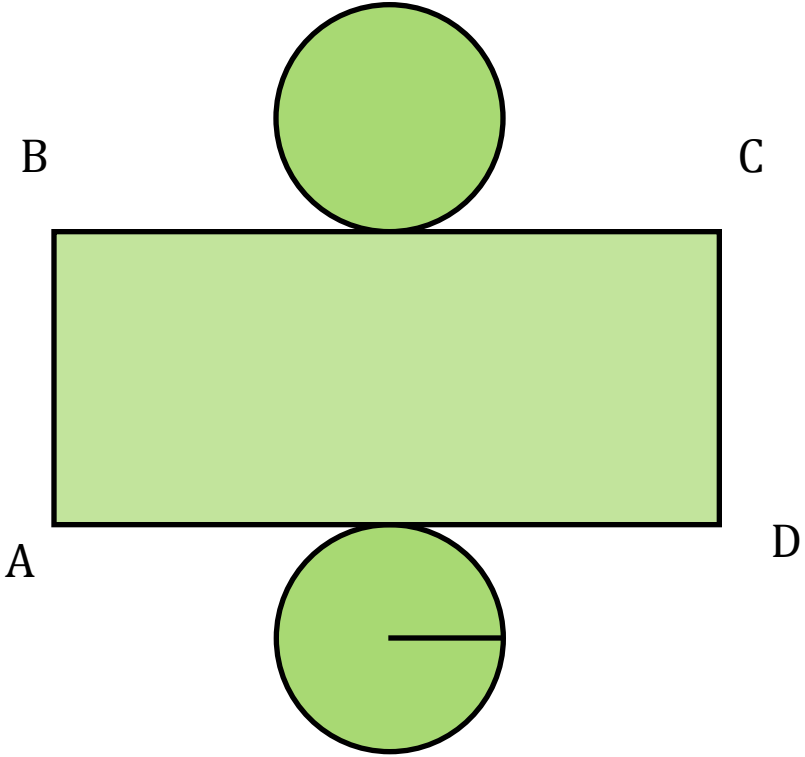


AB = h — высота цилиндра

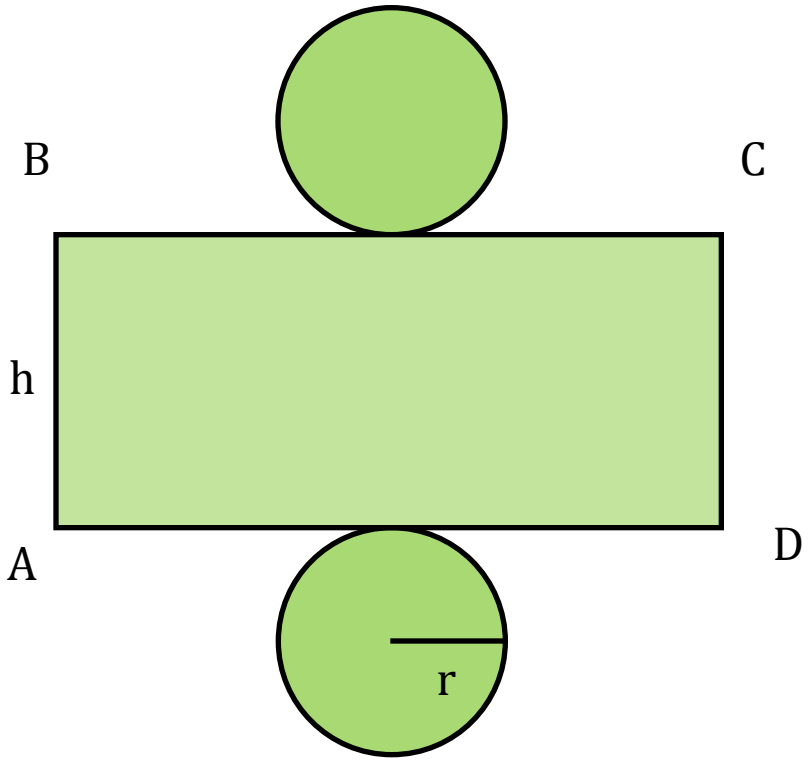
r — радиус цилиндра



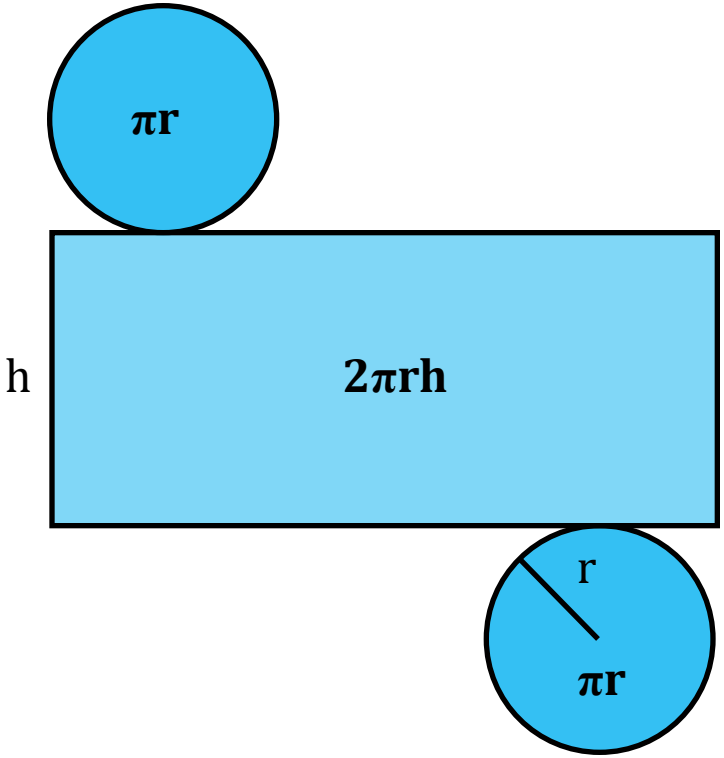

B
C
A
D

ABCD — развёртка боковой поверхности (прямоугольник)
AD — длина окружности основания
AB = h
AD = 2πr

$$S_{ABCD} = S_{бок.}$$
$$S_{ABCD} = AB \cdot AD$$
$$S_{бок.} = 2\pi rh$$



Площадь полной поверхности цилиндра



$$S_{бок.} = 2\pi rh$$

$$S_{осн.} = \pi r^2$$

