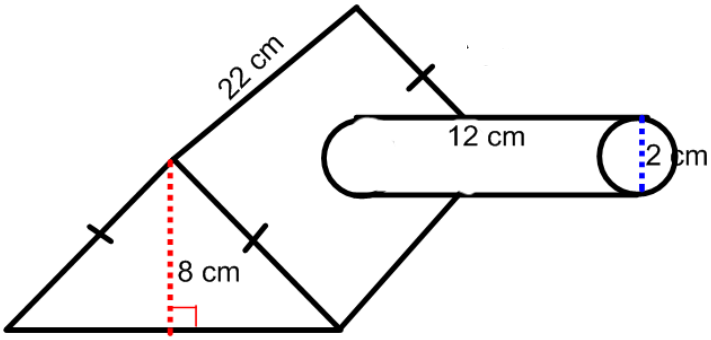
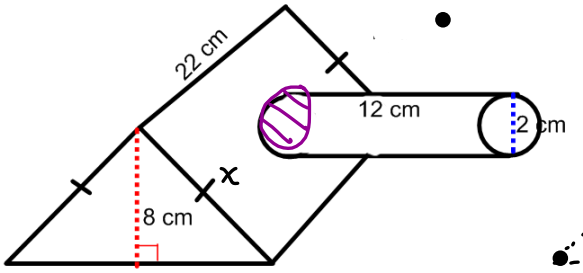
Warm Up

Find the total surface area



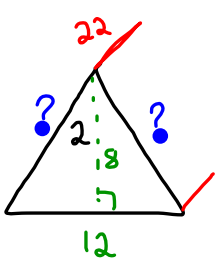
Find the total surface area

Warm Up



12 cm

$c^2 = a^2 + b^2$
$c^2 = 8^2 + 6^2$
$c^2 = 64 + 36$
$\sqrt{c^2} = \sqrt{100}$
$c = 10$

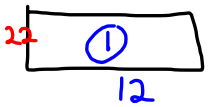


$A = \frac{b \times h}{2}$

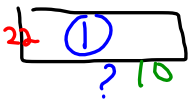
$A = \frac{12 \times 8}{2}$

$A = 48$

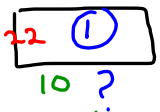
$2A = 96$



$A = b \times h$
$A = 12 \times 22$
$A = 264$



$A = b \times h$
$A = 22 \times 10$
$A = 220$



$A = 220$

$SA_1 = 96 + 264 + 220 + 220$
$= 800$

Cylinder ∴ $r = 1$ $h = 12$

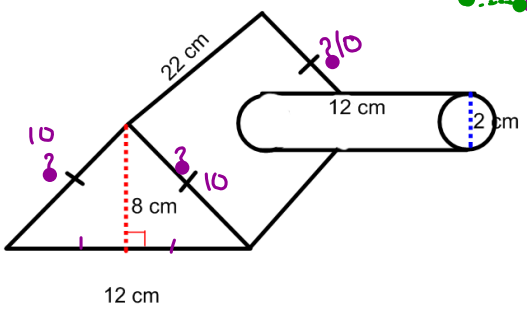
$SA = 2\pi r^2 + 2\pi rh$
$= 2(\pi)(1)^2 + 2\pi(1)(12)$
$= 2\pi(1) + 2\pi(12)$
$= 6.28 + 75.36$
$= 81.64$

overlap

$TSA = 800 + 81.64 - 6.28$
$= 875.36$

Warm Up

Find the total surface area



$c^2 = a^2 + b^2$
$c^2 = 8^2 + 6^2$
$c^2 = 64 + 36$
$\sqrt{c^2} = \sqrt{100}$
$c = 10$

Prism

$A = \frac{b \times h}{2}$
$A = \frac{12 \times 8}{2}$
$A = 48$
$2A_\Delta = 96\ cm^2$

