YEAR 12 Essentials Mathematics

Semester 1 2017

Test 2 - Volume, Capacity, 2D & 3D shapes, Scale, plans.

Baldivis Secondary College

Name: SOLE YOU TIONS

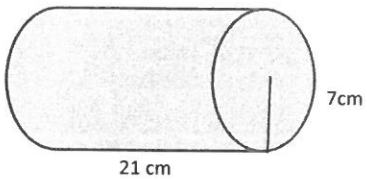
Total Marks: ~~45~~ 44 marks
Total Time: 50 minutes

Full working out must be shown to get full marks.
Attempt all questions
Total Time: 60 minutes

Resources allowed:
1 A4 page, (1 side) of hand written notes,ruler
Calculator

1. Find the Volume for each figure... [2, 2, 2, 2, 2-10 Marks]

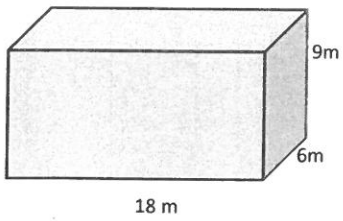
a)



$V = \pi r^2 \times d$
$= \pi 7^2 \times 21$ ✓

Volume = 3232.7 cm^3 ✓

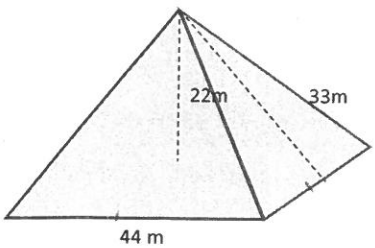
b)



$V = l \times w \times d$ ✓
$= 6 \times 9 \times 18$

Volume = 972 m^3 ✓

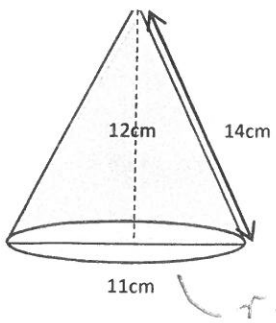
c)



$V = \frac{1}{3} \times l^2 \times ht$ ✓
$= \frac{1}{3} \times 44^2 \times 22$

Volume = 14197.3 m^3 ✓

d)

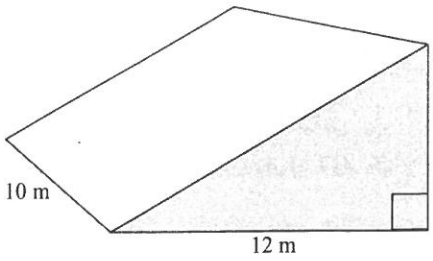


$r = 5.5$ cm

$V = \frac{1}{3} \times \pi r^2 \times ht$ ✓
$= \frac{1}{3} \times \pi \times 5.5^2 \times 12$

Volume = 380.1 cm^3 ✓

e)



