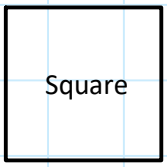
M8 - 5.0 - Area/Perimeter Shapes Notes



$l = 2cm$

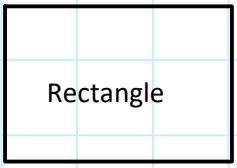
$w = 2cm$

$A = l \times w$
$A = 2 \times 2$

$A = 4cm^2$

$p = l + l + w + w$
$p = 2 + 2 + 2 + 2$

$p = 8cm$



$l = 2m$

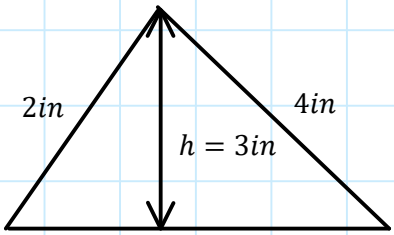
$w = 3m$

$A = l \times w$
$A = 2 \times 3$

$A = 6m^2$

$p = l + l + w + w$
$p = 2 + 2 + 3 + 3$

$p = 10cm$



$b = 5in$

Note: Not true triangle

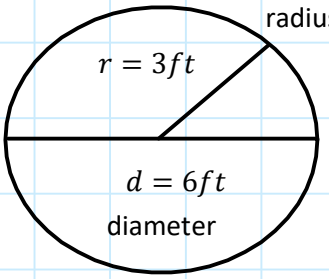
$A = \frac{bh}{2}$

$A = \frac{5 \times 3}{2}$

$A = 7.5in^2$

$p = a + b + c$
$p = 2 + 4 + 5$

$p = 11in$



$r = \frac{d}{2}$

Perimeter = Circumference

$A = \pi r^2$
$A = \pi(3)^2$

$A = 9\pi\ ft^2$

$A = 28.27\ ft^2$

$C = 2\pi r$
$C = 2\pi(3)$

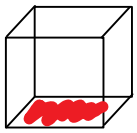
$C = 6\pi\ ft$

$C = 18.85\ ft$

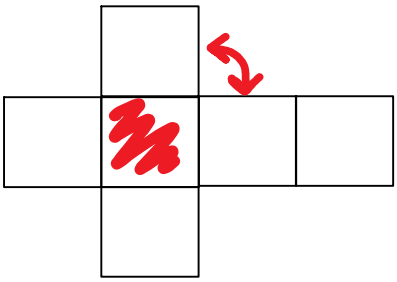
Terms of π

M8 - 5.1 - Net Surface Area Notes

Cube

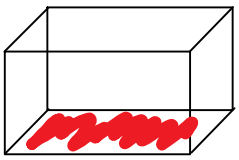


Draw a square
Draw a square up to the right
Connect corners

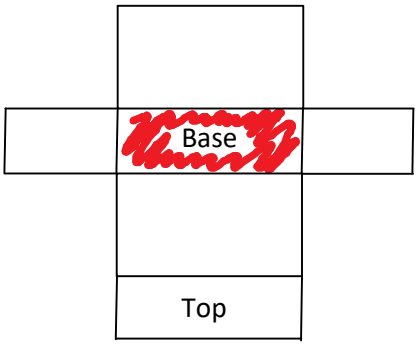


Draw the bottom
Label Dimensions
Fold down the sides.
Fold off the top.

Rectangular Prism

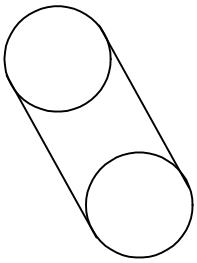


Draw a rectangle
Draw a rectangle up to the right
Connect corners

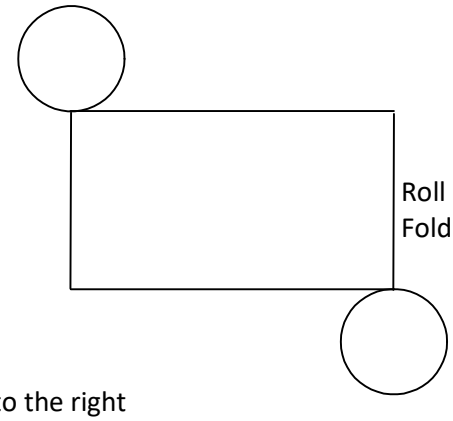


Draw the bottom.
Fold down the sides.
Fold off the top.

