Curriculum Outcome

M1 Demonstrate an understanding of the Système International (SI) by describing the relationships of the units for length, area, volume, capacity, mass and temperature.

M2 Demonstrate an understanding of the Imperial system by: describing the relationships of the units for length, area, volume, capacity, mass and temperature.

M3 Solve problems, using SI and Imperial units, that involve linear measurement using estimation and measurement strategies.

Student Friendly: The relationship between measurement units such as

1 m = 1.0936 yd

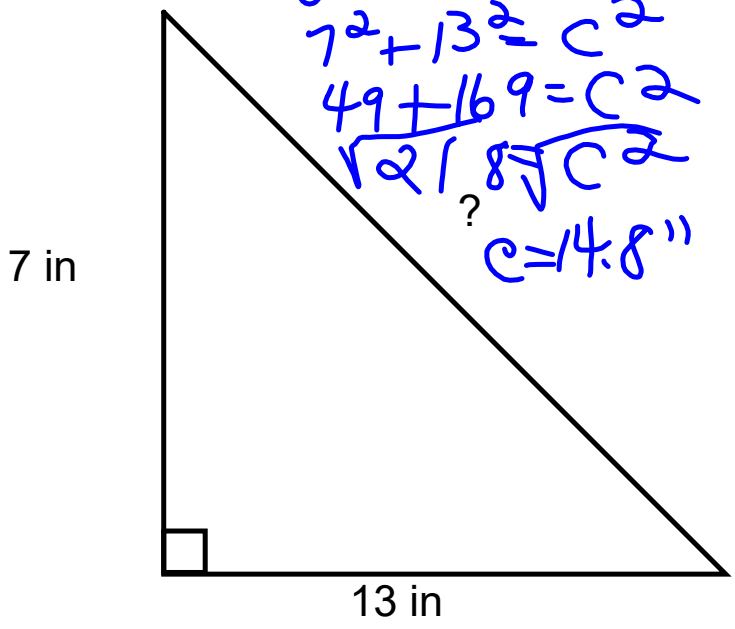
1 m = 3.2808 ft

1 mi= 1.6093 km

1 in = 2.54 cm

Warm Up

Calculate the unknown:



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

$7^2+13^2=c^2$

$49+169=c^2$

$\sqrt{218}=\sqrt{c^2}$

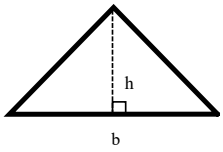
$c=14.8''$

AREA Formulas...

Rectangle or Square

$A = bh$

Triangle

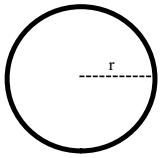


$A = \frac{1}{2} bh$

or

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

Circle



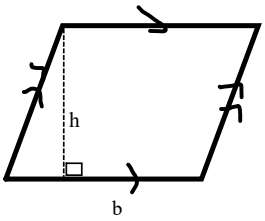
$A = \pi r^2$

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

or

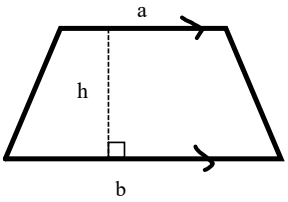
$\frac{h(a+b)}{2}$

Parallelogram or Rhombus



$A = bh$

Trapezoid



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

or

$A = \frac{h\,(a + b)}{2}$

Surface Area

Grade 9 review

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

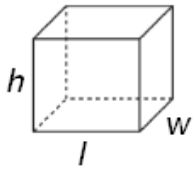
Steps need to find Surface area are:

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.**

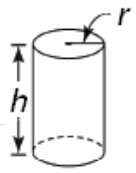
Activate Prior Learning:

Surface Areas of Right Prisms and Cylinders

SA =(Area of base) x height

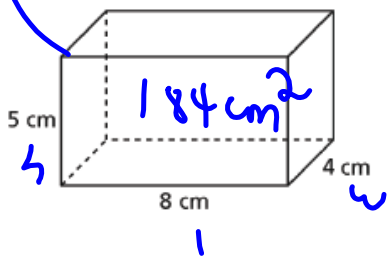


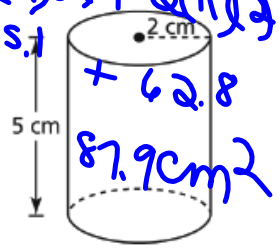
$SA = 2wl + 2hl + 2hw$



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

Which object below has the greater surface area?

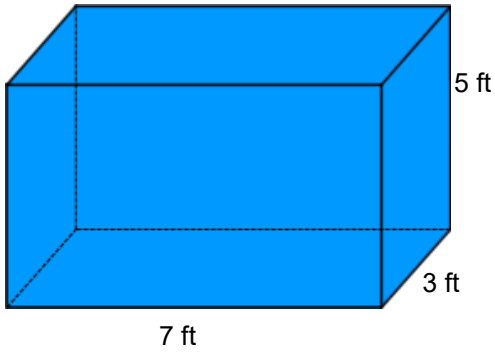




1.4 Surface Areas of Right Pyramids and Right Cones

Surface Area

What is the surface area of the rectangular prism in squared metres?



$142\,ft^2 \times \left(\frac{0.3048\,m}{1\,ft}\right)^2$

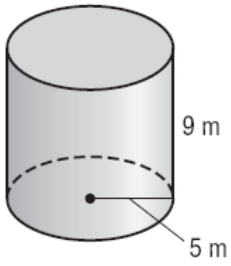
$13.2\,m^2$

$SA = 2(lw) + 2(hl) + 2(hw)$
$= 2(7 \cdot 3) + 2(5 \cdot 7) + 2(5 \cdot 3)$
$= 42 + 70 + 30$
$= 142\,ft^2$

5

The surface area S of a cylinder with height h and radius r is the area of the two bases plus the area of the curved surface, or $S = 2\pi r^2 + 2\pi rh$.