$$S_{полн.} = S_{бок.} + 2S_{осн.}$$

$$S_{полн.} = 2\pi r(h + r)$$

Задача 1

Дано:

ABCD — прямоугольник

AB = 12 см

BC = 16 см

Найти: r — радиус основания цилиндра

Решение:

1) $C = 2\pi r$

$C = BC = 16$ см

$$r = \frac{C}{2\pi} = \frac{BC}{2\pi} = \frac{16}{2\pi} = \frac{8}{\pi}\,(\text{см})$$

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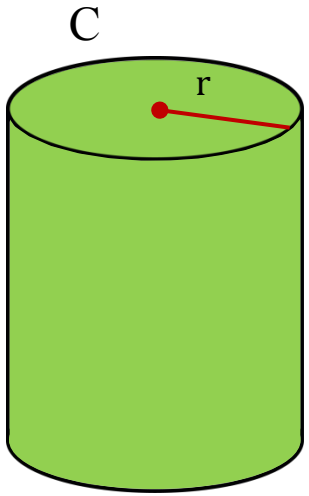
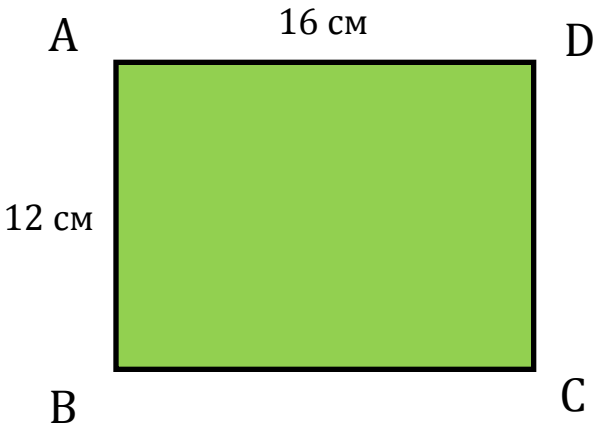




