

Preliminary Mathematics Standard

Assessment Task 1 2020



Task 1: Assignment	Topics: Perimeter, Area and Volume	Weighting: 30%	Due Date: Friday Week 10 3/4/20		
Total Marks: 80					
Grade	A	B	C	D	E
Marks (%)	85-100	70-84	45-69	21-44	0-20

Instructions:

- Complete all tasks
- Show full working out for each question.
- Working out should include the formula used, your working and your final answer.
- Answer each question in the separate writing booklet provided
- Clearly label each question

Outcomes:

MS11-1: uses algebraic and graphical techniques to compare alternative solutions to contextual problems

MS11-2: represents information in symbolic, graphical and tabular form

MS11-3: solves problems involving quantity measurement, including accuracy and the choice of relevant units

MS11-4: performs calculations in relation to two-dimensional and three-dimensional figures

MS11-6: makes predictions about everyday situations based on simple mathematical models

MS11-9: uses appropriate technology to investigate, organise and interpret information in a range of contexts

MS11-10: justifies a response to a given problem using appropriate mathematical terminology and/or calculation


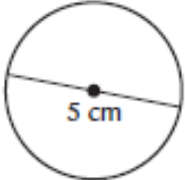
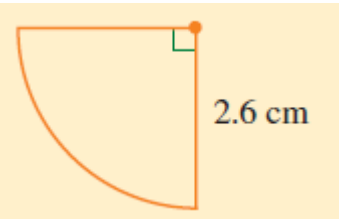
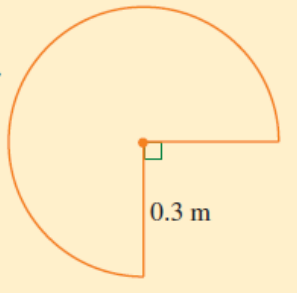
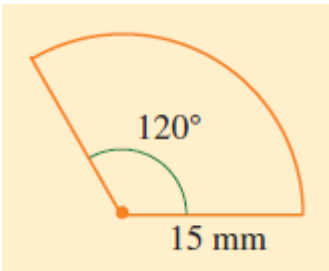
Assessment Task 1

Measurement

Answer the following questions in **your writing booklet provided**.

Label each question clearly.

Show **full working** for every question.

Question	Marks
<p data-bbox="108 562 277 595">Question 1</p> <p data-bbox="108 607 1102 640">Calculate the area of the following correct to two decimal places.</p> <p data-bbox="108 651 140 685">a)</p>  <p data-bbox="108 920 140 954">b)</p>  <p data-bbox="108 1151 140 1184">c)</p>  <p data-bbox="108 1464 140 1498">d)</p>  <p data-bbox="108 1789 140 1823">e)</p> 	<p data-bbox="1385 651 1409 685">2</p> <p data-bbox="1385 920 1409 954">2</p> <p data-bbox="1385 1151 1409 1184">2</p> <p data-bbox="1385 1420 1409 1453">2</p> <p data-bbox="1385 1789 1409 1823">2</p>

Question 2

The base of a fountain has a diameter of 2.2m. The base of the statue in the middle has a diameter of 0.8m.

- Calculate the surface area of the water in the base of the fountain.
- The fountain is 0.6m deep. By first calculating the volume, find the amount of water the fountain will hold in the base. (Given $1\text{m}^3 = 1000\text{L}$)

2
2



Question 3

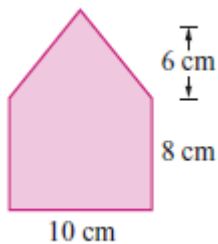
An area to be landscaped is a sector with a radius of 16 metres and an angle at the centre of 165° . The area is to be covered with turf at \$16.50 per square metre and then top dressed with soil at \$4.40 per square metre. Find the total cost of the landscaping to the nearest dollar.

4

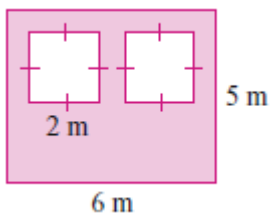
Question 4

Calculate the area of the following, correct to one decimal place.

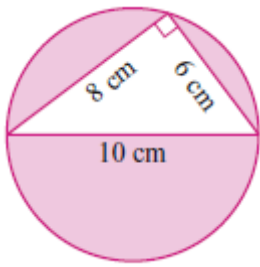
- a) 3



- b) 3

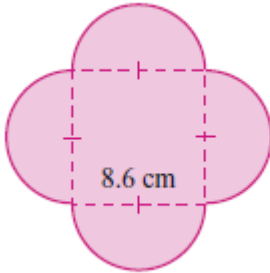


c)



3

d)

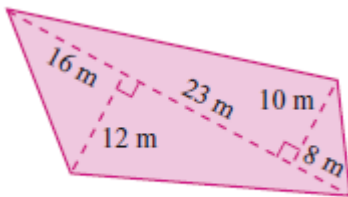


3

Question 5

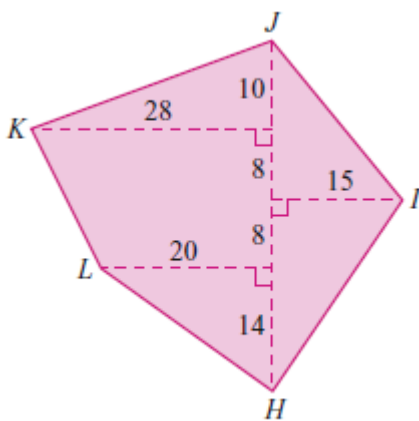
Calculate the area of the following composite shapes correct to the nearest whole number. (All measurements are in metres)

a)



3

b)



5

Question 6

Mel bought a block of land that is a composite shape. It consists of a square with an equilateral triangle on top. The area of the square is 900m^2 . What is the area of the block of land? Answer to the nearest square metre.

