2007 School Certificate Test

Mathematics

Centre Number

Student Number

Section 1

25 marks
Time allowed for this section is 30 minutes

Answer Questions 1–25 in the spaces provided

Calculators are NOT to be used in this section

There will be a short break between Section 1 and Section 2

Answer the questions in the spaces provided.

1 $8 \times 0.7 =$

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2 $6m + 3m - m =$

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3 Consider the pattern:

$$6^2 = 5^2 + 2 \times 5 + 1$$
$$7^2 = 6^2 + 2 \times 6 + 1$$
$$8^2 = 7^2 + 2 \times 7 + 1$$

Using this pattern, complete

$$24^2 = \_\_ + \_\_ \times \_\_ + \_\_$$

4 Find the value of $2l + 2b$ when $l = 5$ and $b = 4$.

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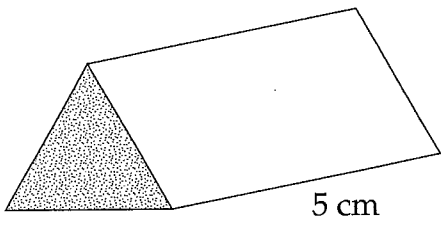
5 The area of the shaded triangle is 30 cm^2.



NOT TO SCALE

What is the volume of this triangular prism?

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6 Arrange the following from smallest to largest:

5^2, 3^2, 3^3, 2^4

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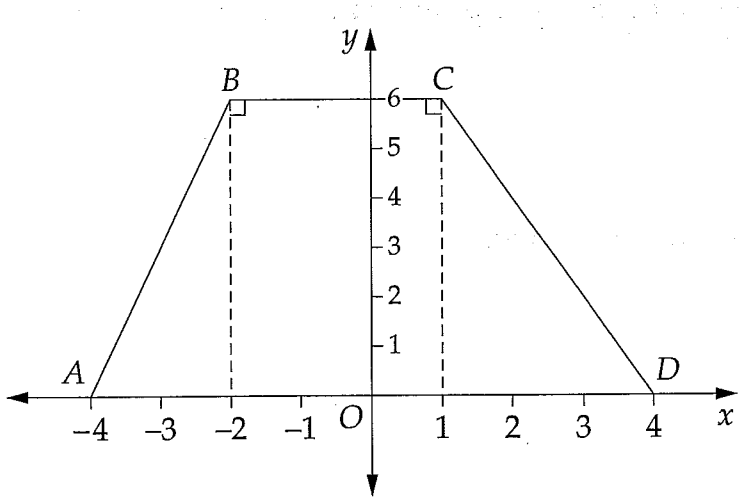
7 Calculate the area of the trapezium *ABCD*.



NOT TO SCALE

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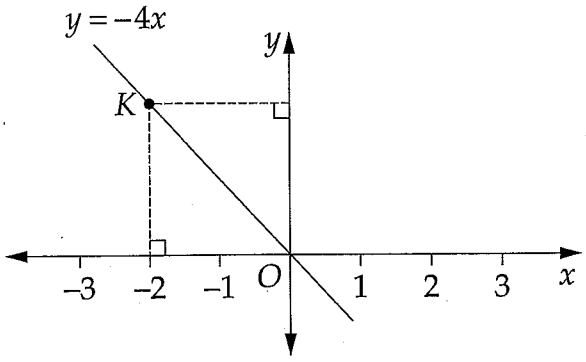
8 *K* is a point on the line $y = -4x$ as shown.



NOT TO SCALE

Complete: The coordinates of *K* are (–2, ___).

