Surface Area of Cones and Cylinders

How to find the Surface Area of a Cone

The **Lateral Area** is the area of the sides of any three dimensional figure

LA = $\pi r l$

r = radius
l = slant height

The **Surface Area** is the area of the sides of any three dimensional figure and the area of the base

SA = $LA + B$
$= \pi r l + \pi r^2$

Students, draw anywhere on this slide!

How to find Surface Area of a Cylinder

Lateral Area of a Cylinder

LA = $2\pi r h$

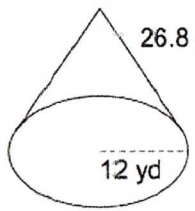
Surface Area of a Cylinder

SA = $LA + 2B$
$= 2\pi r h + 2\pi r^2$

Students, draw anywhere on this slide!

Calculating Surface Area of a Cone

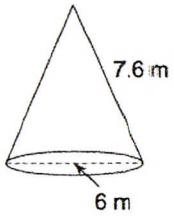
1)



SA = $LA + B$
$= \pi r l + \pi r^2$
$= \pi(12)(26.8) + \pi(12)^2$
$= 1462.73\ yd^2$

Students, draw anywhere on this slide!

Calculating Surface Area of a Cone



$SA = LA + B$

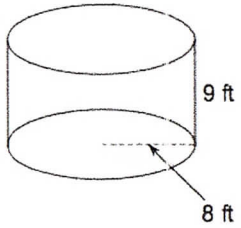
$= \pi r l + \pi r^2$

$= \pi(3)(7.6) + \pi(3)^2$

$= 99.9$ ~~mm~~ ^{2}

Students, draw anywhere on this slide!

Calculating Surface Area of a Cylinder



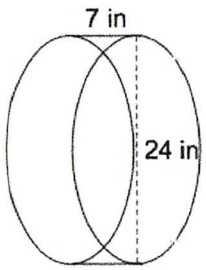
$SA = LA + 2B$

$= 2\pi rh + 2\pi r^2$

$= 2\pi(8)(9) + 2\pi(8)^2$

$= 854.5 \text{ ft}^2$

Calculating Surface Area of a Cylinder



$SA = LA + 2B$

$= 2\pi rh + 2\pi r^2$

$= 2\pi(12)(7) + 2\pi(12)^2$

$= 1432.57 \text{ in}^2$

Students, draw anywhere on this slide!

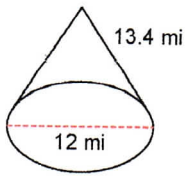
Geometry

Name_____ ID: 1

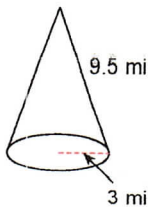
SA of Cones and Cylinders

Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary.

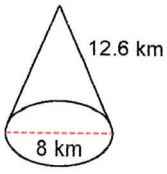
1)



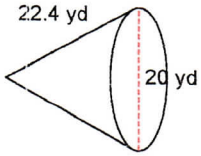
2)



3)



4)



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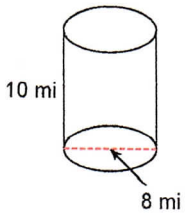

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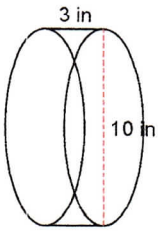
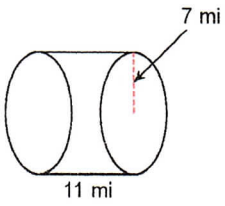
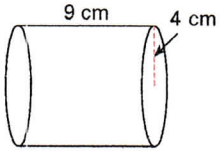


7)

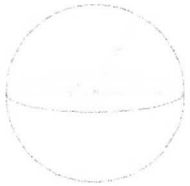


8)



Surface Area of a Sphere

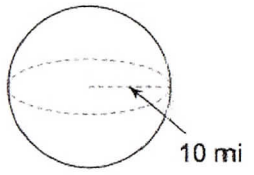
Sphere



Surface Area of a Sphere

$4\pi r^2$

Students, draw anywhere on this slide!

