Name: _____ Date:_____ TOTAL = _____ = _____
60 100

Unit 5 – Geometry
Practice Test - Version B

PART 1: MULTIPLE CHOICE (EACH QUESTION IS WORTH 4 MARKS)

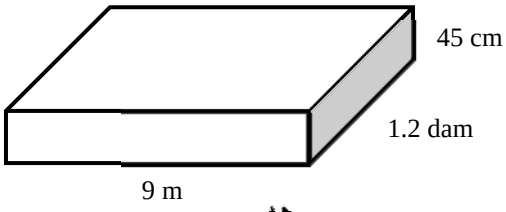
1 The capacity of a container of vegetable oil is 2.84 litres. 4 | 0

Which of the following measures is equivalent to this capacity?

A) 0.000 000 284 dam^3
B) 0.028 4 m^3
C) 284 000 mm^3
D) 2 840 cm^3

2 A wading pool is in the shape of a rectangular prism with dimensions 9 m, 1.2 dam and 45 cm. 4 | 0

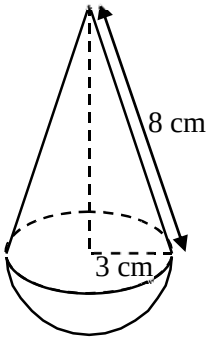
What is, in litres, the capacity of this pool?



A) 486 L
B) 4 860 L
C) 48 600 L
D) 486 000 L

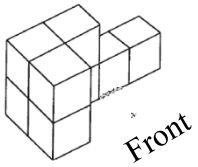
3 A solid is composed of a cone and a hemisphere as shown at right. 4 | 0

Which of the following shows the best approximation of the total surface area of this solid?

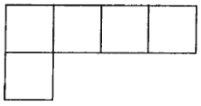
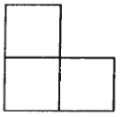
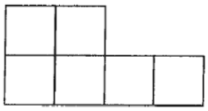


A) $\approx 131{,}9\ cm^2$
B) $\approx 160{,}22\ cm^2$
C) $\approx 126{,}44\ cm^2$
D) $\approx 188{,}5\ cm^2$

4 Here is a view of 8 concentric cubes. 4 | 0



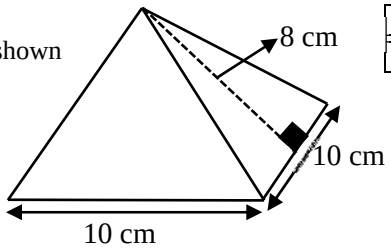
Which of the following shows the top view?

A) 
B) 
C) 
D) 

5 A game die is in the shape of a cube whose edge is 2 cm. 4 | 0
The dice are stored in rectangular boxes with dimensions of 8 cm by 10 cm by height of 6 cm.
How many dice can be put into one rectangular box?

A) 240 dice B) 120 dice C) 80 dice D) 60 dice

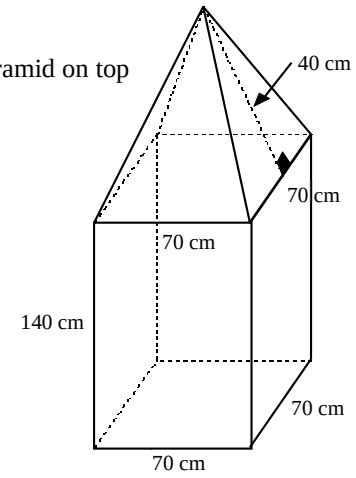
6 To help with your study of pyramids, your teacher asks you to construct the pyramid shown in the sketch below. 4 | 0
What total surface area of cardboard would be needed to make this pyramid? 4 | 0



A) 160 cm^2
B) 260 cm^2
C) 360 cm^2
D) 460 cm^2

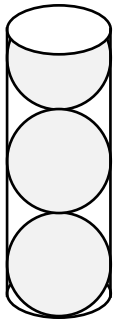
PART 2: SHORT ANSWERS (EACH QUESTION IS WORTH 4 MARKS)

7 A doll house has the shape of the decomposable solid shown below: a square based pyramid on top of a right square based prism. Calculate the area of the exterior surface of this solid. 4 | 0



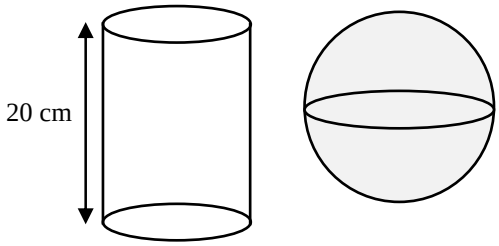
The area of the exterior surface of this solid is _____ cm^2.

8 Three tennis balls with a 3.7 cm radius fit exactly in a cylindrical box. What is, rounded to the nearest unit, the volume of the unoccupied space in the box? 4 | 0



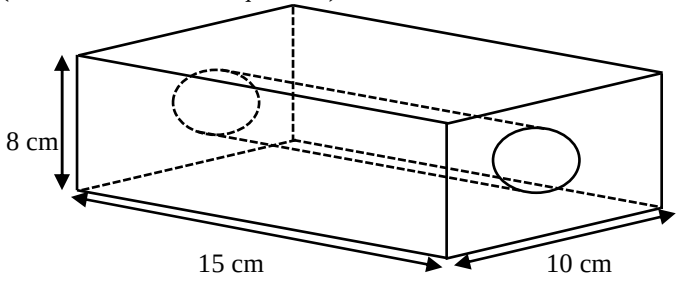
The unoccupied space in the box is _____ cm^3.

