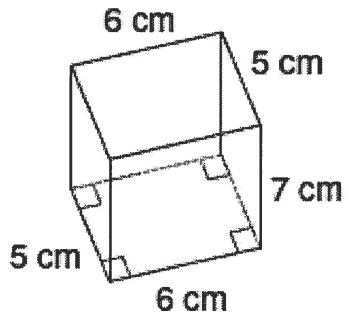
KEY

First Name:_____ Last Name:_____

# L03 – Worksheet – Surface Area and SA Unit Conversions

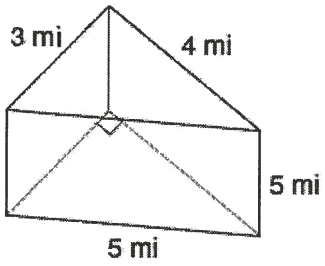
**Q1:** What is the area of the shape, in $m^2$ ?




Top = 6×5 = 30
Bottom = 30
Left = 5×7 = 35
Right = 35
Front = 6×7 = 42
Back = 42
214 cm²

$$\frac{214\,cm^2}{1} \times \frac{1\,m}{100\,cm} \times \frac{1\,m}{100\,cm} = \boxed{0.0214\,m^2}$$

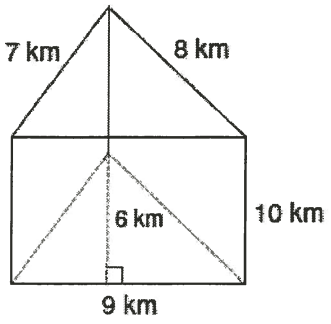
**Q2:** What is the area of the shape, in $km^2$ ?




Top = $\frac{3\times4}{2}$ = 6
Bottom = 6
Front = 5×5 = 25
B.R = 3×5 = 15
B.L. = 4×5 = 20
72 mi²

$$\frac{72\,mi^2}{1} \times \frac{1.609\,km}{1\,mi} \times \frac{1.609\,km}{1\,mi} = \boxed{186.4\,km^2}$$

**Q3:** What is the area of the shape, in $mi^2$ ?

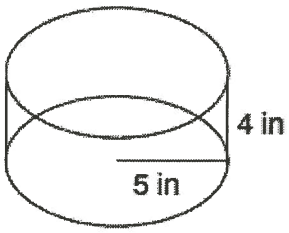



Top = $\frac{9\times6}{2}$ = 27
Bottom = 27
Front = 9×10 = 90
B.R. = 8×10 = 80
B.L. = 7×10 = 70
294 km²

$$\frac{294\,km^2}{1} \times \frac{1\,mi}{1.609\,km} \times \frac{1\,mi}{1.609\,km} = \boxed{113.6\,mi}$$

KEY

**Q4:** What is the area of the shape, in $cm^2$ ?




Top = $\pi r^2 = (3.14)(5)^2 = 78.54$

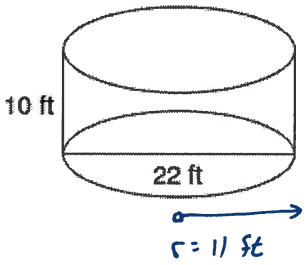
Bottom $= 78.54$

Side $= 2\pi r h = (2)(3.14)(5)(4) = 125.66$

$282.74\ in^2$

$$\frac{282.74\ in \cdot in}{1} \times \frac{2.54\ cm}{1\ in} \times \frac{2.54\ cm}{1\ in} = 1824.15\ cm^2$$

