

**HIGHER TIER  
MINI PRACTICE EXAM 7**



**CALCULATOR ALLOWED  
20 MINUTES ALLOWED**

1.  
Amelia is making cupcakes. She reads the instructions.

<b>Ingredients</b>
To make 12 cupcakes: 200g flour 250g sugar 220g butter

Amelia has 1.5 kilograms of flour, 2 kilograms of sugar and 1.75 kilograms of butter.  
What is the maximum number of cupcakes she can make?

(4)

2.  
A box is placed on a table.  
The area of the box in contact with the table is  $2,700 \text{ cm}^2$ .  
The pressure on the table is  $4,000 \text{ N/m}^2$ .

Find the force exerted by the box on the table.

(3)

3.  
Show that  $(x + 4)(x + 6)$  can be written in the form  $(x + a)^2 + b$ .

(3)

4.  
 ABC is a tangent to the circle.  
 Angle BFD =  $51^\circ$ .  
 Angle BDG =  $98^\circ$ .  
 Angle FBC =  $70^\circ$ .

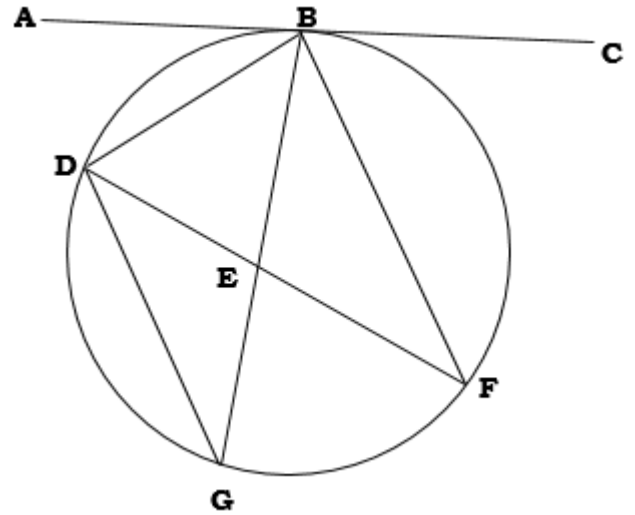
(a) Find the size of angle ABD.

(1)

(b) Find the size of angle DGB.

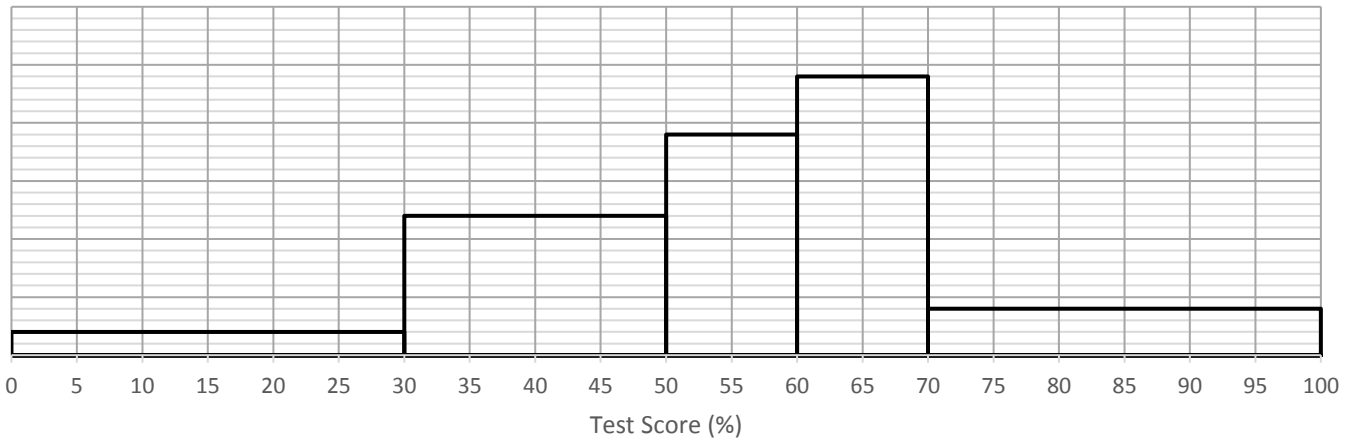
(1)

(c) Find the size of angle GEF.



(3)

5.  
 Every student in Year 10 took a maths exam.  
 The exam results are shown in the histogram below.



12 students scored more than 70%.  
 The pass mark for the exam was 45%.  
 Estimate how many students failed the exam.

(5)