$A = b \times h$
$A = 12 \times 22$
$A = 264\ cm^2$

$A = b \times h$
$A = 10 \times 22$
$A = 220$
$2A = 440$

$SA = 800\ cm^2$

cylinder: $r = 1$ $h = 12$

$SA = 2\pi r^2 + 2\pi rh$
$= 2(3.14)(1)^2 + 2(3.14)(1)(12)$
$= 6.28 + 75.36$
$= 81.64\ cm^2$

overlap

(2) $A = \pi r^2$
$2A = 2(\pi r^2)$
$= 2(3.14)(1)^2$
$= 6.28\ cm^2$

$TSA =$ Prism + cylinder − overlap
$= 800 + 81.64 - 6.28$
$= 875.36\ cm^2$

Homework Solutions

2a) $\sqrt{\frac{144}{25}} = \frac{\sqrt{144}}{\sqrt{25}} = \frac{12}{5}$

2c) $\sqrt{\frac{196}{81}} = \frac{\sqrt{196}}{\sqrt{81}} = \frac{14}{9}$

2e) $\sqrt{0.0196} = 0.14$

2g) $\sqrt{669} = 63$

3a) $\frac{48}{120} = \frac{2}{5}$ ← Not perfect ← Not perfect Not perfect

3b) 0.04 $\sqrt{0.04} = 0.2$ when you take the square root the decimal stops

3g) $\frac{50 \div 25}{225 \div 25} = \frac{2}{5}$ Not perfect Not perfect Not perfect

4a) $\frac{3}{5} \times \frac{3}{5} = \frac{9}{25}$ 4b) $66 \times 66 = 2056$

Squares
Area = $(\text{side})^2$ Side = $\sqrt{\text{Area}}$

5 a) Side = $\sqrt{0.81} = 0.9$

5 c) Side = $\sqrt{4.84} = 2.2$

5 d) Side = $\sqrt{0.16} = 0.4$

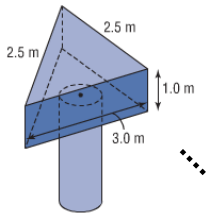
6a) $\sqrt{1} = 1$ $\sqrt{3.8}$ and $\sqrt{4} = 2$

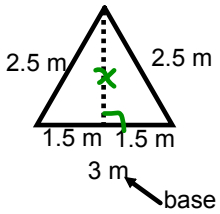
7a) $\sqrt{\frac{77}{10}} = \sqrt{7.7}$

$\sqrt{4} = 2$ $\sqrt{9} = 3$

5. Determine the surface area of each composite object.

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





Missing Side

height^2 = c^2 - b^2
= (2.5 m)^2 - (1.5 m)^2
= 6.25 m^2 - 2.25m^2
= 4 m^2
height = $\sqrt{4m^2}$
height = 2 m

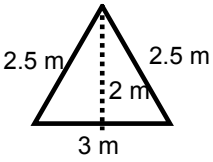
Triangular prism

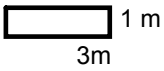
A= $\frac{b \times h}{2}$

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

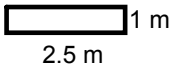
A= $\frac{6m^2}{2}$

A= 3 m^2

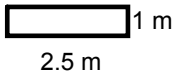




A= b x h
= 3 m x 1m
= 3m^2



A= b x h
= 2.5 m x 1m
= 2.5m^2



A= b x h
= 2.5 m x 1m
= 2.5m^2

Total SA Triangular Prism = 2 triangles + rectangle + rectangle + rectangle
= 2 (3 m^2) + 3 m^2 + 2.5 m^2 + 2.5 m^2
= 6 m^2 + 3 m^2 + 2.5 m^2 + 2.5 m^2
= 14 m^2

Cylinder

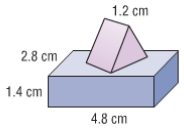
Area of cylinder = $2\pi r^2 + 2\pi rh$
= $2(3.14)(0.5)^2 + 2(3.14)(0.5)(2.5)$
= $2(3.14)(0.25) + 2(3.14)(0.5)(2.5)$
= 1.57 m^2 + 7.85 m^2
= 9.42 m^2

