

Write your name here

Surname

Other names

**Pearson Edexcel**  
**International**  
**Advanced Level**

Centre Number

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Candidate Number

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# Mechanics M1

## Advanced/Advanced Subsidiary

Wednesday 14 June 2017 – Morning  
**Time: 1 hour 30 minutes**

Paper Reference

**WME01/01****You must have:**

Mathematical Formulae and Statistical Tables (Blue)

Total Marks

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**Candidates may use any calculator allowed by the regulations of the Joint Council for Qualifications. Calculators must not have the facility for symbolic algebra manipulation, differentiation and integration, or have retrievable mathematical formulae stored in them.**

**Instructions**

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B). Coloured pencils and highlighter pens must not be used.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions and ensure that your answers to parts of questions are clearly labelled.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*
- You should show sufficient working to make your methods clear. Answers without working may not gain full credit.
- Whenever a numerical value of  $g$  is required, take  $g = 9.8 \text{ m s}^{-2}$ , and give your answer to either two significant figures or three significant figures.
- When a calculator is used, the answer should be given to an appropriate degree of accuracy.

**Information**

- The total mark for this paper is 75.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

**Advice**

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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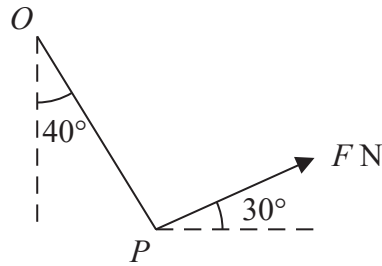


Figure 1

A particle  $P$  of weight  $5\text{ N}$  is attached to one end of a light string. The other end of the string is attached to a fixed point  $O$ . A force of magnitude  $F$  newtons is applied to  $P$ . The line of action of the force is inclined to the horizontal at  $30^\circ$  and lies in the same vertical plane as the string. The particle  $P$  is in equilibrium with the string making an angle of  $40^\circ$  with the downward vertical, as shown in Figure 1.

Find

- (i) the tension in the string,
- (ii) the value of  $F$ .

(7)

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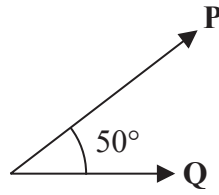


Figure 3

Two forces, **P** and **Q**, act on a particle. The force **P** has magnitude 8 N and the force **Q** has magnitude 5 N. The angle between the directions of **P** and **Q** is  $50^\circ$ , as shown in Figure 3. The resultant of **P** and **Q** is the force **R**.

- (a) Find, to 3 significant figures, the magnitude of **R**. (4)
- (b) Find, to the nearest degree, the size of the angle between the direction of **P** and the direction of **R**. (4)

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