Volume = 300 m^3 ✓✓

$V = \frac{1}{2} b \times ht \times d$

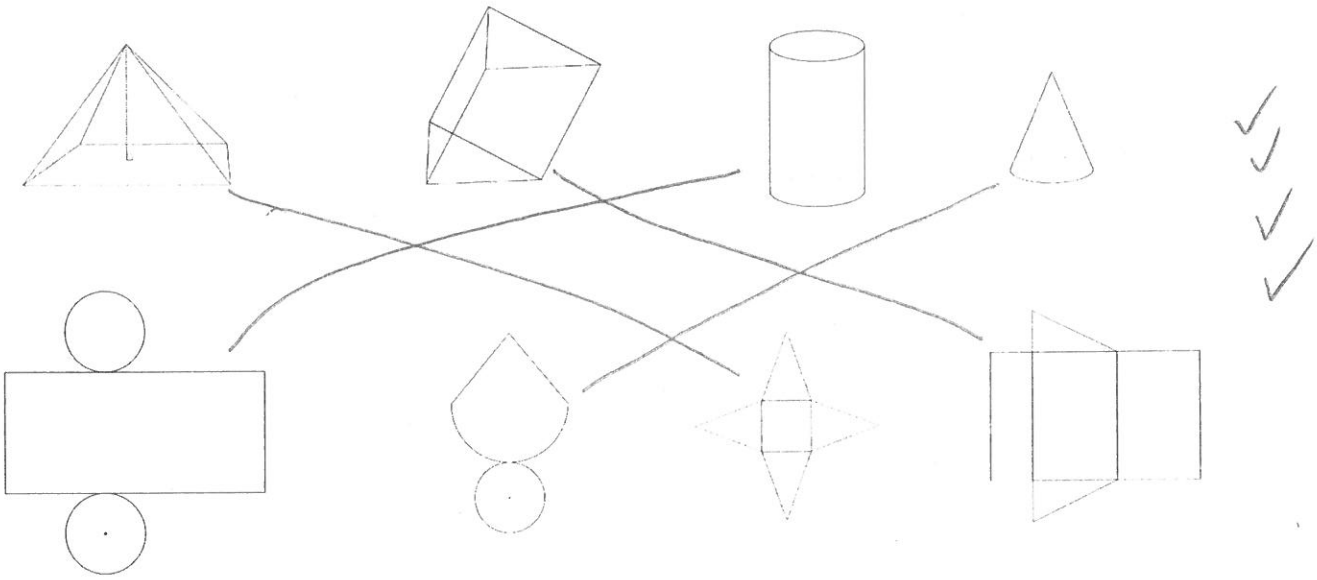
$= \frac{1}{2} \times 12 \times 5 \times 10$

2. Convert the following measurement to the units specified: [1,1,1,1 - 4 marks]

a) 7500 cm^3 = 0.00 75 m^3 ✓ b) 0.185 m^3 = 185 000 ✓ cm^3

c) 9 787 200 mm^3 = 0.0097872 m^3 ✓ d) 5 m^3 = 5 000 000 000 ✓ mm^3

3. Match the nets with the following shapes: [1,1,1,1 - 4 marks]



✓✓✓✓

4. Thelma and David built a recycling bin that is 6 meters wide, 12 meters long, and 14 meters high. How much trash can fit inside of the bin? [3 Marks]

$V = l \times w \times d$ ✓

$= 12 \times 6 \times 14$ ✓✓

$= 1008 m^3$

5. The cylindrical canister of a fire extinguisher has a radius of 4 cm and is 12 cm high. How many cubic cm can it hold? [3 Marks]

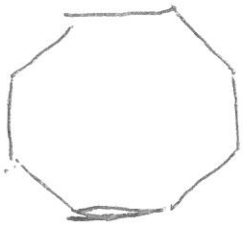
$V = \pi r^2 \times d$ ✓

$= \pi 4^2 \times 12$ ✓✓

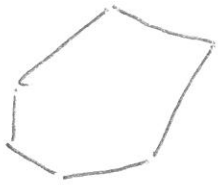
$= 603.19 cm^3$

6. Sketch the following: [2, 2-4 marks]

a) A regular octagon



b) An irregular hexagon



OR THE LIKE

7. Cindy went to Maggie Moo's for an ice cream cone after school. The ice cream cone had a radius of 1 cm, a height of 2 ½ cm, and a slant length of 3 ½ cm, how much ice cream could the cone hold? [3 Marks]

$V = \frac{1}{3} \pi r^2 \times ht$

$= \frac{1}{3} \times \pi \times 1^2 \times 2.5$

$= 2.62 cm^3$

8. Adam is building a rectangular planter without a top. The planter will be 7 cm wide, 16 cm long, and 10 cm high. How much wood is needed to make the bottom and sides of the planter? [3 Marks]

