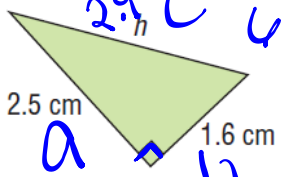
Warm Up

$a^2 + b^2 = c^2$

9. In each triangle, determine the unknown length.

a)



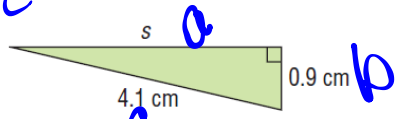
$2.5^2 + 1.6^2 = c^2$

$6.25 + 2.56 = c^2$

$\sqrt{8.81} = \sqrt{c^2}$

$c = 2.9\text{ cm}$

b)



$c^2 - b^2 = a^2$

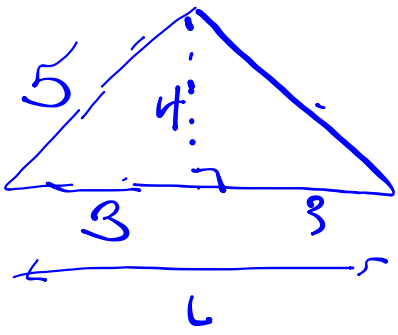
$4.1^2 - 0.9 = a^2$

$16.81 - 0.81 = a^2$

$\sqrt{16} = \sqrt{a^2}$

$a = 4$

ii) Calculate the perimeter and area of each



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

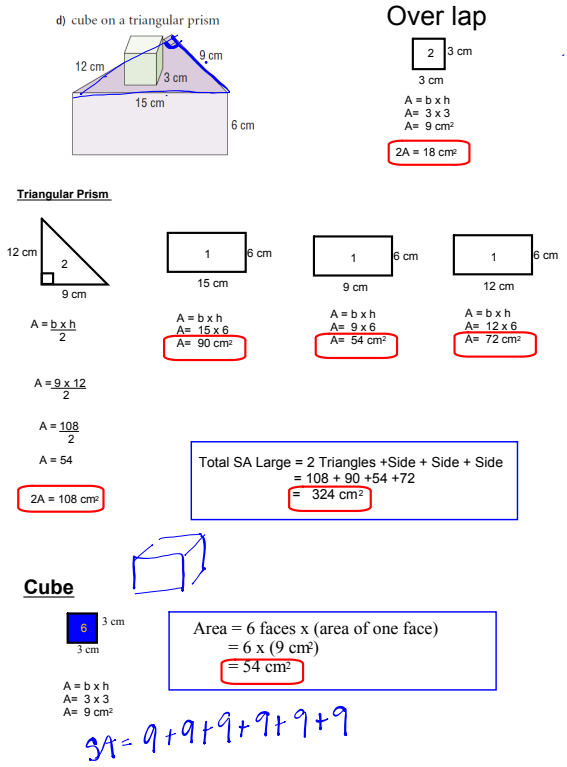
$a^2 + b^2 = c^2$

$c^2 - a^2 = b^2$

$25 - 9 = b^2$

$16 = b^2$

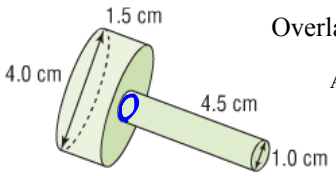
$4 = b$



Total SA = Triangular Prism + Cube - Overlap
= 324 cm² + 54cm² - 18 cm²
= 360 cm²

4

a)



Overlap:

Area of circle = πr^2
= (3.14) (0.5 cm)²
= (3.14) 0.25 cm²
= 0.785 cm²
x 2
1.57 cm²

Top
Area of cylinder = $2\pi r^2 + 2\pi rh$
= 2(3.14)(2cm)² + 2(3.14)(2cm)(1.5cm)
= 2(3.14)(4cm) + 2(3.14)(2cm)(1.5cm)
= 25.12 cm² + 18.84 cm²
= 43.96 cm²

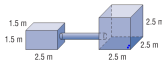
Long
Area of cylinder = $2\pi r^2 + 2\pi rh$
= 2(3.14)(0.5cm)² + 2(3.14)(0.5cm)(4.5cm)
= 2(3.14)(0.25cm) + 2(3.14)(0.5cm)(4.5cm)
= 1.57 cm² + 14.13 cm²
= 15.7 cm²

