



STELLA MARIS COLLEGE GZIRA

MID-YEARLY EXAMINATIONS 2014

FORM 2

MATHEMATICS CALCULATOR PAPER

Time: 1 hour

Instructions

This paper carries a total of 50 marks

Answer ALL questions

Show all your working

The use of non- programmable calculator is allowed.

Unless otherwise stated give your answers to 3 significant figures.

Name: _____ Class: _____

1. With the use of your calculator work out the following, giving your answer to 2 decimal places.

a) $\sqrt[4]{2.52}$

(1 mark)

b) 3.74^5

(1 mark)

c) $\sqrt{\frac{(4 \times 6.7) + 5.2}{2}}$

(2 marks)

d) $\left(\frac{27.6}{3}\right)^2 - (23 \times 1.5)$

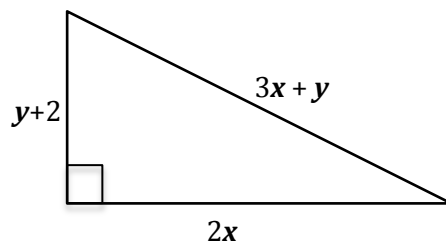
(2 marks)

2. Simplify the following:

$$\frac{x}{4} + \frac{(x-3)}{3}$$

(2 marks)

3. The diagram below shows a right angled triangle of sides $y + 2$ cm , $3x + y$ cm and $2x$ cm.



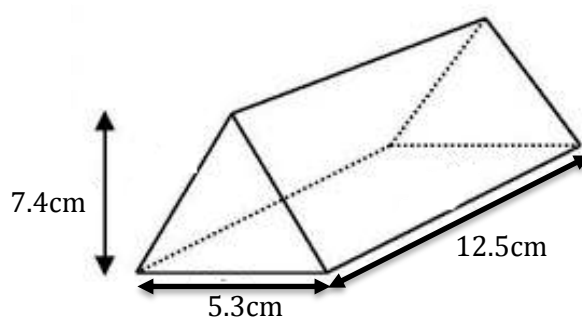
- a) Write two expressions in simplest form for the **Perimeter** and **Area** of the above triangle.

(4 marks)

- b) If $x = 2$ and $y = 3$ find the **values** of the **Perimeter** and **Area** of the above triangle.

(2 marks)

4. The package of a bar of chocolate has the form of a prism with dimensions as shown. Find the volume of the package.



(2 marks)

5. Simplify the following:

a) pq^0

(1 mark)

b) $(x^{-1})^2$

(1 mark)

c) $2(3x - 2)$

(1 mark)

d) $-4(c - 2) + 6(2 - c)$

(1 mark)

e) $x^2(1 - x^2) - 2x(1 - x)$

(2 marks)

- 6a) A rug is laid on the floor of a room measuring 2.8m by 3.5m. The rug covers 45% of the floor. Find the Area of the rug.

Align left

(2 marks)

- b) A fan heater is priced at €54.

Store A sells the fan heater on special offer at €5 off.

Store B is offering a **discount** of 5% on the same item.

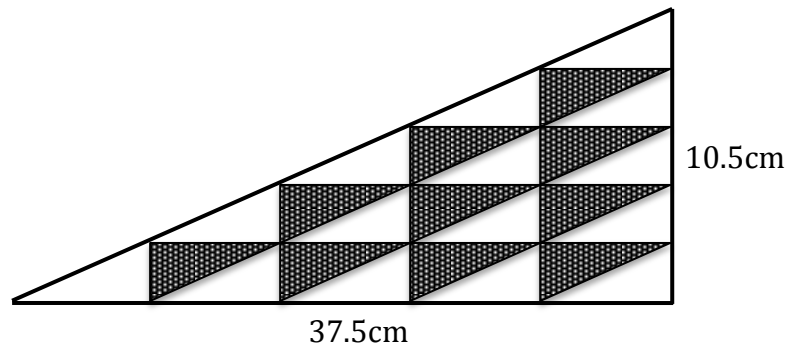
Which is the better bargain and by how much?

(2 marks)

- c) A necklace that costs the jeweller €140 is sold at a profit of 30%. For how much is it sold?

(2 marks)

7. The diagram shows identical right-angled triangles inside a large right-angled triangle with base 37.5cm and height 10.5cm.



- a) Calculate the base and height of one small triangle.

(2 marks)

- b) Hence find the total Shaded Area inside the large triangle.