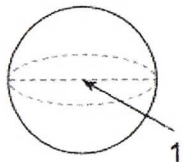


$4\pi r^2$

$4\pi (10)^2$

$= 1256.64 \text{ mi}^2$

Students, draw anywhere on this slide!



diameter

$\frac{16.8}{2}$

8.4 - radius

$4\pi r^2$

$4\pi (8.4)^2$

$= 886.08 \text{ mi}^2$

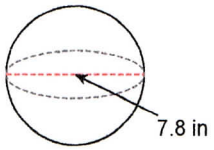
Students, draw anywhere on this slide!

Geometry Name_____ ID: 1

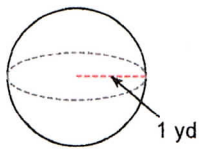
SA of Sphere

Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary.

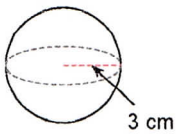
1)



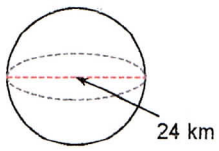
2)



3)



4)



Surface Area Of

Triangular Prism
Square Prism
Rectangular Prism
Trapezoidal prism

Formulas

Pythagorean Theorem : $a^2 + b^2 = c^2$

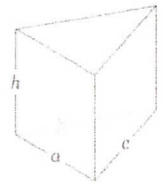
Area of Traingle : $\frac{1}{2}(b)(h)$ b = base, h = height

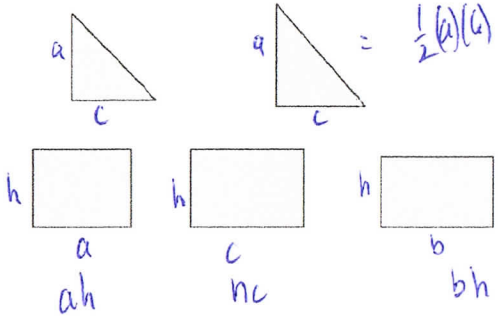
Area of a Square / Rectangle = $l \cdot w$ l = length, w = width

Area of a Trapezoid: $= \frac{1}{2}h(b_1 + b_2)$ h = height, b_1 / b_2 = bases

Students, draw anywhere on this slide!

Triangular Prism

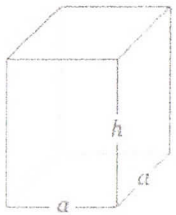


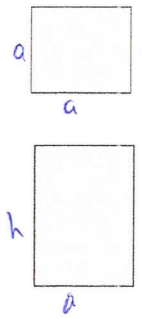


$= \frac{1}{2}(a)(a)$

Students, draw anywhere on this slide!

Square Prism



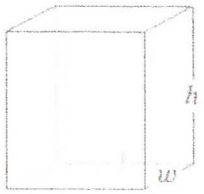


$= a^2$

$= ah$

Students, draw anywhere on this slide!

Rectangular Prism



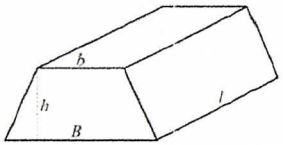
l w = lw

w h = wh

l h = lh

Students, draw anywhere on this slide!

Trapezoidal Prism



b h B = $\frac{1}{2}h(b+B)$

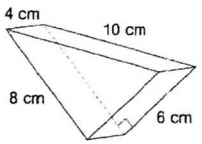
l B l = Bl

b l = bl

h l = hl

Students, draw anywhere on this slide!

Triangular Prism



$\frac{1}{2}(8)(6)$

2 8 24 6 2(24)

4 32 8

4 40 10

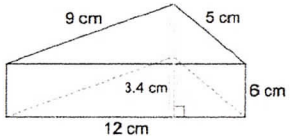
4 24 6

48 + 32 + 40 + 24

144 cm^2

Students, draw anywhere on this slide!

Traingular Prism



2 3.4 20.4 12

72 6 12

6 30 5

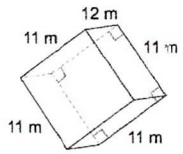
9 6 54

2(20.4) + 72 + 30 + 54

196.8 cm^2

Students, draw anywhere on this slide!