**Q5:** What is the area of the shape, in $m^2$ ?




Top = $\pi r^2 = (3.14)(11)^2 = 380.13$

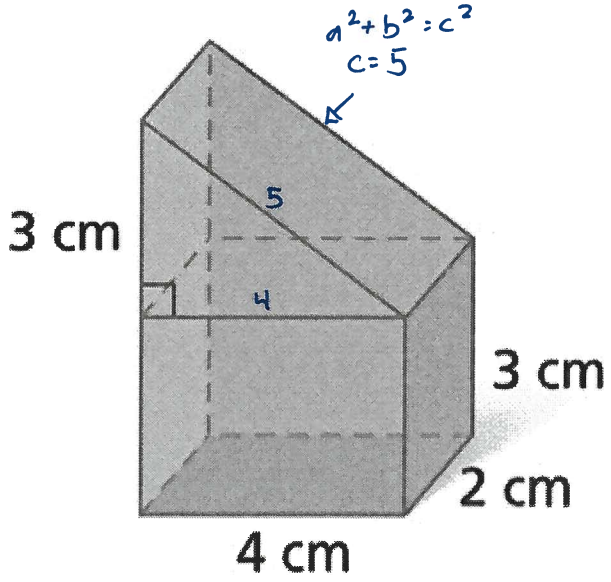
Bottom $= 380.13$

Side $= 2\pi r h = (2)(3.14)(11)(10) = 691.15$

$1451.42\ ft^2$

$$\frac{1451.42\ ft \cdot ft}{1} \cdot \frac{30.48\ cm}{1\ ft} \cdot \frac{30.48\ cm}{1\ ft} \cdot \frac{1\ m}{100\ cm} \cdot \frac{1\ m}{100\ cm} = 134.84\ m^2$$

**Q6:** What is the area of the shape, in $in^2$ ?




Rectangle

Front = $4 \times 3 = 12$

Back $= 12$

Right = $3 \times 2 = 6$

Left $= 6$

Bottom = $4 \times 2 = 8$

$44 cm^2$

Triangle

Front = $\frac{3 \times 4}{2} = 6$

Back $= 6$

Right = $2 \times 5 = 10$

Left = $3 \times 2 = 6$

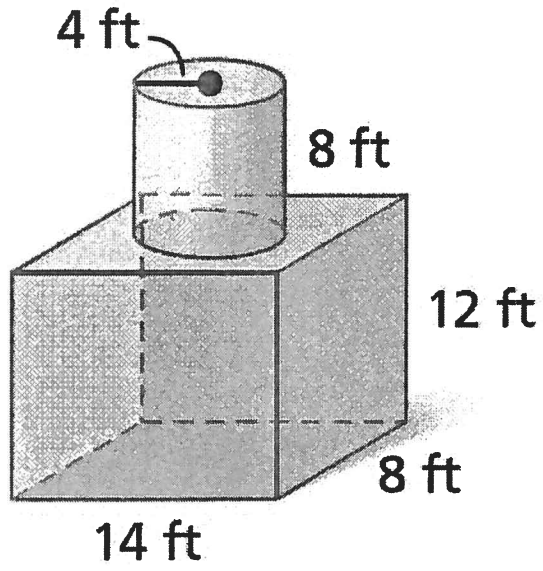
$28 cm^2$

Total SA = $72 cm^2$

$$\frac{72\ cm \cdot cm}{1} \times \frac{1\ in}{2.54\ cm} \times \frac{1\ in}{2.54\ cm} = 11.16\ in^2$$

KEY

**Q7:** What is the area of the shape, in $cm^2$ ?




Cylinder

Top $= \pi r^2 = 50.27$

Side $= 2\pi rh = 201.06$

$251.33\ ft^2$

Rectangle

Front $= 14 \times 12 = 168$

Back $= 168$

Right $= 8 \times 12 = 96$

Left $= 96$

Bottom $= 14 \times 8 = 112$

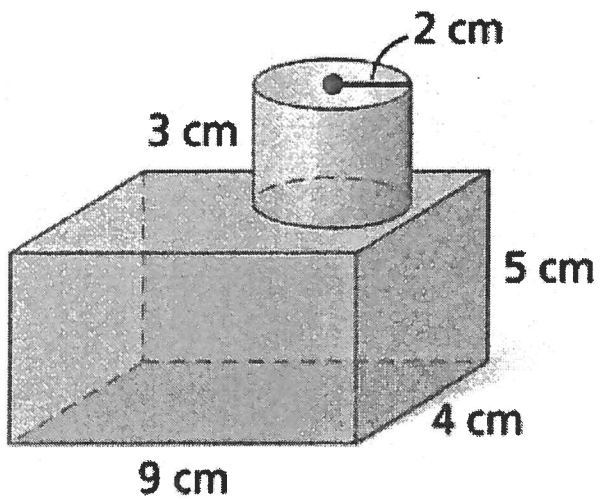
Top $= (112) - (50.27) = 61.73$

$701.73\ ft^2$

Total SA $= 953.06\ ft^2$

$$\frac{953.06\ ft \cdot ft}{1} \times \frac{30.48cm}{1\ ft} \times \frac{30.48cm}{1\ ft} = \boxed{885,421.71\ cm^2}$$