Cylinder



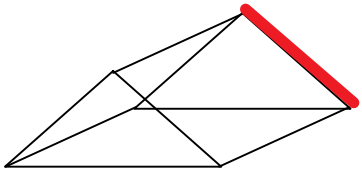
Draw two circles
not touching
Connect the circles

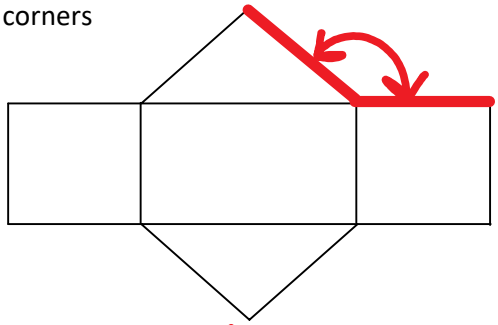


Roll it out flat.
Fold off the top & bottom.

Triangular Prism

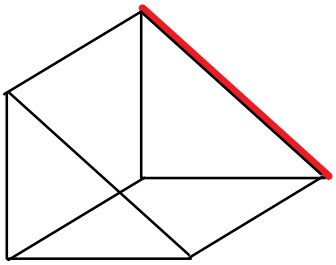
Draw a triangle
Draw a triangle up to the right
Connect corners

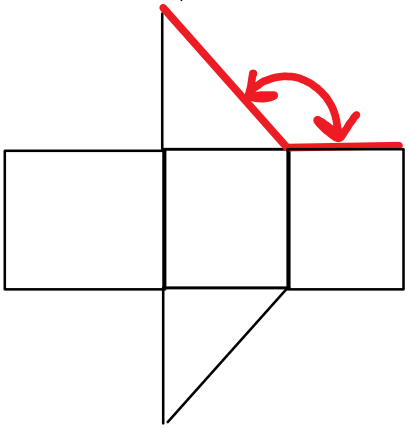




Draw the bottom.
Fold down the sides.
Fold down the front and back.

Right Triangular Prism



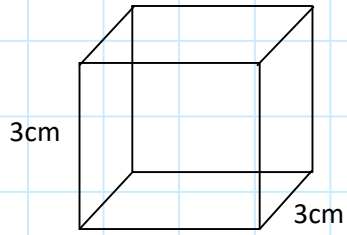


Draw the bottom.
Fold down the sides.
Fold down the front and back.

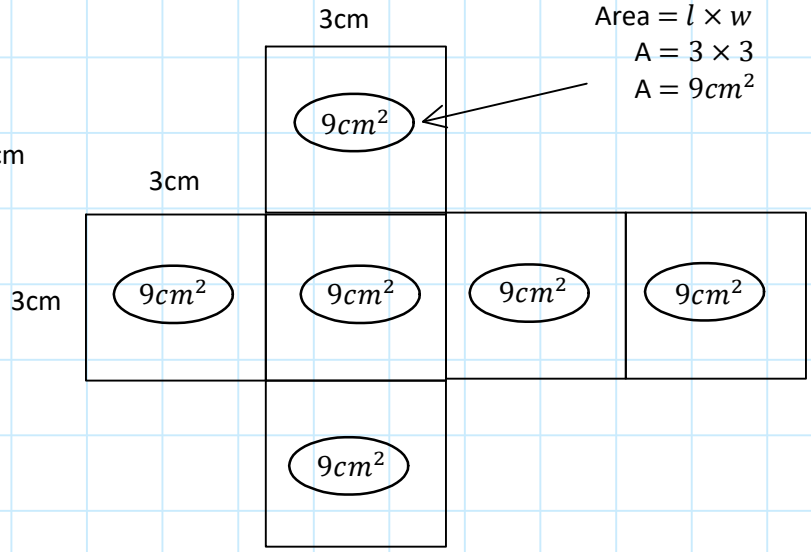
Draw a right triangle
Draw another up to the right
Connect corners

