

MARKS:    K:    /16    APP:    /15    COMM:    /5    THIPS: /

**Communication:** [    /5]

Your mark in Communication category will be given based on how you will communicate your thinking. Following things are considered:

- Usage of math formulas,
- Including the units,
- Writing what you are finding in each step(ie.: volume = , converting Lb to kg, daily dose=, etc)
- Stating the conversions used,
- Writing a concluding sentence.

**Knowledge:**

1. Convert each of the following.

[    /8]

a)    8 oz to grams

b)    5.6 qt to litres

c)    2.7 km to cm

d)    3 in<sup>3</sup> to mm<sup>3</sup>

2. A respiratory therapist reads these measures of patients' height, mass and body temperature on the patient's charts.

a) Convert to metric units: [    /3]

b) Convert to Imperial Units [    /3]

Height:    3'7" to cm:

Height:    170 cm to ft and in

Weight:    40 lb to kg

Weight:    92 kg to Lb and oz

Temp:    99° F to °C

Temp.:    37° C to °F

3. Determine the maximum and minimum measures allowable, based on the given tolerances.

a)  $3.4655'' \pm 0.0007''$

b)  $12.203 \text{ mm} \pm 0.02 \text{ mm}$

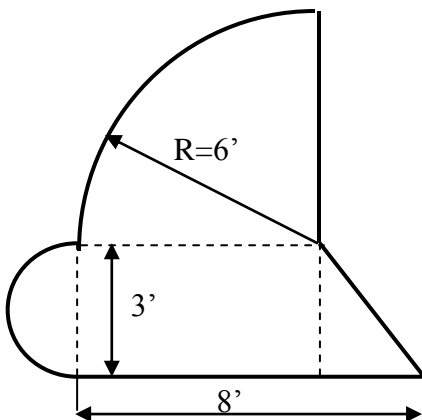
[      /2]

**Application:**

1. A drug is to be given at a rate of 25 mg per kilogram of body mass per day. A 180-lb person is to be given equal doses **every 12 hours** per day. How much is each dose? [      /4]

2. A 1.5 kg bag of grass seed covers approximately  $85 \text{ m}^2$  of new lawn. Calculate the number of bags of grass seed required for an empty rectangular lot that measures 200 ft by 365 ft. [      /3]

6. The figure shown is to be a flower bed filled with top soil to a 6'' depth.  
a) Determine the volume of top soil needed, in cubic feet. Write what you are finding in each step.



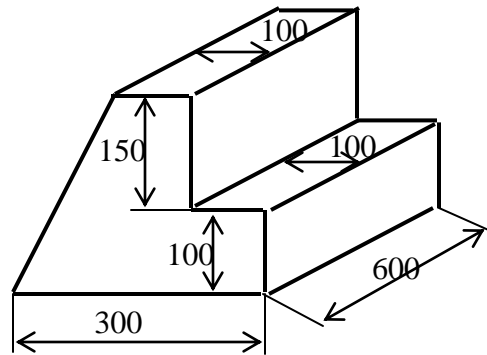
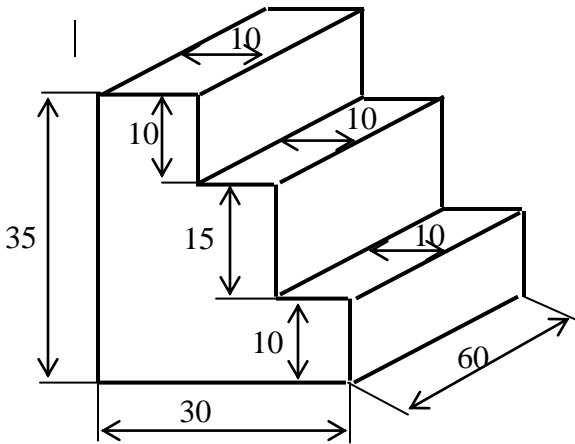
[      /6]

b) The nursery sells topsoil by the cubic yard. Given that  $1 \text{ yd}^3 = 27 \text{ ft}^3$ , how many cubic yards of top soil are required? [ /2]

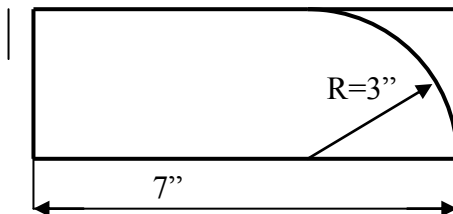
7. Find the volume of each of the following 3-D objects. The measurements are in millimeters.

a.)

b.)



8. How many square inches of waste are there in the sheet metal stamping shown, when there are 10000 parts manufactured?



9. Convert  $250 \text{ mm}^3$  to  $\text{in}^3$ .

Diameter 3 cm

10. For the following object, find the volume and the surface area in cubic inches.