9 Solve $\frac{n}{3} < -2$.

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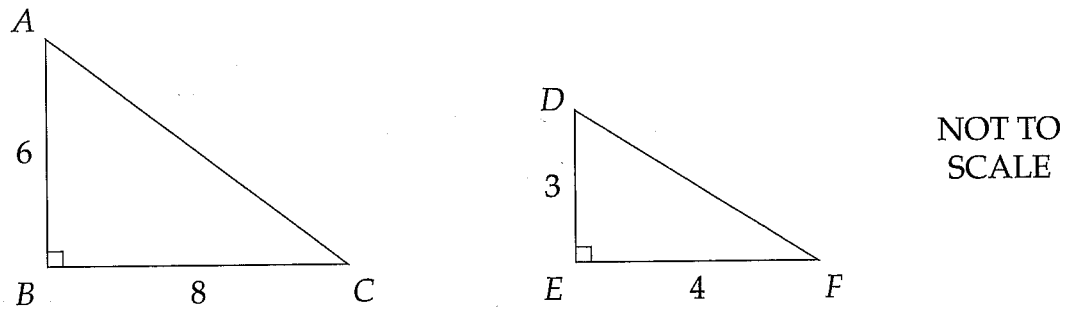
10 $800 \div 32 = 25$

Write a number in the box so that the statement below is correct.

$800 \div \square = 50$

11 The diagram shows two triangles.



Explain why $\angle ACB = \angle DFE$.

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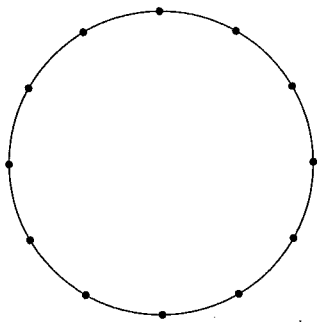
12 There are 12 dots equally spaced around a circle.

Join four dots on the circle to make a square.



13 A fishing boat drops a crab pot every 10 minutes.

How many hours does it take to drop 96 crab pots?

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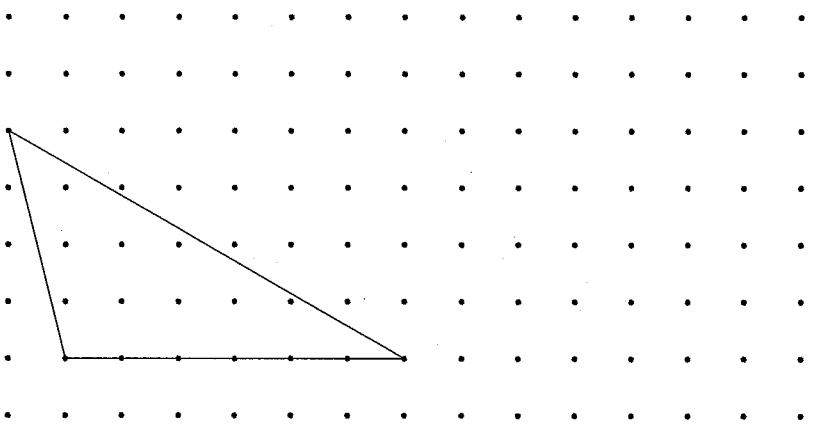
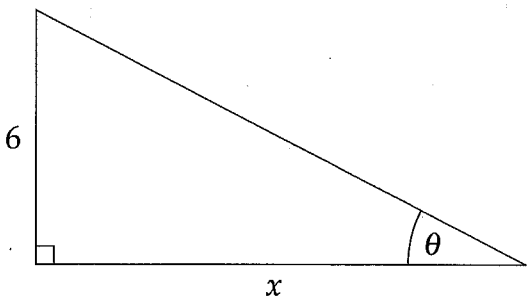
14 On the dot paper draw a rectangle that has an area equal to the area of the triangle.



15 In the triangle, it is given that $\tan\theta = \frac{2}{3}$.



NOT TO SCALE

What is the value of x?

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16 Sam multiplies two whole numbers together, and gets an answer of 231.

Neither of the numbers is 1.

What could the two numbers be?

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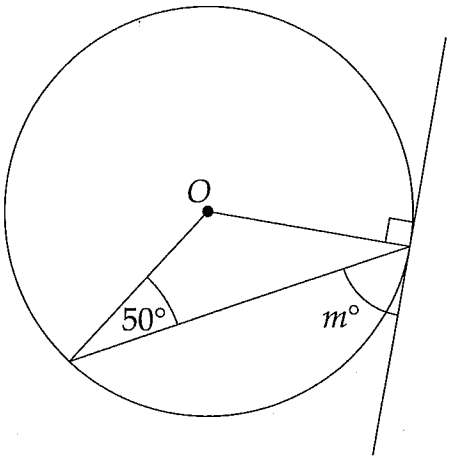
17 O is the centre of the circle.