M8 - 5.2 - Cube/Rectangular Prism Surface Area Notes

Cube



Net Area

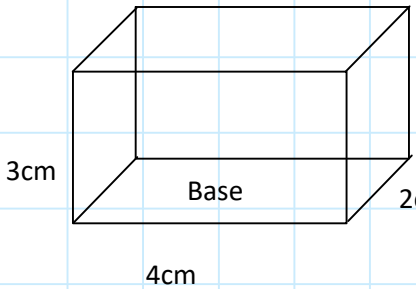


Area $= l \times w$
A $= 3 \times 3$
A $= 9cm^2$

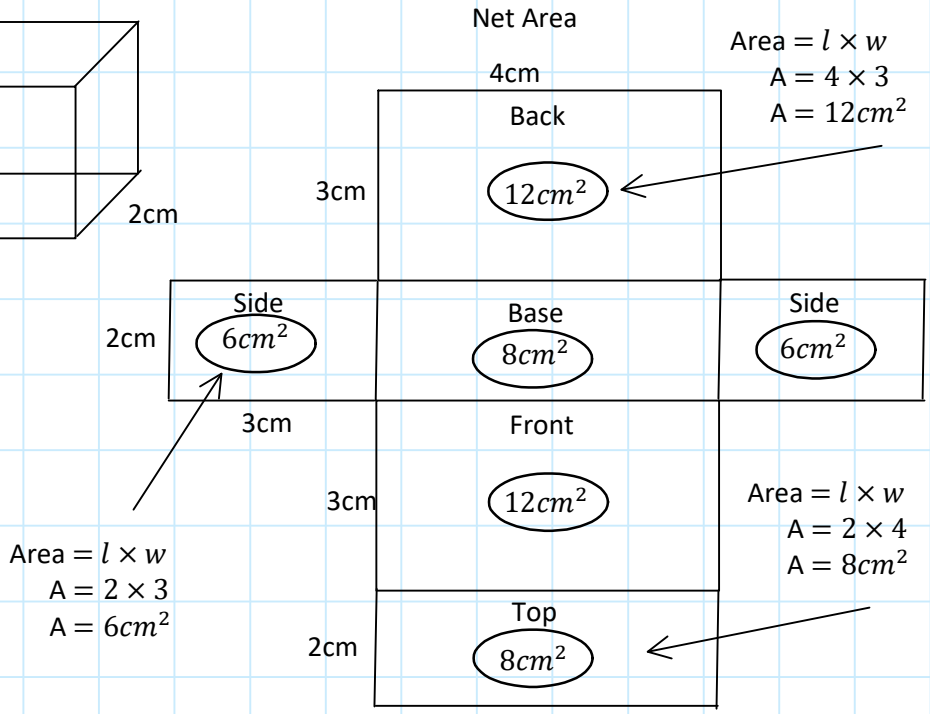
$SA = 9cm^2 + 9cm^2 + 9cm^2 + 9cm^2 + 9cm^2 + 9cm^2$

$SA = 54cm^2$

Rectangular Prism



Net Area



Area $= l \times w$
A $= 4 \times 3$
A $= 12cm^2$

Area $= l \times w$
A $= 2 \times 3$
A $= 6cm^2$

Area $= l \times w$
A $= 2 \times 4$
A $= 8cm^2$

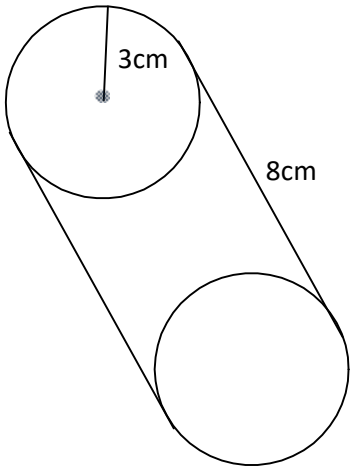
$SA = 12cm^2 + 12cm^2 + 8cm^2 + 8cm^2 + 6cm^2 + 6cm^2$

