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0580/11

May/June 2011

1 hour

Additional Materials:	Electronic calculator	Geometrical instruments
	Mathematical tables (optional)	Tracing paper (optional)

The total of the marks for this paper is 56.

[Turn over

- 1 A concert hall has 1540 seats.

Calculate the number of people in the hall when 55% of the seats are occupied.

Answer [1]

- 2 (a) Write down in figures the number twenty thousand three hundred and seventy six.

Answer(a) [1]

- (b) Write your answer to **part (a)** correct to the nearest hundred.

Answer(b) [1]

- 3 For an equilateral triangle, write down

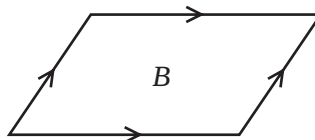
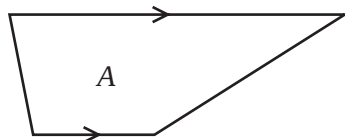
- (a) the number of lines of symmetry,

Answer(a) [1]

- (b) the order of rotational symmetry.

Answer(b) [1]

4



Write down the geometrical name for

- (a) shape A,

Answer(a) [1]

- (b) shape B.

Answer(b) [1]

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- 5 Mark and Naomi share \$600 in the ratio Mark : Naomi = 5 : 1.

Calculate how much money Naomi receives.

Answer \$ [2]

- 6 Calculate the area of a circle with radius 6.28 centimetres.

Answer cm^2 [2]

- 7 The scale on a map is 1 : 20 000.

Calculate the actual distance between two points which are 2.7 cm apart on the map.
Give your answer in kilometres.

Answer km [2]

- 8 (a) Find m when $4^m \times 4^2 = 4^{12}$.

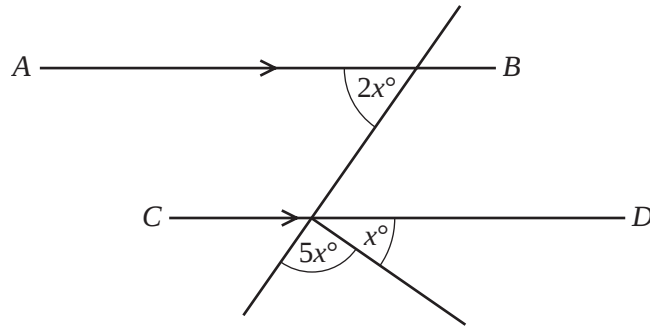
Answer(a) $m =$ [1]

- (b) Find p when $6^p \div 6^7 = 6^2$.

Answer(b) $p =$ [1]

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NOT TO
SCALE

AB is parallel to CD .
Calculate the value of x .

Answer $x =$ [3]

10 Solve the simultaneous equations.

$$\begin{aligned} 3x + y &= 30 \\ 2x - 3y &= 53 \end{aligned}$$

Answer $x =$
 $y =$ [3]

11 Without using your calculator, and leaving your answer as a fraction, work out

$$2\frac{1}{6} - \frac{7}{12}.$$

You must show all your working.

Answer [3]

For
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- 12 (a) Write 1738.279 correct to 1 decimal place.

Answer(a) [1]

- (b) Write 28 700 in standard form.

Answer(b) [1]

- (c) The mass of a ten-pin bowling ball is 7 kg to the nearest kilogram.

Write down the lower bound of the mass of the ball.

Answer(c) kg [1]

- 13 Paulo invests \$3000 at a rate of 4% per year **compound** interest.

Calculate the **total** amount Paulo has after 2 years.

Give your answer correct to the nearest dollar.

Answer \$ [3]

- 14 A train leaves Barcelona at 21 28 and takes 10 hours and 33 minutes to reach Paris.

- (a) Calculate the time the next day when the train arrives in Paris.

Answer(a) [1]

- (b) The distance from Barcelona to Paris is 827 km.

Calculate the average speed of the train in kilometres per hour.

Answer(b) km/h [3]

For
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Use

- 15 (a) The table shows part of a railway timetable.

Peartree Station	arrival time	12 58	13 56	14 54	15 52
	departure time	13 07	14 05	15 03	16 01

- (i) Each train waits the same number of minutes at Peartree Station.

Write down how many minutes each train waits.

Answer(a)(i) min [1]

- (ii) Janine is at Peartree Station at 3 pm.

At what time does the next train depart?

Answer(a)(ii) [1]

- (b) The average temperature each month in Moscow and Helsinki is recorded.
The table shows this information from January to June.

	January	February	March	April	May	June
Temperature in Moscow (°C)	−16	−14	−8	1	8	11
Temperature in Helsinki (°C)	−9	−10	−7	−1	4	10

- (i) Find the difference in temperature between Moscow and Helsinki in **January**.

