Surface Area

Surface area is the total area of all of the faces of the object.

Steps need to find Surface area are:

1. Draw all of the faces with dimensions displayed on them.
2. Find the area of each face.
3. Then add up the areas of all of the faces.

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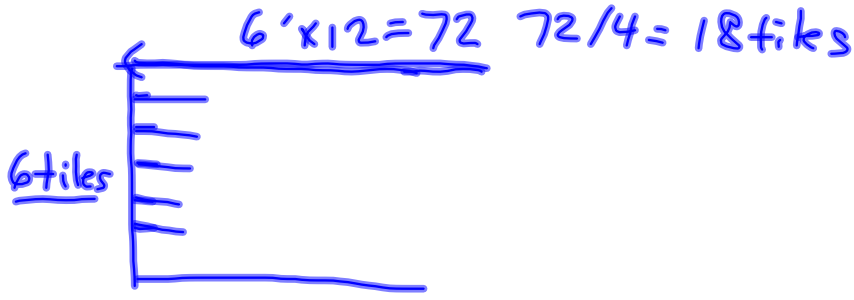
#4



tiles = 6x18
= 108 tiles

Cost = (108)(3.50) + 350
= $728.00

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6.

$= 150\text{cm} \times \frac{1\text{ in}}{2.54\text{ cm}} \times \frac{1\text{ ft}}{12\text{ in}}$

$= 4.92\text{ ft}$ ...not enough twine

#7 Hardwood floor $= \left(22\text{ ft} \times \frac{1\text{ yd}}{3\text{ ft}} \times \frac{1\text{ m}}{1.0936\text{ yd}}\right)\left(16\text{ft} \times \frac{1\text{yd}}{3\text{ft}} \times \frac{1\text{m}}{1.0936\text{ yd}}\right)$

$= 32.70\text{ m}^2$

Cost $= 33\text{ m}^2 \times \$18.99/\text{m}^2 + \$1500.00$

$= \$2126.67$

Carpet $\left(22\text{ ft} \times \frac{1\text{ yd}}{3\text{ ft}}\right)\left(16\text{ft} \times \frac{1\text{ yd}}{3\text{ft}}\right)$

$= 39.11$

$= 40\text{ yd}^2$

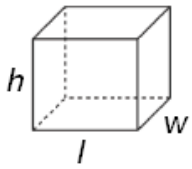
Cost $40\text{yd}^2 \times \$21.95/\text{yd}^2 + \$1350$

$= \$2228$

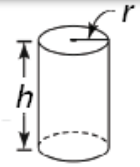
...Hardwood is cheaper

Activate Prior Learning:

Surface Areas of Right Prisms and Cylinders

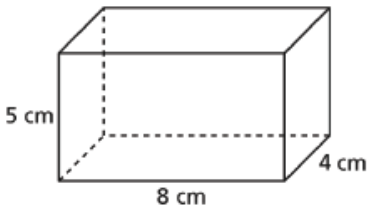


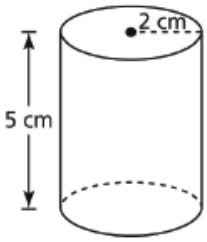
$SA = 2wl + 2hl + 2hw$



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

Which object below has the greater surface area?





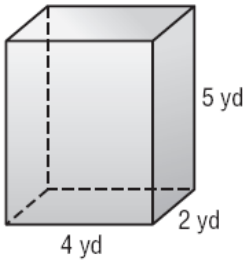
$A = 2lw + 2lh + 2wh$
$= 2(8)(4) + 2(8)(5) + 2(4)(5)$
$= 64 + 80 + 40$
$= 184\ cm^2$

$A = 2\pi r^2 + 2\pi rh$
$= 2\pi(2)^2 + 2\pi(2)(5)$
$= 8\pi + 20\pi$
$= 28\pi\ cm^2$
$= 87.96\ cm^2$

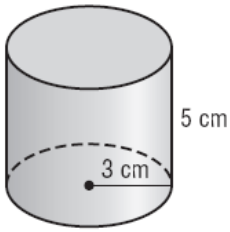
EXERCISES

Find the surface area of each solid. Round to the nearest tenth if necessary.

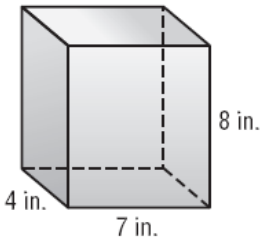
1.



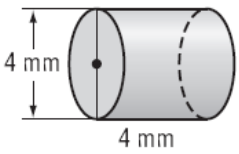
2.



3.



4.



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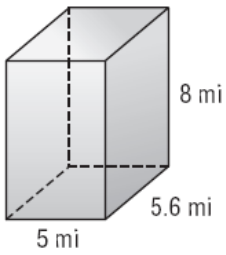
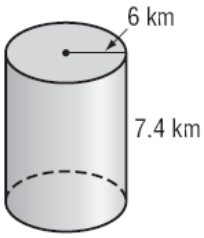


6.



7. rectangular prism: length, 2.3 in.; width, 7 in.; height, 8 in.

8. cylinder: radius, 4 cm; height, 8.2 cm

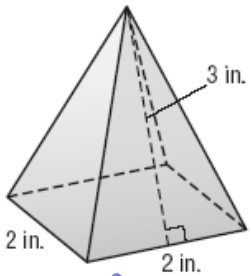
Solutions...

1) 76 yd² 2) 150.8 cm² 3) 232 in² 4) 75.4 mm²
5) 225.6 mi² 6) 505.2 km² 7) 181 in² 8) 306.6 cm²

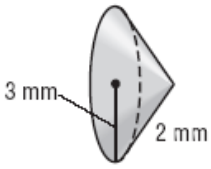
EXERCISES

Find the surface area of each solid. Round to the nearest tenth if necessary.

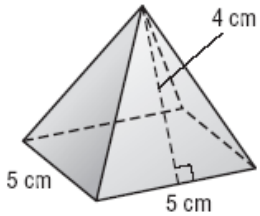
1.



2.



3.



$A = lw + 4\left(\frac{ls}{2}\right)$

$= (2)(2) + 4\left(\frac{2(3)}{2}\right)$

$= 4 + 12\ in^2$

$= 16\ in^2$

$A = \pi r^2 + \pi r s$

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

$= 9\pi + 6\pi$

$= 15\pi\ mm^2$

$= 47.1\ mm^2$

$A = lw + 4\left(\frac{ls}{2}\right)$

$= (5)(5) + 4\left(\frac{(5)(4)}{2}\right)$

$= 25 + 40$

$= 65\ cm^2$

Solutions...

1) 16 in^2 2) 47.1 mm^2 3) 65 cm^2

Homework...

Worksheet - Surface Area of Pyramids and Cones

Solutions...

1) 113.1 in^2 2) 40 m^2 3) 188.5 mm^2 4) 63.3 yd^2
5) 84 ft^2 6) 263.9 cm^2 7) 208 m^2 8) 301.6 in^2
9) 123.7 ft^2 10) 263.2 mm^2 11) 95.7 cm^2 12) 210 yd^2
13) 74.4 cm^2 14) 152 yd^2 15) 857.7 in^2

Attachments

Worksheet - Surface Area of Pyramids and Cones.pdf