$SA = 52cm^2$

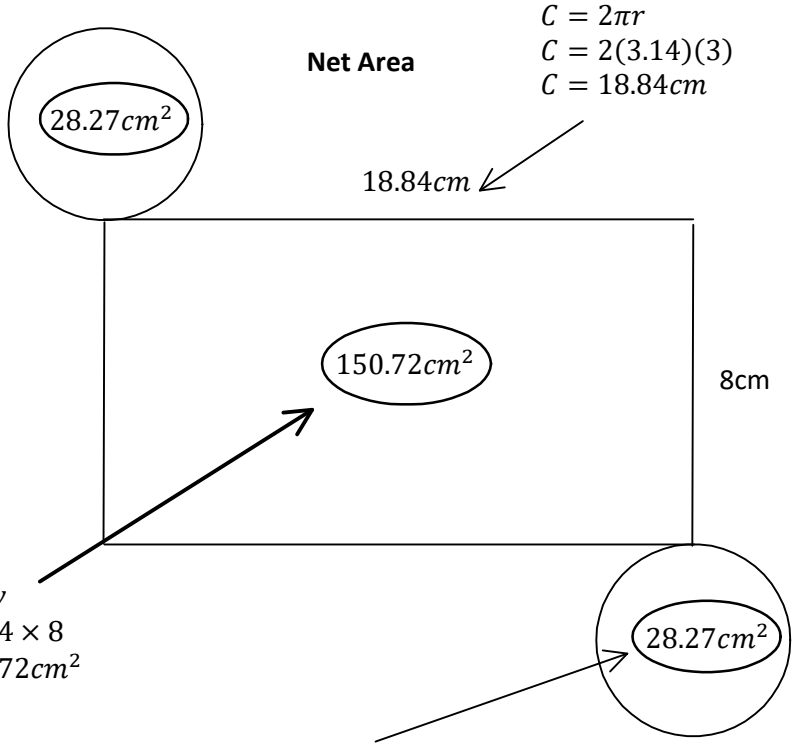
Notice: the top and bottom are the same, the front and back are the same, and both sides are the same.

M8 - 5.3 - Cylinder/Triangular Prism Surface Area Notes

Cylinder



Net Area



Area $= l \times w$
A $= 18.84 \times 8$
A $= 150.72cm^2$

$A = \pi r^2$
$A = (3.14)(3)^2$
$A = 28.27cm^2$

$SA = 28.27cm^2 + 28.27cm^2 + 150.72cm^2$

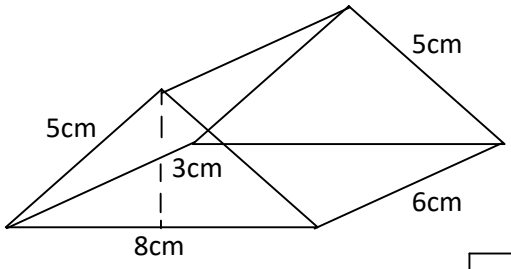
$SA = 207.26\ cm^2$

In terms of π

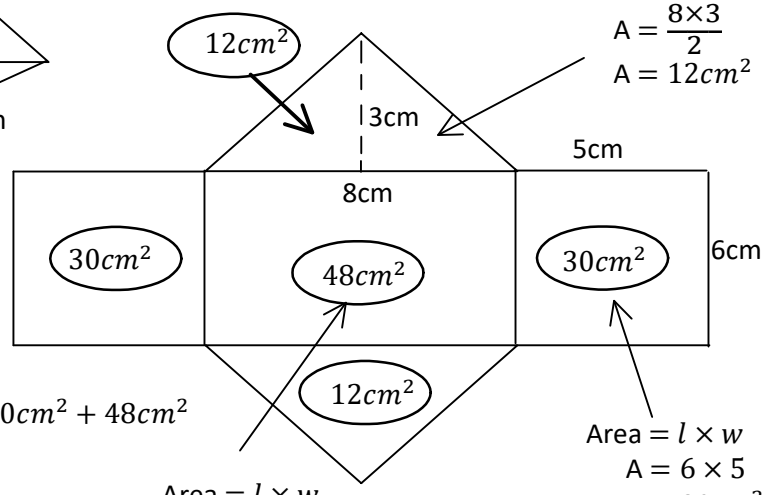
$SA = 66\ \pi\ cm^2$

Notice: the width of the rectangle is the circumference of the circle.