NOT TO SCALE

What is the value of m?

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18 Calculate $(3 \times 10^4) \times (2 \times 10^{-6})$, expressing your answer in scientific notation.

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19 Joshua is using three different points to graph the curve $y = x^2 + 3$.

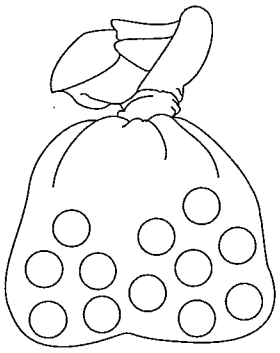
What is the missing value in Joshua's table?

x	–2	0	
y	7	3	7

Use the following information to answer Questions 20 and 21.

A bag contains 12 marbles. The marbles are either black or green. When one marble is chosen at random from the bag, the probability that it is black is $\frac{1}{4}$.

20 On the diagram, colour in circles to show how many marbles are black.



21 Some red marbles are added to the bag so that the probability of choosing a red marble will be $\frac{1}{3}$.

How many red marbles are added to the bag?

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22 Complete: $2p(\ldots\ldots\ldots\ldots) = 6p^2 - 2p$

23 Solve the equation: $3(m + 8) = -6$

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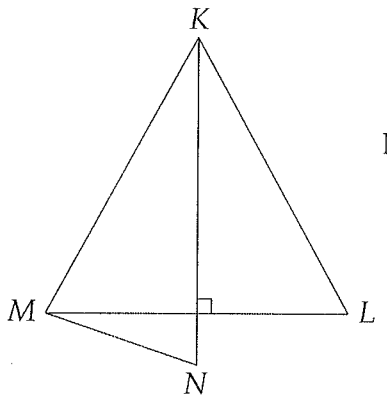
24 In the diagram, KLM is an equilateral triangle and $KM = KN$.



NOT TO SCALE

Find the size of $\angle KMN$.

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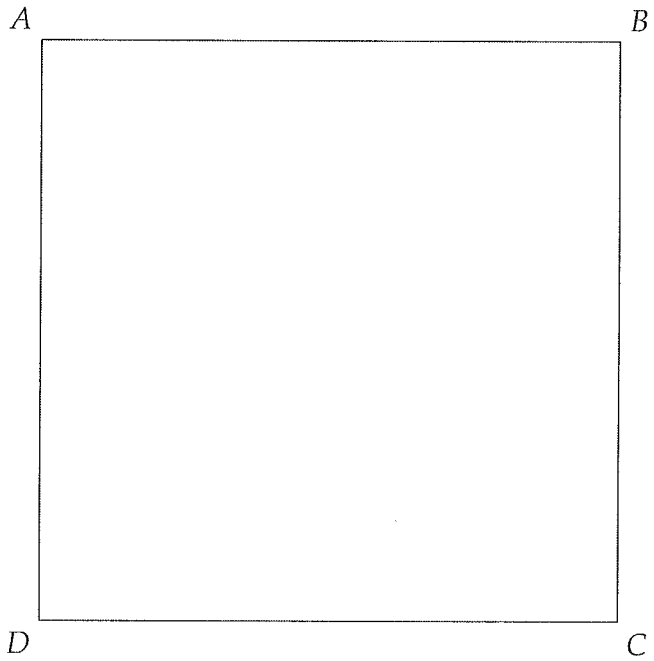
25 The school yard, $ABCD$, is a square 400 m by 400 m.

Leah is standing somewhere in the school yard. She is more than 350 m from both corner A and corner B.

Using the given scale and your geometrical instruments, shade the region where Leah could be standing.



Scale
2 cm = 100 m

End of Section 1