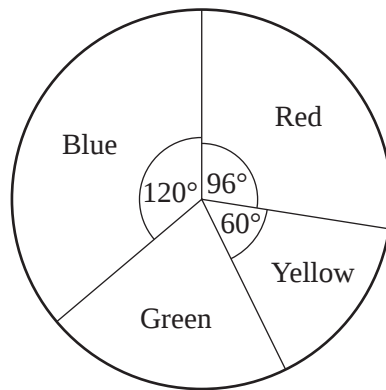
Answer(b)(i) °C [1]

- (ii) Find the increase in temperature in Helsinki from March to June.

Answer(b)(ii) °C [1]

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Use

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Use

In a survey a number of people chose their favourite colour.

The results are shown in the pie chart.

(a) Calculate the size of the sector angle for green.

Answer(a) [1]

(b) The number of people who chose red is 16.

Calculate the number who chose yellow.

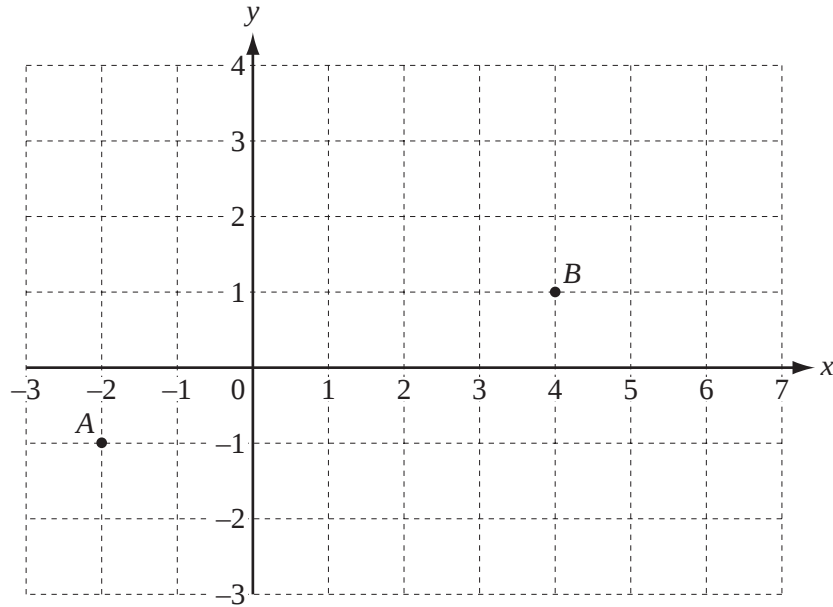
Answer(b) [1]

(c) Calculate the total number of people in the survey.

Answer(c) [1]

(d) Write down the fraction who chose red.

Answer(d) [1]



- (a) Write down the vector $\vec{AB}$.

Answer(a) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

(b) $\vec{BC} = \begin{pmatrix} -3 \\ 1 \end{pmatrix}$

Mark the point C on the grid.

[1]

- (c) Work out

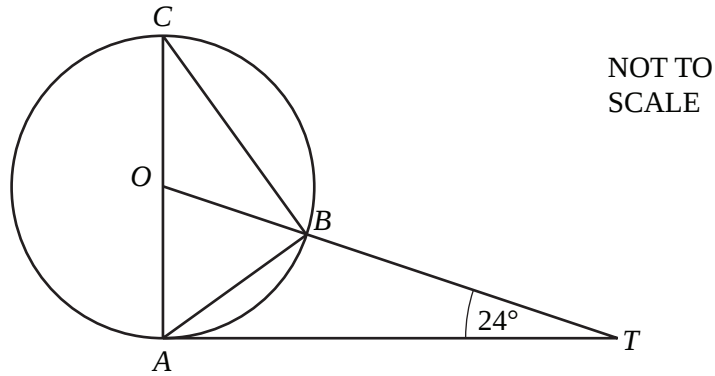
(i) $\begin{pmatrix} -3 \\ 1 \end{pmatrix} + \begin{pmatrix} 7 \\ -4 \end{pmatrix},$

Answer(c)(i) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

(ii) $4 \times \begin{pmatrix} -3 \\ 1 \end{pmatrix}.$

Answer(c)(ii) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

18



A , B and C are points on a circle, centre O .
 TA is a tangent to the circle at A and OBT is a straight line.
 AC is a diameter and angle $OTA = 24^\circ$.

Calculate

(a) angle AOT ,

Answer(a) Angle $AOT =$ [2]

(b) angle BOC ,

Answer(b) Angle $BOC =$ [1]

(c) angle OCB .

Answer(c) Angle $OCB =$ [1]

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- 19** Piet, Rob and Sam collect model aeroplanes.
 Piet has x aeroplanes.
 Rob has 7 more aeroplanes than Piet.
 Sam has three times as many aeroplanes as Piet.

(a) Write down an expression, in terms of x , for

(i) the number of aeroplanes Rob has,

Answer(a)(i) [1]

(ii) the number of aeroplanes Sam has.

Answer(a)(ii) [1]

(b) The total number of aeroplanes is 32.

(i) Use the information in **part (a)** to write down an equation in x .

Answer(b)(i) [1]

(ii) Solve your equation.

Answer(b)(ii) $x =$ [2]

(c) Write down the number of aeroplanes Rob has.

Answer(c) [1]

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