

NAME \_\_\_\_\_

TEACHER \_\_\_\_\_

**YEAR 9**

**END OF YEAR**

**TEST  
2017**

**TIME ALLOWED: 1 HOUR**

**CALCULATORS ALLOWED**

**Section A – Mastery 25 marks**

**Q1.** When written as the product of prime factors  $225 = 3^2 \times 5^2$

(a) Write 150 as the product of prime factors. Give your answer in index form.

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Answer .....

**(3)**

(b) Work out the highest common factor (HCF) of 225 and 150.

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Answer .....

**(2)**

(c) Work out the lowest common multiple (LCM) of 225 and 150.

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Answer .....

**(2)**

**(Total 7 marks)**

**Q2** Given that  $A = 40$ , correct to the nearest 5,  $B = 18$ , correct to 2sf and  $C = 200$ , correct to 1sf, find

(i) The lower bound of  $\frac{C}{A}$

Answer .....

**(2)**

(ii) The upper bound of  $A+C - B$

Answer .....

(3)  
(Total 5 marks)

**Q3.** The state of Florida adds state tax to the price of all clothing. Tax is currently charged at 9%.

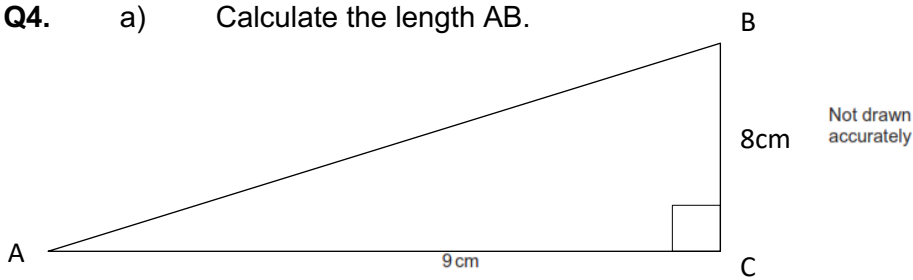
Paul buys a suit and pays \$161.32, including state tax. What was the pre-tax price of the suit?

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Answer .....

(Total 3 marks)

**Q4.** a) Calculate the length AB.



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Answer .....

(3)

b) Work out the size of angle  $ABC$

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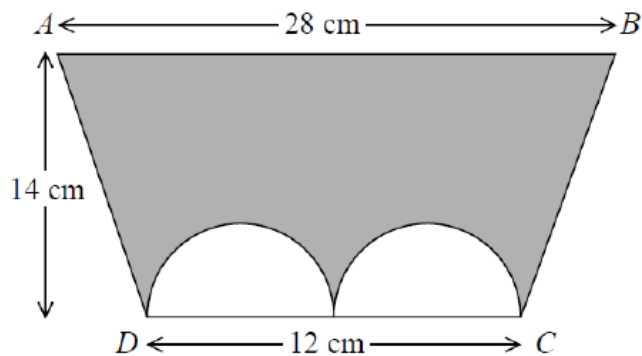
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Answer .....

(3)  
(Total 6 marks)

**Q5.** The diagram shows a trapezium  $ABCD$  and two identical semicircles.



The centre of each semicircle is on  $DC$ .

Work out the area of the shaded region.

Give your answer correct to 3 significant figures.

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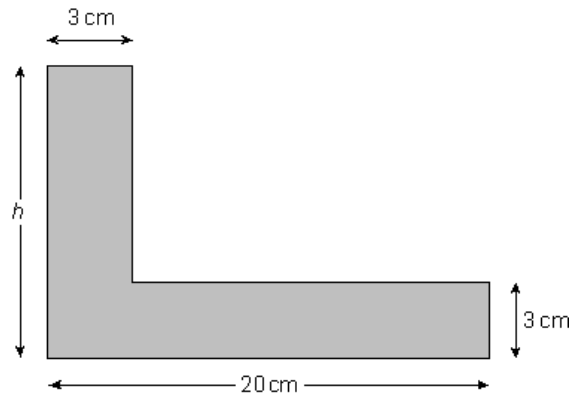
Answer ..... $\text{cm}^2$

(Total 4 marks)

**Section B – GCSE 9-1 27 marks**

**Q6.** This L-shape has measurements as shown on the diagram.

Not drawn accurately



The perimeter of the shape is 72 cm.

(a) Find the length marked  $h$  on the diagram.

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Answer ..... cm

**(3)**

(b) The L-shape is the cross-section of a prism of length 40cm. The prism is made from a material with density  $1.68 \text{ g/cm}^3$ .

Calculate the mass of the prism.

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Answer .....  $\text{cm}^2$

**(5)**

**(Total 8 marks)**

**Q7.** Here are two piles of the same type of paper. Each sheet of paper is  $\frac{7}{1000}$  cm thick.  
The taller pile is  $10\frac{1}{2}$  cm high.



height of taller pile : height of smaller pile = 3 : 2

Work out the number of sheets in the shorter pile.

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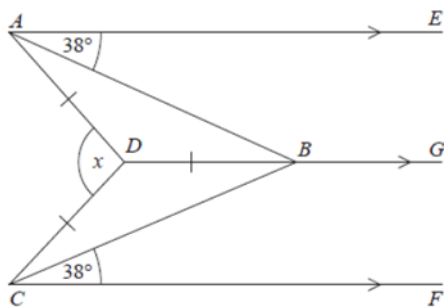
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Answer .....

**(Total 4 marks)**

**Q8.**



AE, DBG and CF are parallel.

DA = DB = DC.

Angle EAB = angle BCF = 38°

Work out the size of angle marked  $x$ . (You must show your working)

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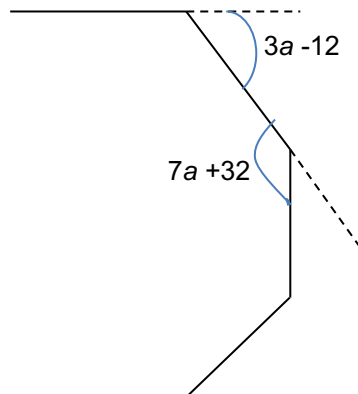
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Answer .....

**(Total 3 marks)**

**Q9.** The diagram below shows part of a regular polygon.  
Determine how many sides the polygon has.



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Answer .....

**(Total 5 marks)**

**Q10.** Paul sails out of port to an island which is 20km due East and 35km due South of the port.

**(a)** Calculate on what bearing he sailed.

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Answer .....<sup>o</sup>

**(3)**

**(b)** If he set off at 09:00 and sailed at 15 km/hr, what time did he reach the island? Give your answer correct to the nearest minute.

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Answer .....

**(4)**  
**(Total 7 marks)**