$SA = 2 \times (7 \times 10) + 2 \times (16 \times 10) + 16 \times 7$

$= 572 cm^2$

9. Write the following scales as a ratio in its simplest form, without the units. [1,1,1,1 - 4 marks]

a) 1 cm represents 5 cm

1 : 5

b) 2cm : 20m

2 : 2000

1 : 1000

c) 1 cm : 350mm

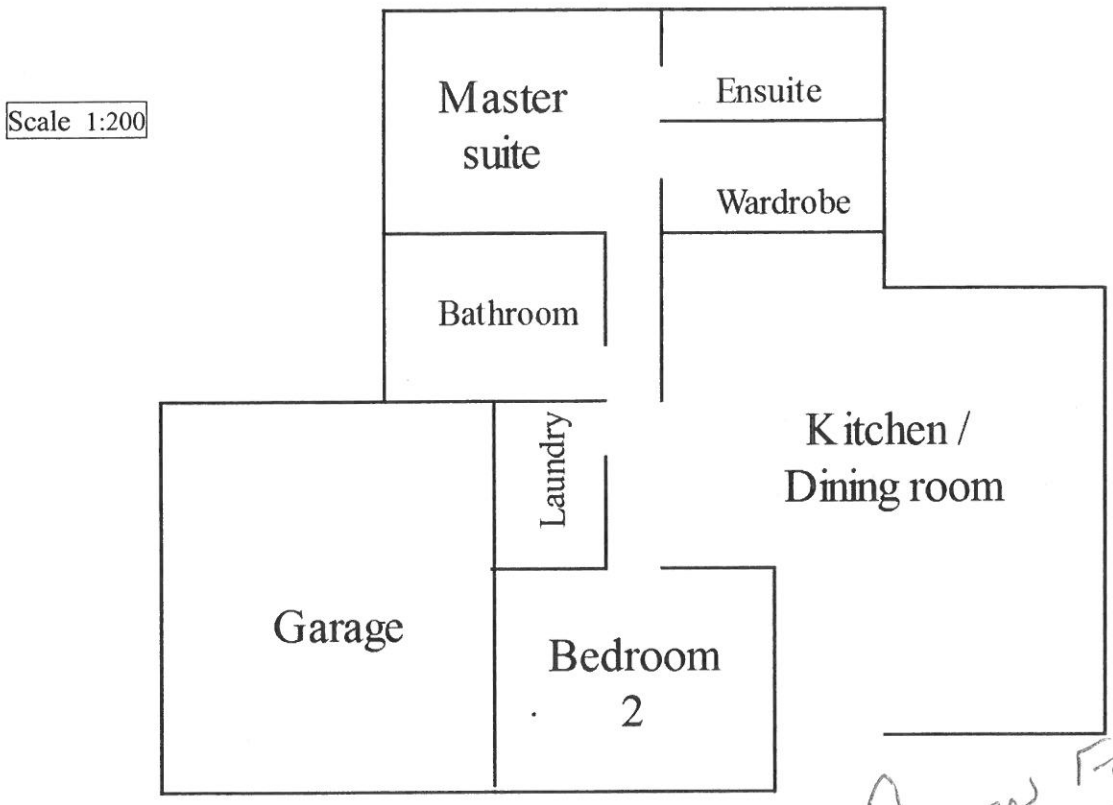
10 : 350

1 : 35

d) 0.5 cm : 150 cm

1 : 300

10. Below is the floor plan for Miss Granville's new holiday house. [2, 2, 2,- 6 marks]



ALLOW FOR SMALL DIFFERENCES WHEN THEY MEASURE.

a. Using the scale given, find the area of the garage

44 mm → 8800 mm → 8.8 m
52 mm → 10400 mm → 10.4 m

$A = l \times w$
$= 10.4 \times 8.8$
$= 91.52 m^2$ ✓ ✓

b. Miss Granville decides that she wants to concrete the floor of the garage. If concrete costs $21.20 per square metre, how much will it cost to complete?

Cost $= 91.52 \times \$21.20$ ✓
$= \$1940.22$ ✓

c. The bathroom, laundry and ensuite are to be tiled, with tiles costing $41.40/m^2. How much will it cost to buy tiles?

$B = 4.4 \times 6$
$= 26.4 m^2$

$L \rightarrow A = 3 \times 4.4$
$= 13.2 m^2$

$E = 6 \times 3$
$= 18 m^2$

Tot $A = 57.6 m^2$ ✓ ✓

Cost $= 57.6 \times \$41.40$
$= \$2384.64$

End of Test