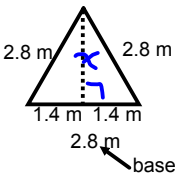
Area of Overlap

Area of circle = πr^2
= (3.14)(0.5^2)
= (3.14)(0.25)
= 0.785 m^2
x 2 faces
1.57 m^2

Total Surface = Triangular Prism + Cylinder - total overlap
= 14 m^2 + 9.42 m^2 - 1.57 m^2
= 21.85 m^2

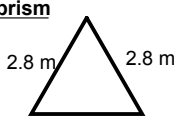
b) The base of the triangular prism is an equilateral triangle with side length 2.8 cm.





height^2 = c^2 - b^2
= (2.8 m)^2 - (1.4 m)^2
= 7.84 m^2 - 1.96m^2
= 5.88 m^2
height = $\sqrt{5.88 m^2}$
height = 2.4 m

Triangular prism

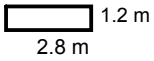


A= $\frac{b \times h}{2}$

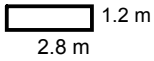
A= $\frac{2.8 \text{ m} \times 2.4 \text{ m}}{2}$

A= $\frac{6.72 \text{ m}^2}{2}$

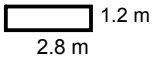
A= 3.36 m^2



A= b x h
= 2.8 m x 1.2 m
= 3.36 m^2



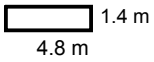
A= b x h
= 2.8 m x 1.2 m
= 3.36 m^2



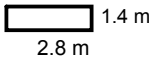
A= b x h
= 2.8 m x 1.2 m
= 3.36 m^2

Total SA Triangular Prism = 2 triangles + rectangle + rectangle + rectangle
= 2 (3.36 m^2) + 3.36 m^2 + 3.36 m^2 + 3.36 m^2
= 6.72 m^2 + 3.36 m^2 + 3.36 m^2 + 3.36 m^2
= 16.8 m^2

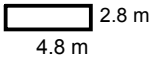
Prism



A= b x h
= 4.8 m x 1.4 m
= 6.72 m^2



A= b x h
= 2.8 m x 1.4 m
= 3.92 m^2



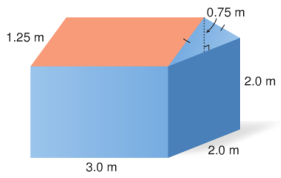
A= b x h
= 2.8 m x 4.8 m
= 13.44 m^2

Prism = 2 top + 2 side + 2 front
= 2 (6.72) + 2 (3.92) + 2(13.44)
= 13.44 + 7.84 + 26.88
= 48.16

Overlap Area

A= b x h
= 2.8 m x 1.2 m
= 3.36 m^2
x 2 faces
6.72 m^2

Total SA = Triangular Prism + Rectangular Prism - overlap
= 16.8 m^2 + 48.12 m^2 - 6.72 m^2
= 64.92 m^2 - 6.72 m^2
= 58.2 m^2



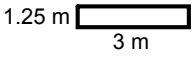
Triangular Prism

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

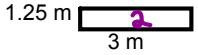
$= \frac{(2\text{ m}) \times (0.75\text{ m})}{2}$

$= \frac{1.5\text{ m}^2}{2}$

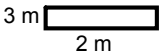
$= 0.75\text{ m}^2$



A = b x h
= 1.25 m x 3 m
= 3.75 m^2



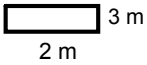
A = b x h
= 1.25 m x 3 m
= 3.75 m^2



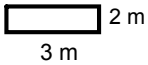
A = b x h
= 2 m x 3 m
= 6 m^2

Total SA = 2 Triangles + Rectangle + Rectangle + Rectangle
of triangular prism = 2(0.75 m^2) + 3.75 m^2 + 3.75 m^2 + 6 m^2
= 1.5 m^2 + 3.75 m^2 + 3.75 m^2 + 6 m^2
= 15 m^2

