Write your name, centre number and candidate number in the boxes below.

Surname	Other names

Centre number | | | | | |

Candidate number | | | | |

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Formulae: forming and changing the subject

Time allowed: 40 minutes

Subject code **0580**

Mathematics

Questions from Paper 1, Paper 2 and Paper 3

You must have: a ruler marked in centimetres and millimetres, a protractor, compasses, a pen, an HB pencil and an eraser.
You may use a calculator.

Total marks

/ 31

Instructions

- Answer every question in the space provided on this paper.
- Write in black or dark blue ink. Pencil may be used for diagrams and graphs.
- Fill in your name, centre number and candidate number above.
- Show your working: a correct method can earn marks even if the answer is wrong.
- Unless a question says otherwise, give answers that are not exact to 3 significant figures, and angles in degrees to 1 decimal place.

Information

- This paper has 10 questions worth 31 marks in total.
- The marks for each question or part are shown in brackets, for example [3].

Advice

- Read every question through once before you write anything.
- Use the marks in brackets to judge how long to spend on each part.
- If you finish early, go back and check your working.

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Print at 100% (Actual size) so diagrams keep their real measurements.

1 Make p the subject of the formula $m = 9p + 32$.

$p =$ ..... [2]

Changing the subject of a formula Click for more variations

2 $A = 4\pi r^2$

Make r the subject of this formula.

$r =$ ..... [2]

Changing the subject of a formula Click for more variations

3 Rearrange $2(w + h) = P$ to make w the subject.

$w =$ ..... [2]

Changing the subject of a formula Click for more variations

4 $A = \pi rl + \pi r^2$

Rearrange this formula to make l the subject.

$l =$ ..... [2]

Changing the subject of a formula Click for more variations

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5 Make w the subject of the formula.

$$t = 2 - \frac{3w}{a}$$

Answer $w =$ ..... [3]

Changing the subject of a formula Click for more variations

6 Rearrange the formula $c = \dfrac{4}{a-b}$ to make a the subject.

Answer $a =$ ..... [3]

Changing the subject of a formula Click for more variations

7 Make x the subject of the formula.

$$y = (x-4)^2 + 6$$

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Answer $x =$ ..... [3]

Changing the subject of a formula Click for more variations

8 Rearrange this formula to make m the subject.

$$P = \frac{k+m}{m}$$

..... [4]

Changing the subject when it appears twice Click for more variations

9

$$T = 2\pi\sqrt{\frac{\ell}{g}}$$

(a) Find T when $g = 9.8$ and $\ell = 2$.

Answer(a) $T =$ ..... [2]

(b) Make g the subject of the formula.

Answer(b) $g =$ ..... [3]

(a) Substitution (b) Changing the subject of a formula Click for more variations

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10 $P = M(g^2 + h^2)$

(a) Find the value of P when $M = 100$, $g = 3$ and $h = 4.5$.

$P =$ ..... [2]

(b) Rearrange the formula to write g in terms of P, M and h.

$g =$ ..... [3]

(a) Substitution (b) Changing the subject of a formula Click for more variations

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