9 The cylinder and the sphere shown below, have the same radius. Determine, rounded to the nearest unit, the volume of the sphere if the circumference of the base of the cylinder is 8π cm and its height is 20 cm. 4 | 0



The volume of the sphere to the nearest unit is _____cm^3.

10 A cylindrical hole of diameter equal to 4 cm is drilled through a plastic solid shaped like a rectangular prism, as shown below. What is the total volume of plastic used to make this solid? (Use π = 3.14 for this question) 4 | 0



The total volume of plastic used to make solid is _____ cm^3.

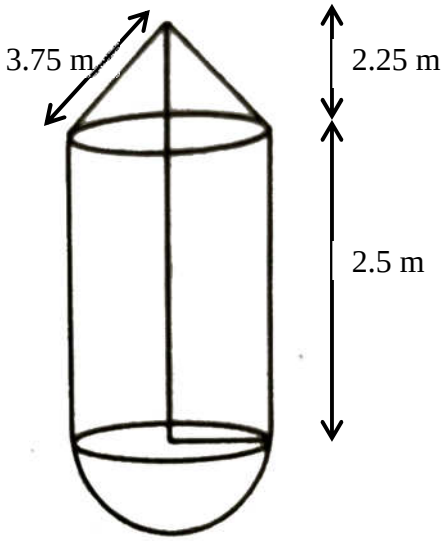
PART 3: EXTENDED ANSWERS (EACH QUESTION IS WORTH 10 MARKS)

11 A maritime shipping company must repaint all its 65 rusted buoys.

10	9	8	7	6	5	4	3	2	1	0

The dimensions of one of the buoys are shown on the figure below.

If 1 liter of paint covers 10 m^2, how many liters of paint is needed for all 65 buoys? Round your answer to the nearest whole liter.



They will need _____ liters of paint, for all 65 buoys

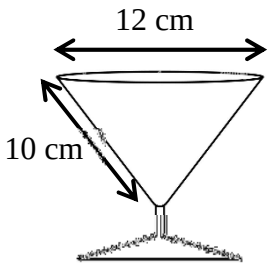
12

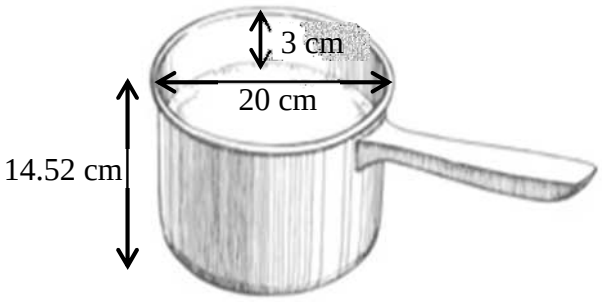
10	9	8	7	6	5	4	3	2	1	0

Emma is making pudding and she will pour it into cone shaped glasses.

She measured her cone shaped glasses; each has 12 cm diameter and 10 cm in slant height.

She will use a saucepan of diameter 20 cm and height of 14.5 cm, but she will only fill it to 3 cm from the top so that it doesn't spill over.





How many glasses of pudding can she fill?

Show all your work

Emma can fill _____ glasses of pudding.

563306 – Mathematics – Unit 5 – Geometry
Practice Test - Version B

1	D	2	C	3	A
4	A	5	D	6	B

7 The area of the exterior surface of this solid is 49 700 cm^2.

8 The unoccupied space in the box is 318 cm^3 (≈ 318.2621).

9 The volume of the sphere is ≈ 268 cm^3 (≈268.0826).

10 The total volume of plastic used to make solid is 1011.6 cm^3.

11 Determine the radius of the buoy (Pythagorean Theorem):

$r = \sqrt{s^2 - h^2}$ $= \sqrt{3.75^2 - 2.25^2} = \sqrt{9}$ $= 3\ cm$

Determine the total area to be painted of one buoy:

A_{total} $= A_{lcone}$ $+ A_{lcyl}$ $+ A_{lhemisphere}$
$= \pi rs$ $+ 2\pi rh$ $+ 2\pi r^2$
$= \pi(3)(3.75)$ $+ 2\pi(3)(2.5)$ $+ 2\pi(3)^2$
$= 11.25\pi$ $+ 15\pi$ $+ 18\pi$
$= 44.25\pi$
$= 139.015\ m^2$

Determine the total area to be painted for 65 buoys:
$(65)(139.015) = 9036\ m^2$

Determine the amount of paint needed:
9036/10 = 903.6 liters

Answer: They will need 904 liters of paint, for all 65 buoys.

12 Determine the height of the cone (Pythagorean Theorem):

$h = \sqrt{s^2 - r^2}$ $= \sqrt{10^2 - 6^2}$ $= \sqrt{64} = 8\ cm$

Calculate the volume of the cone:

$V_{CONE} = \frac{\pi r^2 h}{3}$ $= \frac{\pi(6^2)(8)}{3}$ $= 96\pi$ $\approx 301.59\ cm^3$

Calculate the volume of the cylinder:

$V_{cylinder} = \pi r^2 h$
$= \pi(10)^2(11.52)$
$= 1152\pi$
≈ 3619.11

Determine the number of cones to fill:
$1152\pi/96\pi = 12$; or
3619.11/301.59 = 12

Answer: Emma can fill 12 glasses of pudding.