

Rearranging Formulae

For AQA Level 2 Certificate in Further Mathematics (8365)

Name _____

Total marks: **26**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You may use a calculator.

- 1** Rearrange $p = 3q^3$ to make q the subject.
Circle your answer.

[1 mark]

$$q = \sqrt[3]{\frac{p}{3}}$$

$$q = \frac{\sqrt[3]{p}}{3}$$

$$q = \sqrt[3]{3p}$$

$$q = \left(\frac{p}{3}\right)^3$$

- 2** A flat ring has outer radius R and inner radius r .
Its area, A , is given by

$$A = \pi(R^2 - r^2)$$

Make R the subject of the formula.

[3 marks]

Answer $R =$ _____

- 3** Make a the subject of $3(a - 2b) = ab + 5$

[3 marks]

Answer $a =$ _____

4 Make y the subject of $\frac{2}{x} = \frac{1}{y} - \frac{3}{z}$

[3 marks]

Answer $y =$ _____

5 Rearrange $y = \sqrt{\frac{x+4}{x-1}}$ to make x the subject.

[4 marks]

Answer $x =$ _____

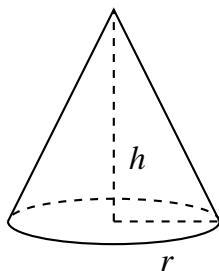
6 Rearrange $m = \frac{4-n^3}{2n^3} + 1$ to make n the subject.

[4 marks]

Answer $n =$ _____

- 7** A cone has base radius r and perpendicular height h .
The curved surface area, S , of the cone is given by

$$S = \pi r \sqrt{r^2 + h^2}$$



Not drawn accurately

- (a) Make h the subject of the formula.

[3 marks]

Answer $h =$ _____

- (b) A cone has base radius 4 cm and curved surface area 150 cm^2 .
Work out the perpendicular height of the cone.
Give your answer to 3 significant figures.

[2 marks]

Answer _____ cm

8 Solve the simultaneous equations

$$ax + 2y = 7$$

$$3x - y = a$$

where a is a constant.

Give x and y in terms of a .

[3 marks]

$x =$ _____ $y =$ _____