Задача 2

Дано: цилиндр

ABCD — осевое сечение

AC = 48 см

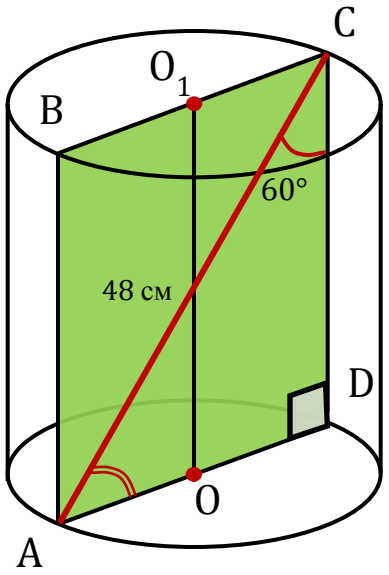
∠ACD = 60°

Найти:

а) CD (высота)

б) AO (радиус)

в) $S_{осн.}$

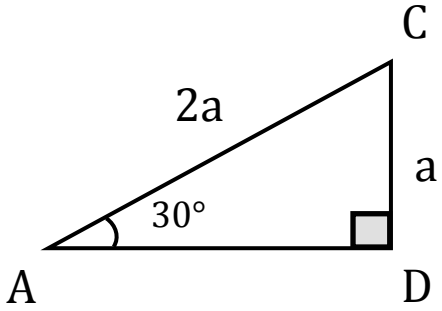


Решение:

а) ABCD — прямоугольник ⇒ ∠ADC = 90° ⇒ ∠CAD = 30°

ΔADC: ∠ACD = 60°, ∠ADC = 90°

CD = AC : 2 = 48 : 2 = 24 (см)



