

22(b) Show that $(4 + \sqrt{12})(5 - \sqrt{3}) = 14 + 6\sqrt{3}$
Show each stage of your working clearly.

JAN 15 44

(3)

(Total for Question 22 is 5 marks)

20 Show that $(6 - \sqrt{8})^2 = 44 - 24\sqrt{2}$

41 MAY 12

Show each stage of your working clearly.

(Total for Question 20 is 3 marks)

19 $(3 + \sqrt{a})(4 + \sqrt{a}) = 17 + k\sqrt{a}$ where a and k are positive integers.

4H JAN 13

Find the value of a and the value of k .

$a =$

$k =$

(Total for Question 19 is 3 marks)



P 4 1 0 3 6 A 0 1 3 2 0

13

Turn over ▶

17 Given that $(5 - \sqrt{x})^2 = y - 20\sqrt{2}$ where x and y are positive integers, find the value of x and the value of y .

JAN 14 3H

$x =$

$y =$

(Total for Question 17 is 3 marks)



P 4 2 9 4 0 A 0 1 5 2 0

15

Turn over ▶

- 19 (a) Show that $(5 - \sqrt{8})(7 + \sqrt{2}) = 31 - 9\sqrt{2}$
Show each stage of your working.

(3)

Given that c is a prime number,

- (b) rationalise the denominator of $\frac{3c - \sqrt{c}}{\sqrt{c}}$

Simplify your answer.

(2)

(Total for Question 19 is 5 marks)



23 The diagram shows a solid cylinder.

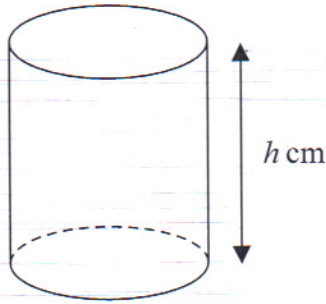


Diagram **NOT**
accurately drawn

The cylinder has radius $4\sqrt{3}$ cm and height h cm.

The total surface area of the cylinder is $56\pi\sqrt{6}$ cm²

Find the exact value of h .

Give your answer in the form $a\sqrt{2} + b\sqrt{3}$, where a and b are integers.

Show your working clearly.

$$h = \dots\dots\dots$$

(Total for Question 23 is 5 marks)



DO NOT WRITE IN THIS AREA