Name: _____

Maths Genie Stage 10

Test B

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- **Calculators may be used.**

Information

- 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.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1   Write down the exact value of cos (0°)

....

(Total for Question 1 is 1 mark)

2   Write down the exact value of sin (60)

....

(Total for Question 2 is 1 mark)

3   3 tins of beans and 4 tins of tomatoes costs £2.44
5 tins of beans costs £1.60

Work out how much one tin of tomatoes costs.
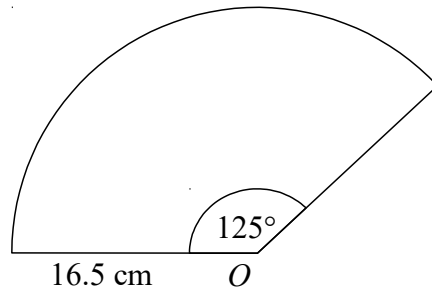
…........................

(Total for Question 3 is 2 marks)

4   In a company the ratio of men to women is 3:4
40% of the women are under the age of 30.

What fraction of all the people in the company are women under the age of 30?

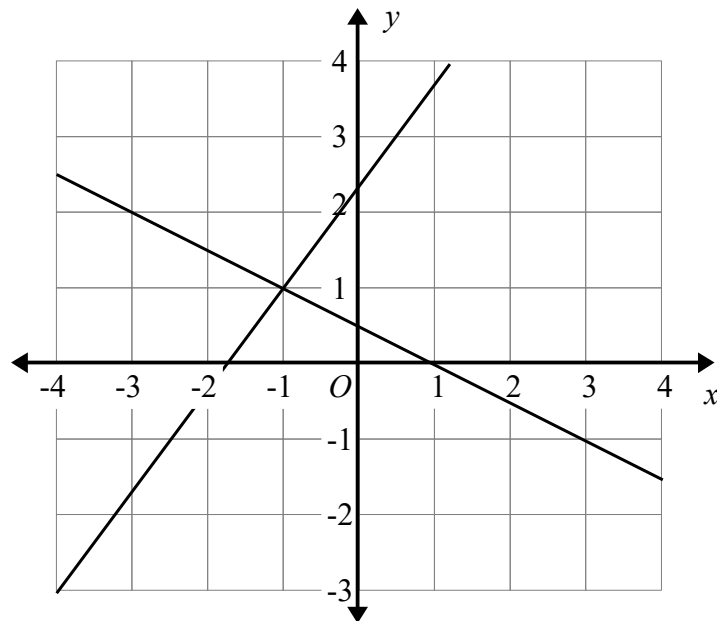…........................

(Total for Question 4 is 3 marks)

5 The diagram shows a sector, centre O.
The radius of the circle is 16.5 cm.
The angle of the sector is 125°.

Calculate the area of the sector.
Give your answer correct to 3 significant figures.

....

(Total for Question 5 is 3 marks)

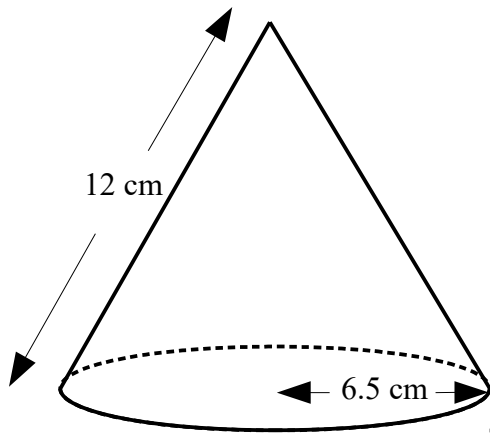**6** The graphs of the straight lines with equations $3y = 4x + 7$ and $x + 2y = 1$ have been drawn on the grid.

Use the graphs to solve the simultaneous equations $3y = 4x + 7$
$x + 2y = 1$

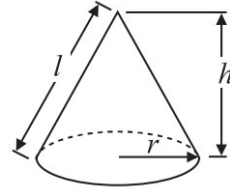..

(Total for Question 6 is 2 marks)

7   The diagram shows a solid cone.

Volume of cone $= \frac{1}{3}\pi r^2 h$

Curved surface area of cone $= \pi r l$
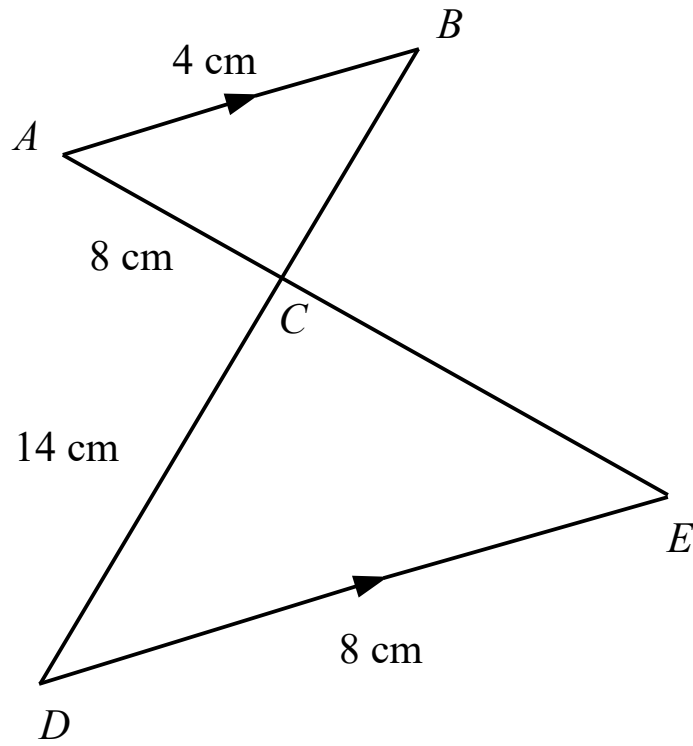
12 cm

6.5 cm

The slanted height of the cone is 12 cm.
The base of the cone has a radius of 6.5 cm.

Work out the total surface area of the cone.
Give your correct to 3 significant figures.

....

(Total for Question 7 is 4 marks)

8

AB is parallel to DE.
ACE and BCD are straight lines.
AB = 4 cm,
AC = 8 cm,
CD = 14 cm,
DE = 8 cm.

(a)   Calculate the length of CE.
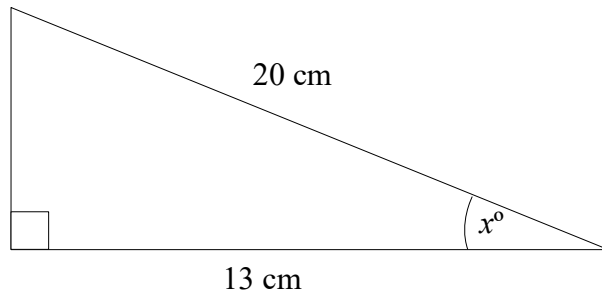
.... cm

(2)

(b)   Calculate the length of BC.

.... cm

(2)

(Total for Question 8 is 4 marks)

9

Work out the value of x.

…..........................

(Total for Question 9 is 2 marks)

10　Solve the simultaneous equations

$$3x + 2y = 9$$
$$5x + 4y = 14$$

$x =$ …..........................

$y =$ …..........................

(Total for Question 10 is 3 marks)