Square Prism



2 | 11 | 121 | 11

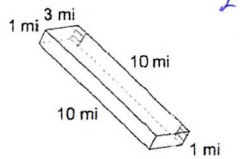
4 | 11 | 132 | 12

$2(121) + 4(132)$

$242 + 528 = 770\ m^2$

Students, draw anywhere on this slide!

Rectangular Prism



2 | 3 | 30 | 10

2 | 1 | 10 | 10

2 | 1 | 3 | 3

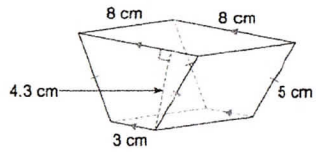
$2(30) + 2(10) + 2(3)$

$60 + 20 + 6$

$86\ mi^2$

Students, draw anywhere on this slide!

Trapezoidal Prism



$\frac{1}{2}(4.3)(3+8)$

2 | 3 | 4.3 | 8 | 23.65

2 | 40 | 8 | 5

8 | 64 | 8

3 | 24 | 8

$2(23.65) + 2(40) + 64 + 24$

215.3

Students, draw anywhere on this slide!

Surface Area of:

Pentagonal Prism
Hexagonal Prism

Formulas:

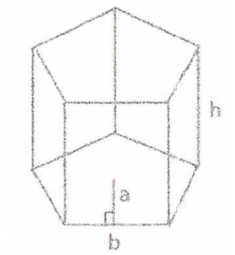
s = length of side
a = apothem

Area of a Pentagon = (½)(5)(s)(a)

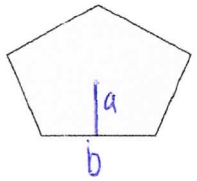
Area of a Hexagon = (½)(6)(s)(a)

Students, draw anywhere on this slide!

Pentagonal Prism

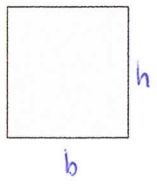


Pentagon



$\frac{1}{2}(5)(b)(a)$

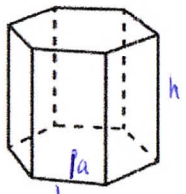
Rectangle



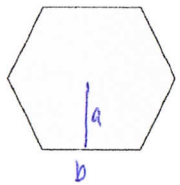
bh

Students, draw anywhere on this slide!

Hexagonal Prism

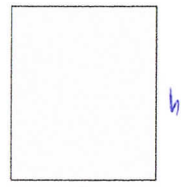


Hexagon



$\frac{1}{2}(6)(b)(a)$

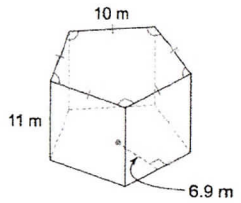
Rectangle

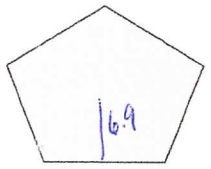


bh

Students, draw anywhere on this slide!

Pentagonal Prism

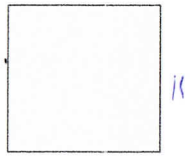


2 

$\frac{1}{2}(10)(6.9)(5)$

$2(172.5)$

345 +

5 

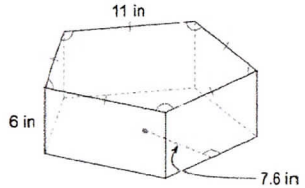
$(10)(11)$

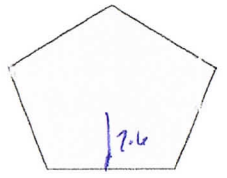
$5(110)$

550 $= 895\ m^2$

Students, draw anywhere on this slide!

Pear Deck Interactive Slide

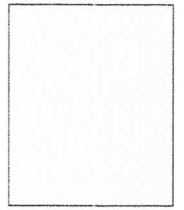


2 

$\frac{1}{2}(5)(11)(7.6)$

$2(209)$

418

5 

$6 \cdot 11$

330

$330 = 748\ in^2$

Students, draw anywhere on this slide!

