Name: _____

BennettMaths Edexcel 3H – Part 1

1   (*a*) Simplify $(k^3)^4$

....
(1)

(*b*) Simplify $y^6 \times y^9$

....
(1)

(*c*) Expand $5m^2 (m^2 + 2m)$

....
(2)

(Total for Question 1 is 4 marks)

2 Jenny wants to know how many sandwiches she will need for 550 people at a meeting.

Each person who eats sandwiches will eat 3 sandwiches.
2 slices of bread are needed for each sandwich.

Jenny assumes 76% of the people will eat sandwiches.

(*a*) Using this assumption, work out the number of slices of bread Jenny needs.
Give your answer correct to the nearest hundred slices.

.... slices

(4)

Jenny's assumption is wrong.
68% of the people will eat sandwiches.

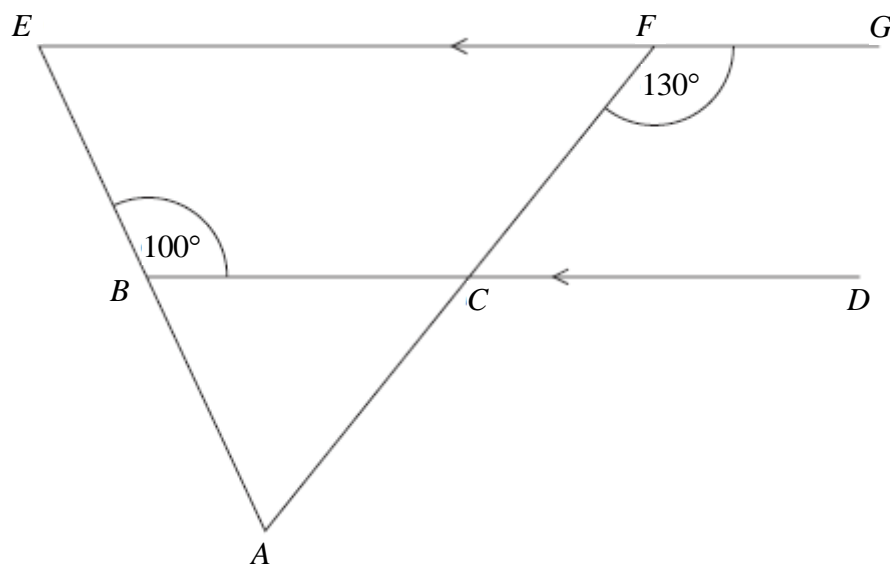(*b*) How does this affect your answer to part (*a*)?

....

....

....

(1)

(Total for Question 2 is 5 marks)

3   *ACF* and *ABE* are straight lines.
    EFG and *BCD* are parallel lines.

Show that triangle *ABC* is isosceles.
Give a reason for each stage of your working.

(Total for Question 3 is 5 marks)

4   It takes 24 hours for 9 identical pumps to fill a swimming pool.

How many hours would it take 15 of these pumps to fill another swimming pool of the same size?

.... hours

(Total for Question 4 is 2 marks)

5   *P* and *Q* are numbers such that

$$P = 2^3 \times 3^5 \times 5$$

$$Q = 3^2 \times 5^3$$

(*a*) Find the highest common factor (HCF) of *P* and *Q*.

....
(1)

(*b*) Find the lowest common multiple (LCM) of *P* and *Q*.

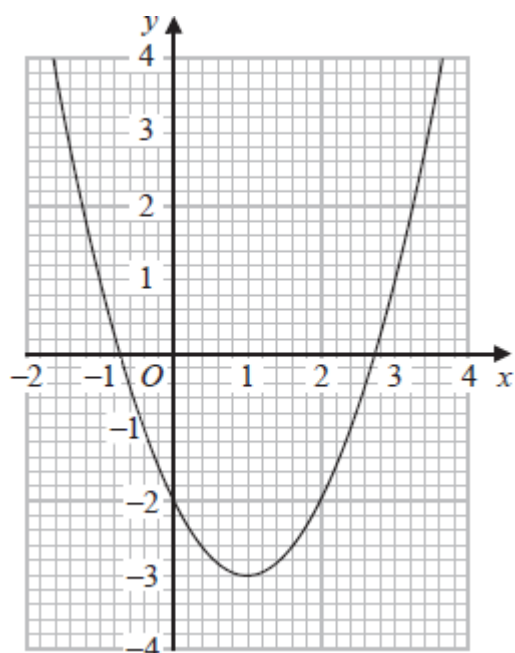...
(2)

(Total for Question 5 is 3 marks)

6   Sludge leaks from a pipe at a constant rate of 8.7 m³/s

How many hours does it take for 98 310 m³ of sludge to leak from the pipe?
Give your answer correct to the nearest hour.

.... hours

(Total for Question 6 is 3 marks)

7 Here is the graph of $y = x^2 - 2x - 2$

(a) Write down the coordinates of the turning point on the graph of $y = x^2 - 2x - 2$

(...................... , ...)

(1)

(b) Write down an estimate for one of the roots of $x^2 - 2x - 2 = -2$

....

(1)

(Total for Question 7 is 2 marks)

8   A solid cube is made of stone.

The stone has a density of 3.5 g/cm^3
The volume of the cube is 216 cm^3

Work out the mass of the cube.

.... g

(Total for Question 8 is 2 marks)

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9   Some people were asked if they wanted a new car.

60% of the people said yes.
35% of the people who said yes wanted a car with a soft top.

What percentage of the people asked said they wanted a car with a soft top?

....%

(Total for Question 9 is 2 marks)