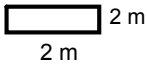
Prism



A= b x h
= 3 m x 2 m
= 6 m^2



A= b x h
= 3 m x 2 m
= 6 m^2

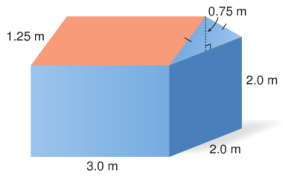


A= b x h
= 2 m x 2 m
= 4 m^2

Prism = 2 top + 2 side + 2 front
= 2 (6) + 2 (6) + 2(4)
= 12 + 12 + 8
= 32

Overlap = b x h
= 3 m x 2 m
= 6 m^2
x 2 faces
12 m^2

with bottom = Triangular Prism + Rectangular Prism - overlap
= 15 m^2 + 32 m^2 - 12 m^2
= 35 m^2



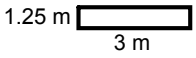
Triangular Prism

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

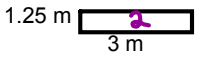
$= \frac{(2\ m) \times (0.75\ m)}{2}$

$= \frac{1.5\ m^2}{2}$

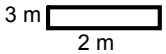
$= 0.75\ m^2$



A = b x h
= 1.25 m x 3 m
= 3.75 m^2



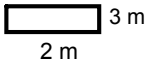
A = b x h
= 1.25 m x 3 m
= 3.75 m^2



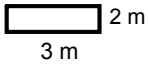
A = b x h
= 2 m x 3 m
= 6 m^2

Total SA = 2 Triangles + Rectangle + Rectangle + Rectangle
of triangular prism = 2(0.75 m^2) + 3.75 m^2 + 3.75 m^2 + 6 m^2
= 1.5 m^2 + 3.75 m^2 + 3.75 m^2 + 6 m^2
= 15 m^2

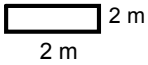
Prism



A= b x h
= 3 m x 2 m
= 6 m^2



A= b x h
= 3 m x 2 m
= 6 m^2



A= b x h
= 2 m x 2 m
= 4 m^2

Prism = 2 top + 2 side + 2 front
= 2 (6) + 2 (6) + 2(4)
= 12 + 12 + 8
= 32

Overlap = b x h
= 3 m x 2 m
= 6 m^2
x 2 faces
12 m^2

Bottom = b x h
= 3 m x 2 m
= 6 m^2

without bottom = Triangular Prism + Rectangular Prism - overlap - bottom
= 15 m^2 + 32 m^2 - 12 m^2 - 6 m^2
= 29 m^2

Test
Wednesday Nov 30, 2016

Square roots and perfect squares

Surface area of composite objects

Test

Square roots and perfect squares

Area of a square = $(\text{side})^2$ Side of square = $\sqrt{\text{area of square}}$

- square root is 2.4 means find the perfect square # so multiply by itself

- is it a perfect square
take the square root and if the decimal stops or repeats then the number was perfect

- square root of fraction take square root of top and bottom
or check top and bottom of a fraction

- bench marks find the perfect square that the number falls between

Perfect Squares: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225

section 1.1 to 1.2

Surface area of composite objects

section 1.3 & 1.4

Class / Homework

Review For Test

- Handout: Surface Area Worksheet

Questions: 1-6

answers were on the board

- Questions from Textbook:

page 45 - 46

#2(b, d, f, h)
#3(a,b,c,d,e)
#4(a,d)
#5 (a, c, e)
#6 (b,d)
7(ad)
12ac
#13ab
#15(bc)
#16(bc)
#19(a)

Page 48

5 Warehouse question

Worksheet

Answers

1) $1680\ cm^2$

2) $952.8\ m^2$

3) $791.3\ cm^2$

4) $990\ mm^2$

5) $528.9\ cm^2$

6) $426.8\ cm^2$