**Q8:** What is the area of the shape, in $in^2$ ?




Cylinder

Top $= \pi r^2 = 12.57$

Side $= 2\pi rh = 37.70$

$50.27\ cm^2$

Rectangle

Front $= 9 \times 5 = 45$

Back $= 45$

Right $= 4 \times 5 = 20$

Left $= 20$

Bottom $= 9 \times 4 = 36$

Top $= (36) - (12.57) = 23.43$

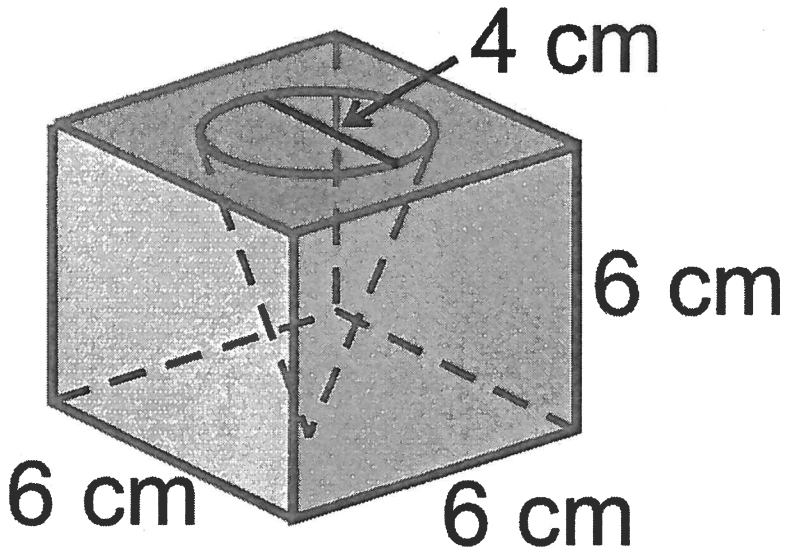
$189.43\ cm^2$

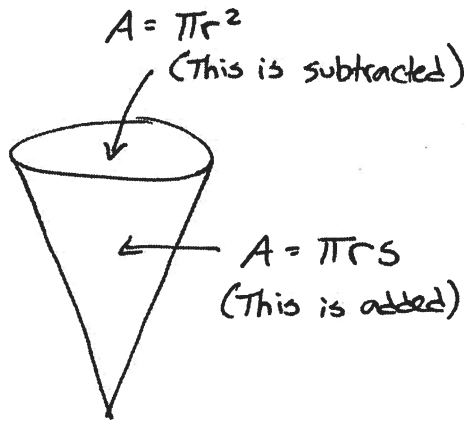
Total SA $= 239.70\ cm^2$

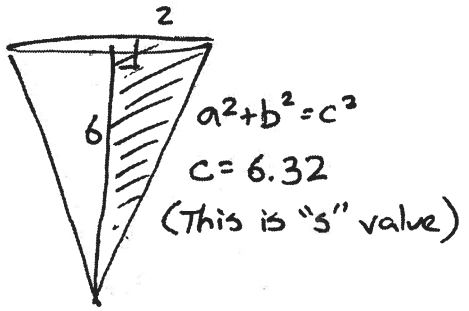
$$\frac{239.70\ cm \cdot cm}{1} \times \frac{1in}{2.54cm} \times \frac{1in}{2.54cm} = \boxed{37.15\ in^2}$$

KEY

**Q9:** What is the area of the shape, in $mm^2$ ?




Shape

Bottom = $6 \times 6 = 36$
Front $= 36$
Back $= 36$
Right $= 36$
Left $= 36$
Top = $(36) - (\pi r^2) = 23.43$
Inside = $\pi r s = (3.14)(2)(6.32) = 39.71$

$243.14 cm^2$

$$\frac{243.14 cm \cdot cm}{1} \times \frac{10 mm}{1 cm} \times \frac{10 mm}{1 cm} = \boxed{24,314 \ mm^2}$$