Name: _____ Date: _____

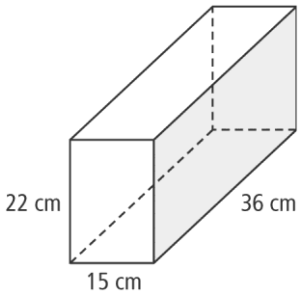
. BLM 2–2

Chapter 2 Prerequisite Skills

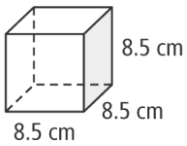
Show all your work.

1. Calculate the surface area and volume of each rectangular prism. Express the answer in centimetres and inches. Round your answer to the nearest tenth.

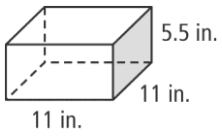
a)



b)

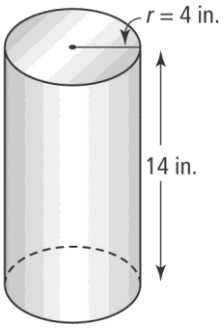


c)

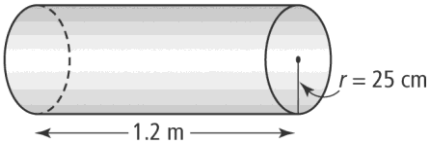


2. Calculate the surface area and volume of each cylinder. Express the answer in centimetres and inches. Round your answer to the nearest tenth.

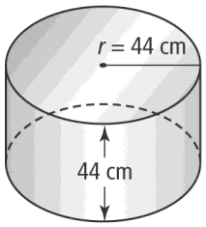
a)



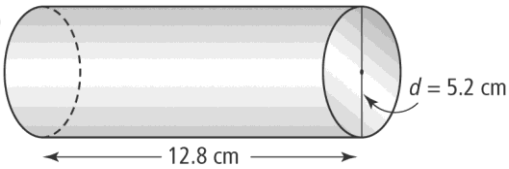
b)



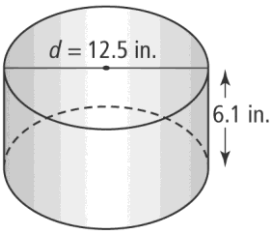
c)



d)



e)



Name: _____ Date: _____

3. Use a sketch to help determine the surface area and volume of each 3-D object. Express your answer to the nearest tenth.

a) a cube with side length 14.3 cm

b) a rectangular prism measuring 3 in. by $6\frac{3}{4}$ in. by $4\frac{1}{2}$ in.

c) a rectangular prism measuring 0.85 m by 34.25 cm by 642 mm

d) a cylinder with height 62.8 cm and radius 11.3 cm

e) a cylinder with diameter 15 in. and height 3 ft

f) a cylinder with circumference 452 mm and height 1.65 m

4. Determine the square root of each number to the nearest hundredth.

a) 81

b) 30

c) 12

d) 65.98

e) 1589.04

5. a) A cube has a volume of 8 m^3. Determine its side length.

b) What real object could this cube represent?

6. a) A cube has a volume of 125 cm^3. Determine its side length.

b) What real object could this cube represent?

Name: _____ Date: _____

Foundations & Pre-Calculus 10

2.1 Units of Area and Volume

To work with units of area and volume in both measurement systems, you need to understand the relationships between the units of length in each system.

**Remember that area involves square units while volume involves cubic units.

Tiles used on bathroom walls or floors could be imported from different countries and could have imperial dimensions.

1) How would a tile layer convert from square feet to square centimetres if the tile was 1 ft by 1 ft in dimension?

$1 ft = 30.48 cm$

$12 in \times \frac{2.54 cm}{1 in}$

$Area = (30.48)(30.48)$

$= 929.0304 cm^2$

2) What would the area of one of these tiles be in centimetres?

$1 \text{ sq ft} = \_\_\_\_\_ cm^2$

$(1 ft)^2 = (30.48 cm)^2$

$1 \text{ sq ft} = 929.0304 cm^2$

Square units means SQUARE the conversions

3) How could you use the value for 8 ft in centimetres to determine the value of 4 ft in centimetres? Divide by 2

$8 ft \times \frac{30.48 cm}{1 ft} = 243.84 cm$

$\frac{243.84}{2} = 121.92 cm = 4 ft$

Name: _____ Date: _____

Examples:

1) Determine the area of a rectangle this is 1.7 m by 2.5 m, in square centimetres.

① Find area in m^2

$A = (1.7)(2.5)$

$A = 4.25\ m^2$

② Convert using square conversion

$4.25\ m^2 \times \frac{10000\ cm^2}{1\ m^2} = 42500\ cm^2$

Convert each to cm then find area

$1.7m = 170\ cm$

$2.5m = 250\ cm$

$A = (170)(250)$

$= 42500\ cm^2$

2) Determine the area of a rectangle that is 10 cm by 100 cm in square feet.

$Area = (10)(100) = 1000\ cm^2$

$1000\ cm^2 \times \frac{1\ ft^2}{(30.48)^2\ cm^2}$

1.08 sq ft

3) Convert the volume of an object that measures 3 cm by 4 cm by 10 cm into cubic inches.

$Volume = (3)(4)(10) = 120\ cm^3$

$120\ cm^3 \times \frac{1^3}{(2.54)^3\ cm^3}$ cu. in

$= 7.32$ cu. in

$3cm \times \frac{1\ in}{2.54\ cm} = 1.18\ in$

$4cm \times \frac{1\ in}{2.54\ cm} = 1.575\ in$

$10cm \times \frac{1\ in}{2.54\ cm} = 3.937\ in$

$V = (1.18)(1.575)(3.937)$

$= 7.32$ cu. in