Total SA = Cylinder + Cylinder - Overlap
= 43.96 cm² + 15.7 cm² - 1.57 cm²
= 58.09 cm²
= 58.1 cm²

Homework solutions

Solutions

4 b) The cylinder is 3.5 m long with diameter 0.5 m.



overlap 1

$A = \pi r^2$

$= (3.14)(0.25m)^2$

$= (3.14)(0.0625m)$

$= 0.19625\ m^2$

x 2 for face involved

$= 0.3925 m^2$

Overlap 2

$A = \pi r^2$

$= (3.14)(0.25m)^2$

$= (3.14)(0.0625m)$

$= 0.19625 m^2$

x 2 for face involved

$= 0.3925\ m^2$

total overlap = overlap 1 + overlap 2

$0.3925 m^2 + 0.3925 m^2$

$= 0.785 m^2$

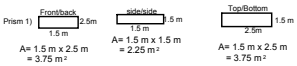
Area of cylinder = $2\pi r^2 + 2\pi rh$

$= 2(3.14)(0.25m)^2 + 2(3.14)(0.25m)(3.5m)$

$= 2(3.14)(0.0625m^2) + 2(3.14)(0.25cm)(3.5m)$

$= 0.3925\ m^2 + 5.495\ m^2$

$= 5.8875\ m^2$



A= 1.5 m x 2.5 m = 3.75 m²

A= 1.5 m x 1.5 m = 2.25 m²

A= 1.5 m x 2.5 m = 3.75 m²

SA Prism 1 = $2(3.75\ m^2) + 2(2.25m^2) + 2(3.75m^2)$

$= 7.5\ m^2 + 4.5m^2 + 7.5m^2$

$= 19.5\ m^2$

Cube)

Surface area of 1 face = 2.5 m x 2.5m

$= 6.25\ m^2$

x 6 ← 6 equal faces

$37.5\ m^2$

Total SA= Rectangular Prism + Cube + Cylinder - Total Overlap

$= 19.5\ m^2 + 37.5\ m^2 + 5.8875\ m^2 - 0.785\ m^2$

$= 61.6025\ m^2$

Or if you rounded to the nearest thenth

Total SA= Rectangular Prism + Cube + Cylinder - Total Overlap

$= 19.5\ m^2 + 37.5\ m^2 + 5.8875\ m^2 - 0.785\ m^2$

$= 19.5\ m^2 + 37.5\ m^2 + 5.9\ m^2 - 0.8\ m^2$

$= 62.1\ m^2$

Class / Homework

Practice Page 40 - 43

Questions :

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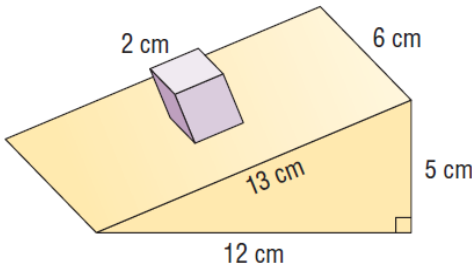
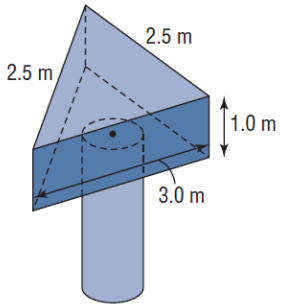
Questions: 3e, 5a, 7

e) cube on a triangular prism



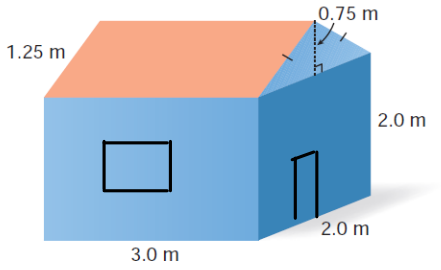
5. Determine the surface area of each composite object.

a) The cylinder is 2.5 m long with radius 0.5 m.



7. Assessment Focus

a) A playhouse has the shape of a rectangular prism with a triangular prism roof. Determine the surface area of the playhouse.



b) Door is 0.5m x 1m
2 Windows 1m x 1 m

c) Determine the surface area of the playhouse not including its doors and windows.