Triangular Prism



Net Area



Area $= \frac{b \times h}{2}$

A $= \frac{8 \times 3}{2}$

A $= 12cm^2$

Area $= l \times w$
A $= 6 \times 5$
A $= 30cm^2$

Area $= l \times w$
A $= 6 \times 8$
A $= 48cm^2$

$SA = 12cm^2 + 12cm^2 + 30cm^2 + 30cm^2 + 48cm^2$

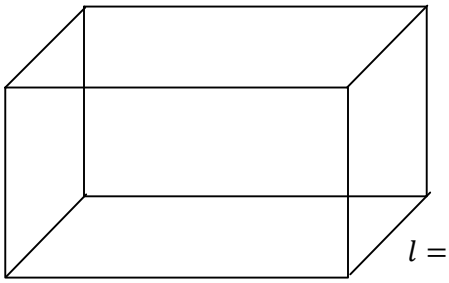
$SA = 132cm^2$

Notice: the front and back are the same, and sides are the same.

M8 - 5.4 - Surface Area Missing Dimension Notes

Find the missing dimension of the following shapes.

$SA = 700\ cm^2$

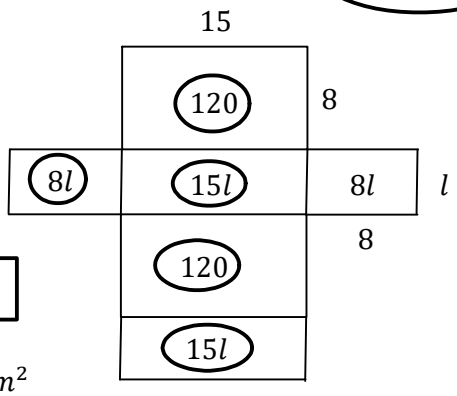


$$SA = 2(l \times w) + 2(l \times h) + 2(h \times w)$$
$$700 = 2(15l) + 2(8l) + 2(8 \times 15)$$
$$700 = 30l + 16l + 240$$
$$-240 \qquad\qquad -240$$
$$460 = 46l$$
$$\frac{460}{46} = \frac{46l}{46}$$
$$10 = l$$

$l = 10\ cm$

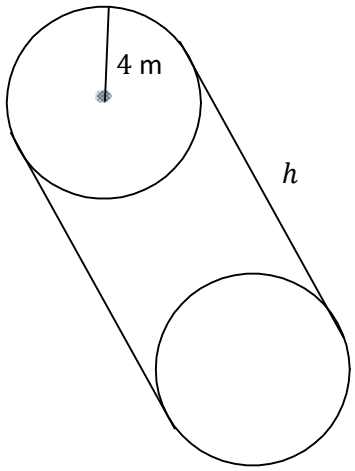
OR

$700 = 240 + 46l$
...



$A = l \times w$

$SA = 326.7\ m^2 = 104\pi\ m^2$



$$SA = 2\pi r^2 + 2\pi rh$$
$$326.7 = 2\pi(4)^2 + 2\pi(4)h$$
$$326.7 = 100.53 + 25.13h$$
$$-100.53 \quad -100.53$$
$$26.17 = 25.13h$$
$$\frac{226.17}{25.13} = \frac{25.13h}{25.13}$$
$$9 = h$$

$h = 9\ m$

OR

$SA = 104\pi\ m^2$

$$SA = 2\pi r^2 + 2\pi rh$$
$$104\pi = 2\pi(4)^2 + 2\pi(4)h$$
$$\frac{104\pi}{\pi} = \frac{32\pi}{\pi} + \frac{8\pi h}{\pi}$$
$$104 = 32 + 8h$$
$$-32 \quad -32$$
$$\frac{72}{8} = \frac{8h}{8}$$

$h = 9\ m$

50.27

$$C = 2\pi r$$
$$C = 2\pi(4)$$
$$C = 25.13$$

$A = l \times w$
$A = C \times h$

h | $25.13h$

OR

$326.7 = 100.54 + 25.13h$
...

50.27

$$A = \pi r^2$$
$$A = \pi(4)^2$$
$$A = 50.27$$