б) AO — радиус, AD — диаметр

$$r = \frac{C}{2\pi} = \frac{BC}{2\pi} = \frac{16}{2\pi} = \frac{8}{\pi}\ (см)$$

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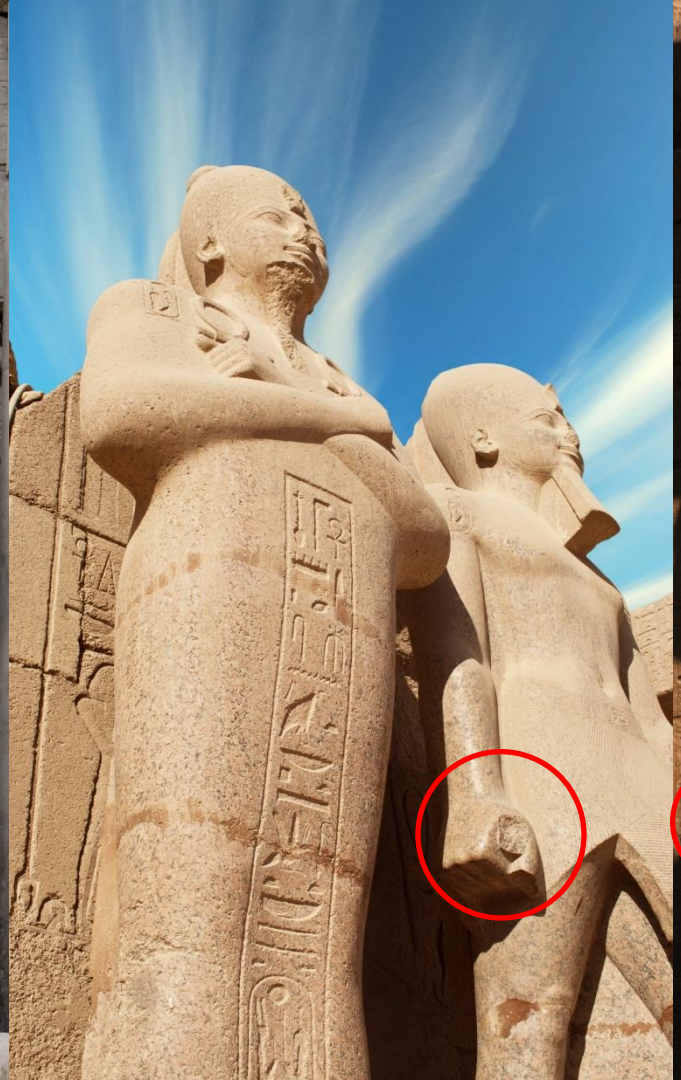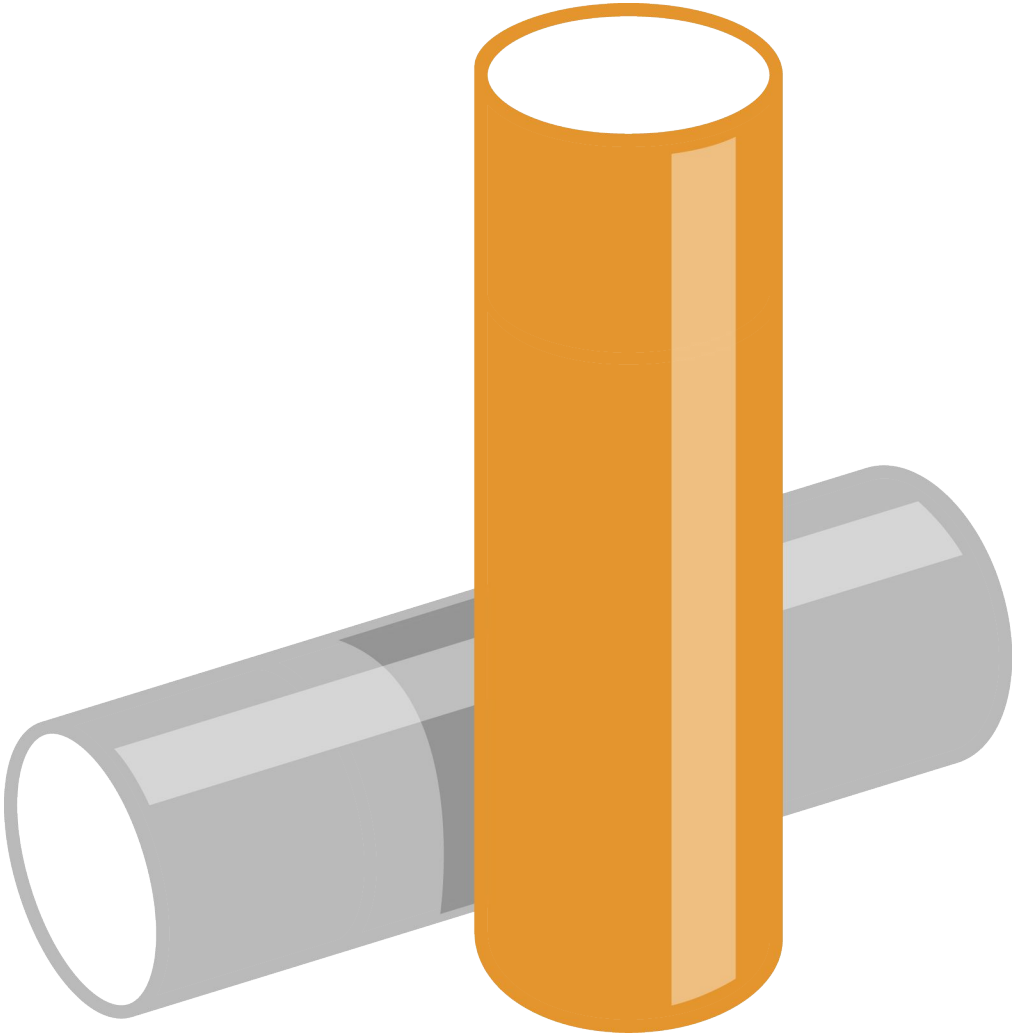
$$r = \frac{C}{2\pi} = \frac{BC}{2\pi} = \frac{16}{2\pi} = \frac{8}{\pi}\ (см)$$