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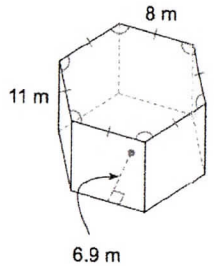
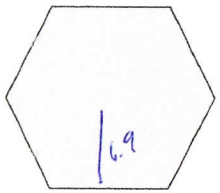
Hexagonal Prism

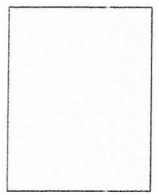


2 

$\frac{1}{2}(6)(8)(6.9)$

$2(165.6)$

331.2

6 

$8(11)$

$6(88)$

528

$859.2\ m^2$

Students, draw anywhere on this slide!

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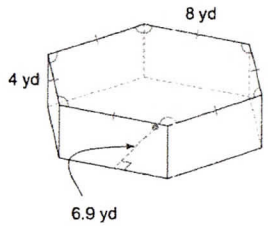
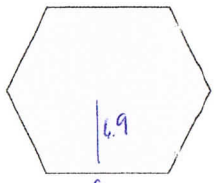
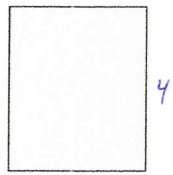


2 

$\frac{1}{2}(6)(8)(6.9)$

$2(165.6)$

331.2 +



$8(4)$

$6(32)$

192

$523.2\ yd^2$

Students, draw anywhere on this slide!

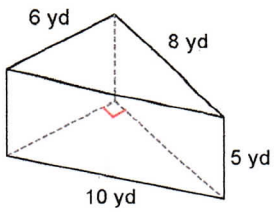
Pear Deck Interactive Slide

Geometry Name_____ ID: 1

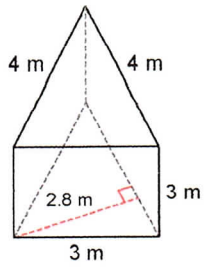
SA of Prisms

Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary.

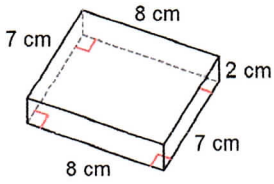
1)



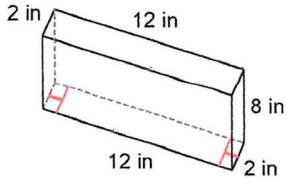
2)



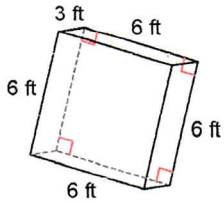
3)



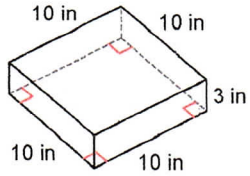
4)



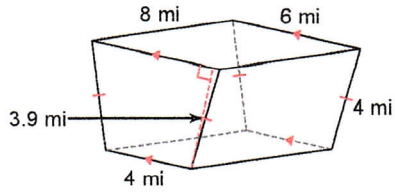
5)



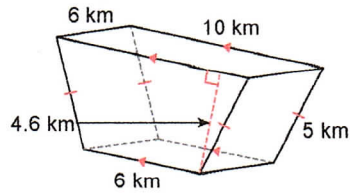
6)



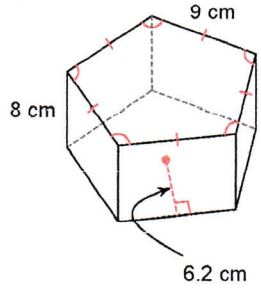
7)



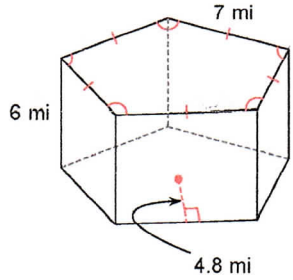
8)



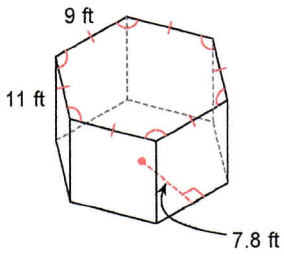
9)



10)



11)



12)