EXAMPLE 2 **Find the surface area of the cylinder. Round to the nearest tenth.**



$S = 2\pi r^2 + 2\pi rh$ Surface area of a cylinder

$r = 5, h = 9$

Simplify.

$S = 2(3.14)(5)^2 + 2(3.14)(5)(9)$

$= 157.1 + 282.6$

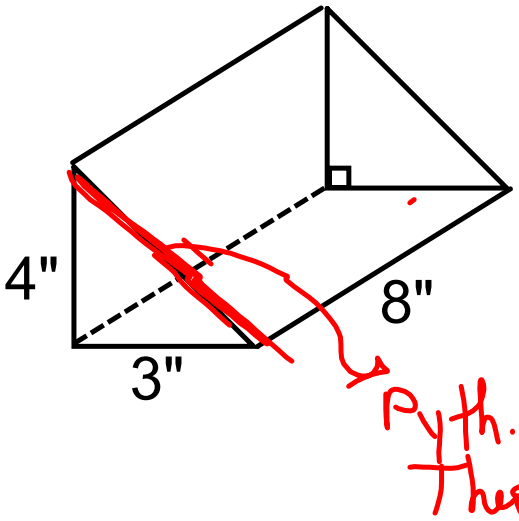
$= 439.8 \text{ m}^2$

What is the surface area of the cylinder in squared yards?

$439.8 \text{ m}^2 \times \left(\frac{1.0936 \text{ yd}}{1 \text{ m}}\right)^2$

525.7 yd^2

EXAMPLE #3:



ANOTHER FORMULA...

What is the surface area in squared centimeters?

Class/ Homework

Worksheet: Converting Basic Area Questions
- All Questions

Worksheet: 7-7 Practice Skills
- Circled Questions

Pre-Algebra

ID: 1

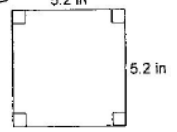
Name_____

Assignment

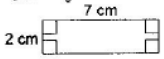
Date_____ Period____

Find the area of each.

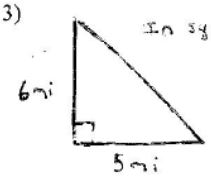
1) In squared centimetres



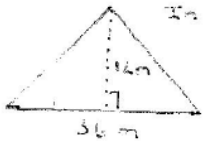
2) In squared inches



3) In squared yards

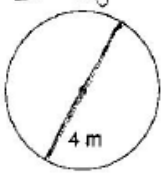


4) In squared feet (change)

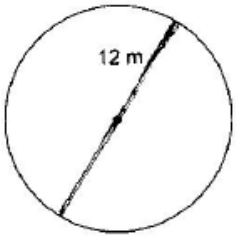


Find the area of each. Round your answer to the nearest tenth.

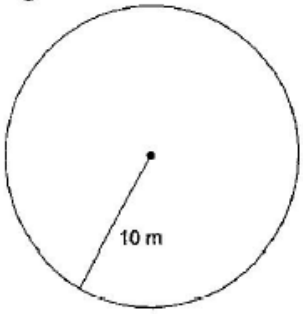
5) In squared yards



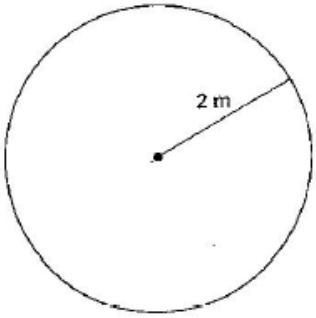
6) In squared centimetres



7) In squared feet



8) In squared inches



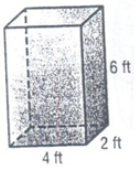
NAME _____ DATE _____ PERIOD ____

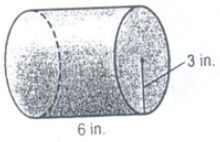
7-7

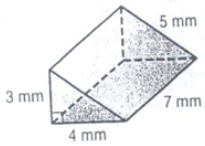
Practice: Skills

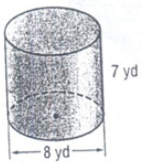
Surface Area of Prisms and Cylinders

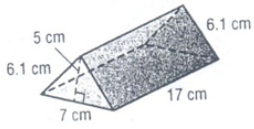
Find the surface area of each solid. Round to the nearest tenth if necessary.

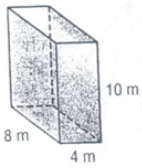
1. 

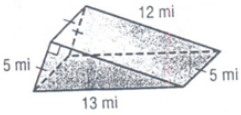
2. 

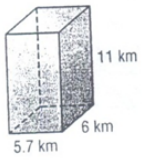
3. 

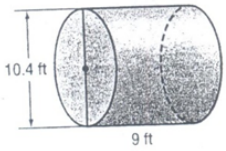
4. 

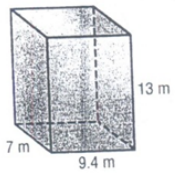
5. 

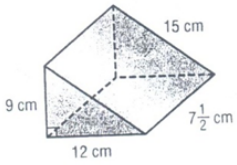
6. 

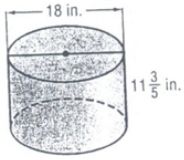
7. 

8. 

9. 

10. 

11. 

12. 

13. cube: edge length, 11 m

14. rectangular prism: length, 9 cm; width, 13 cm; height, 18.4 cm

15. cylinder: radius, 9.4 mm; height, 15 mm

16. cylinder: diameter, 28 in.; height, 12.6 in.

Attachments

Worksheet - Surface Area of Prisms and Cylinders.docx

Worksheet4_Basic Area Conversions.pdf