4

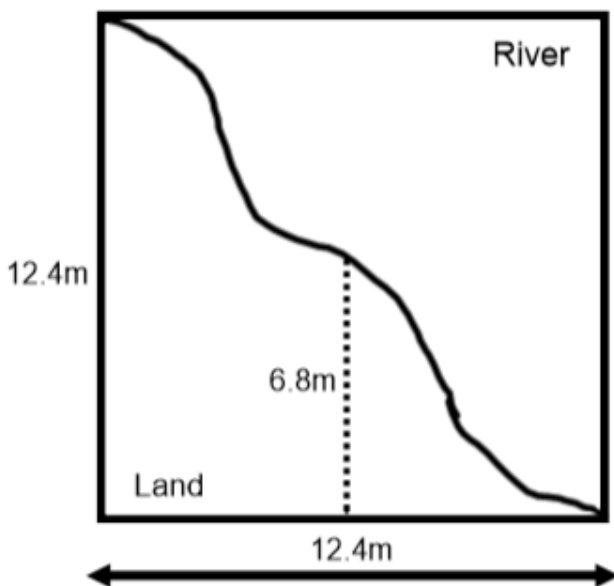
Question 7

A swimming pool is a composite shape consisting of a rectangle and two identical semicircles on each end which hold the stairs. The length of the pool is 4.8m and the width is 2.2m. The diameter of the circular stairs is exactly half the width of the pool. Calculate the area of the surface of the pool.

3



Question 8



A square block of land has a river running through it.

- Find the area of the land portion of this block by applying the trapezoidal rule twice. Answer correct to one decimal place.
- What is the area of the river portion of this block? Answer correct to once decimal place.

3

1

Question 9



A box of Kleenex tissues has a length of 24.2cm, a width of 11.1cm and is 10.8cm tall. Calculate the surface area of the box of tissues.

2

Question 10

A Toblerone packet is in the shape of a triangular prism with two equilateral triangles on either end.

The side length of the triangle is 5.4cm and the length of the box is 30.6cm. Calculate the surface area of the Toblerone box.

3



Question 11

The barn below needs to be painted.



The roof and all exterior walls will be painted.

a) Calculate the area to be painted if the length of the barn is 9.8m, the width of the barn is 6.2m and the height to the bottom of the roof is 5.8m. The perpendicular distance to the top of the roof is a further 1.8m from the bottom of the roof.

4

b) The farmer also wants to paint the exterior wall of his silo to match his barn. Calculate the area to be painted if the diameter of the silo is 1.8m and it is 7.2m.

2

c) If paint costs \$12.95 per tin and each tin covers approximately 10m^2 , how much will it cost to paint the silo and the barn?

1

Question 12



The **Louvre Pyramid** (Pyramide du Louvre) is a large glass and metal pyramid designed by Chinese-American architect I.M. Pei, surrounded by three smaller pyramids, in the main courtyard of the Louvre in Paris. The large pyramid serves as the main entrance to the Louvre Museum.

The structure, which was constructed entirely with glass segments and metal poles, reaches a height of 21.6 metres. Its square base has sides of 34 metres. It consists of 603 rhombus-shaped and 70 triangular glass segments.

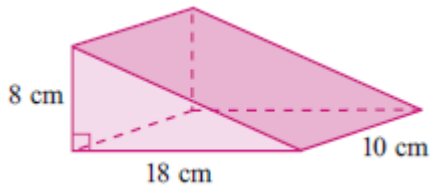
Calculate the area of glass required to build this structure.

3

Question 13

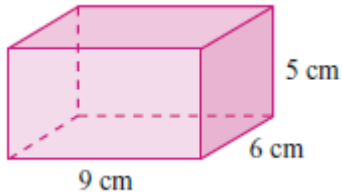
Calculate the volume of the following shapes correct to one decimal place.

a)



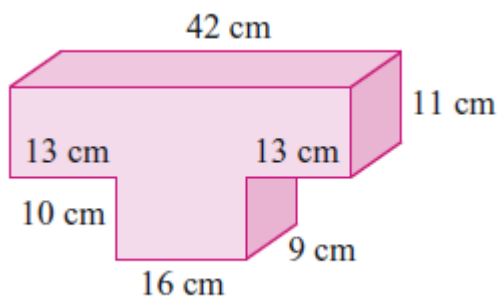
2

b)



2

c)



3

Question 14



A water tank stands 2m tall and has a diameter of 1.4m

a) Calculate the volume of the water tank.

b) Calculate how much water this tank can hold in Litres.

2

1

Question 15

The earth's diameter is approximately 12 742km. Find

a) The surface area of the earth

b) The volume of the earth

2

2

Question 16

The Great Pyramid of Giza



Khufu

Coordinates	 29°58'45"N 31°08'04"E
Ancient name	Khufu's Horizon
Constructed	c. 2580–2560 BC (4th dynasty)
Type	True pyramid
Material	Limestone, granite
Height	146.7 metres (481 ft) or 280 Egyptian Royal cubits 138.8 metres (455 ft) (<i>contemporary</i>)
Base	Length of 230.34 metres (756 ft) or 440 Egyptian Royal cubits

2

Calculate the volume of the Khufu pyramid in Giza.

End of Assignment.

Total Marks: 80