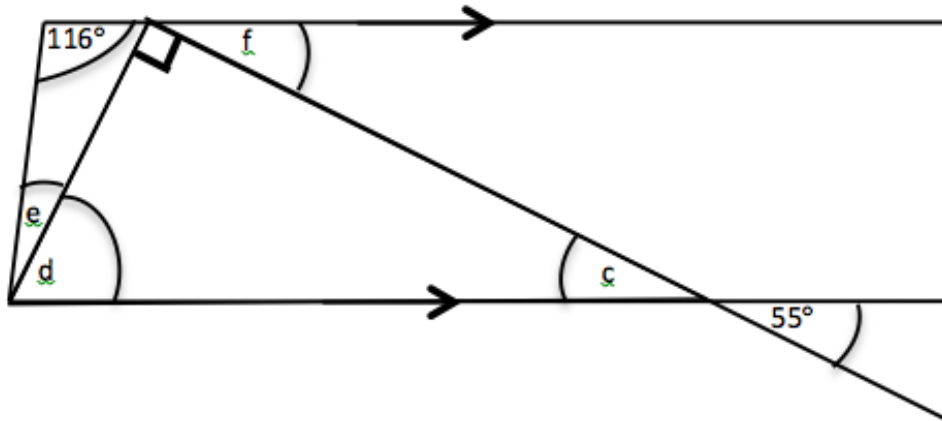
(2 marks)

- c) What percentage of the large triangle is shaded?

(1 mark)

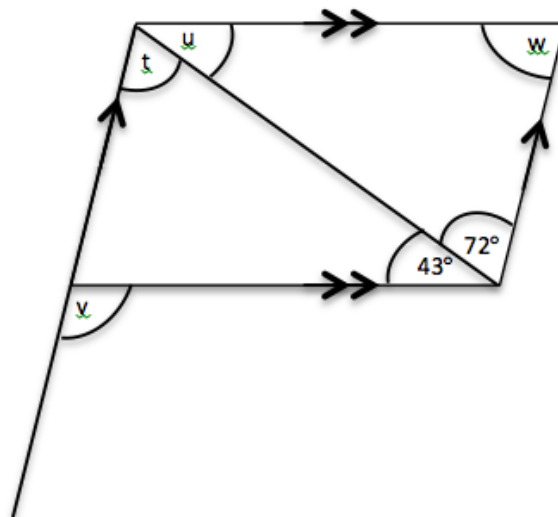
8. Find the angles marked in letters giving reasons for your answers.

a)



(4 marks)

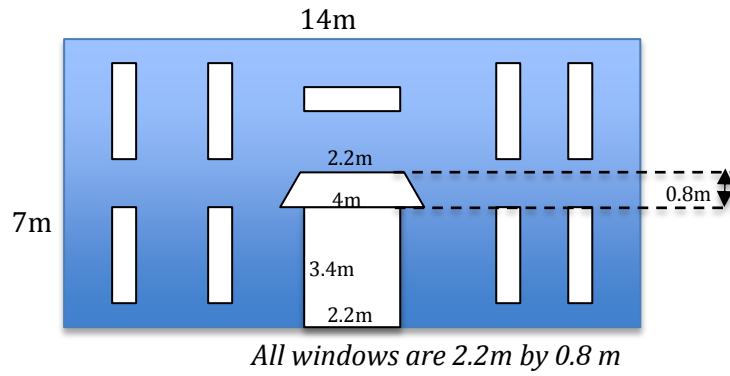
b)



(4 marks)

9. The stonework, shown shaded, on the front of an office needs specialist treatment. The size of all the windows is 2.2m by 0.8m.

a) Find the area to be treated.

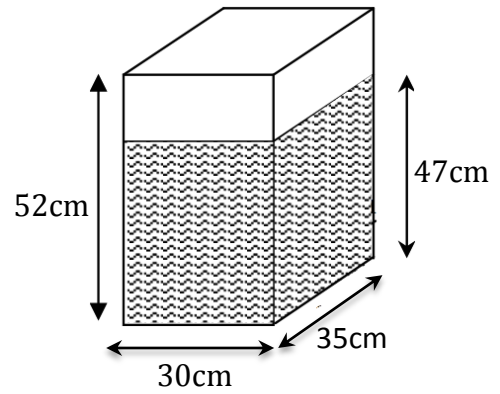


(3 marks)

b) If the treatment firm charges € 85 for each square metre, find the cost of the renovation.

(1 mark)

10. The diagram shows a fuel tank. The tank is a cuboid that is 35cm long, 30cm wide, 52cm high.



- a) Work out the volume of the tank when it is completely full.

(1 mark)

- b) The tank is partly filled with fuel to a depth of 47cm. Find the volume of fuel in the tank.

(1 mark)

- c) How many litres are needed for the tank to be completely full with fuel?

(1 mark)

- d) When the driver went to fill the tank (assuming it was totally empty before), how much did he need to spend to get a full tank? The fuel costs €1.25 per litre.

(2 mark)

⌘ End of Paper ⌘