WJEC CBAC

GCSE

185/07

MATHEMATICS
FOUNDATION TIER
PAPER 1

A.M. TUESDAY, 9 November 2010

2 hours

CALCULATORS ARE NOT TO BE USED FOR THIS PAPER

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

Take π as 3·14.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1	12	
2	4	
3	3	
4	5	
5	9	
6	4	
7	8	
8	5	
9	6	
10	10	
11	6	
12	4	
13	7	
14	5	
15	4	
16	4	
17	4	
TOTAL MARK		

Formula List

Area of trapezium $= \frac{1}{2}(a + b)h$
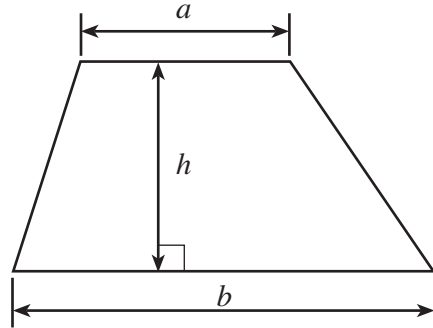
Volume of prism = area of cross-section × length

1. *(a)* (i) Write down, in figures, the number four thousand, two hundred and six.

....

(ii) Write down, in words, the number 16 000 000.

....

[2]

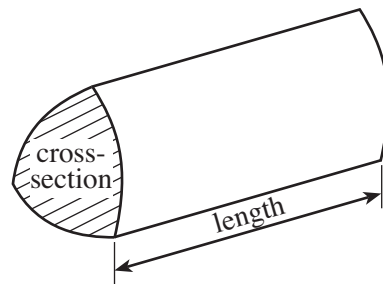*(b)* (i) Add together 34 and 27.

....

(ii) Find the number which must be added to 38 to make 62.

....

(iii) Write down the multiple of 7 that is between 20 and 25.

....

(iv) Write down the square number that is between 30 and 40.

....

[4]

(c) Write 8623

(i) correct to the nearest 10,

....

(ii) correct to the nearest 1000.

....

[2]

(d) Write down all the factors of 33.

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[2]

(e) How many notebooks each costing £2.99 can be bought with a £20 note?

....

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....

[2]

Turn over.

2. *(a)* Using the following list, circle the fractions that are equivalent to $\frac{1}{3}$.

$$\frac{2}{6} \qquad \frac{2}{9} \qquad \frac{6}{12} \qquad \frac{4}{15} \qquad \frac{5}{15}$$

....

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[2]

(b) Janet buys a newspaper costing 34p and a magazine costing £1.27.
How much change should she get from £5?

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....
[2]

3. **impossible** **unlikely** **an even chance** **likely** **certain**

For each of the following events, choose **one** of the above to describe the chance of the event occurring.

An odd number score is obtained when an ordinary fair dice is rolled once.

....

At least one of the days in the next 10 days will be a Monday.

....

It will rain in London on at least one day in March.

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[3]

4. *(a)* Write down the next term in **each** of the following sequences.

    (i)   3,   10,   17,   24, ...

    (ii) 84,   78,   72,   66, ...

....

....

[2]

(b) Write 0·3 as a percentage.   ....

Write $\frac{1}{4}$ as a percentage.   ....

Write 0·3, $\frac{1}{4}$ and 28% in ascending order.

....

....

....

....

[3]

Turn over.

5. Rachel records the number of goals scored by her favourite team for each game throughout the season.
She writes M when her team scores more than 3 goals.
The team plays 40 games and the results are shown below.

0	2	3	1	0	2	M	0	1	1
0	1	3	0	M	1	3	1	3	2
3	0	3	M	1	2	0	1	0	1
1	M	2	1	3	0	M	2	1	3

(a) Complete the frequency table below.

Goals scored	Tally	Frequency
0		
1		
2		
3		
M		

[2]

(b) Write down the mode ....

[1]

(c) Using the squared paper below, draw a suitable bar chart for the data given in the table.

[4]
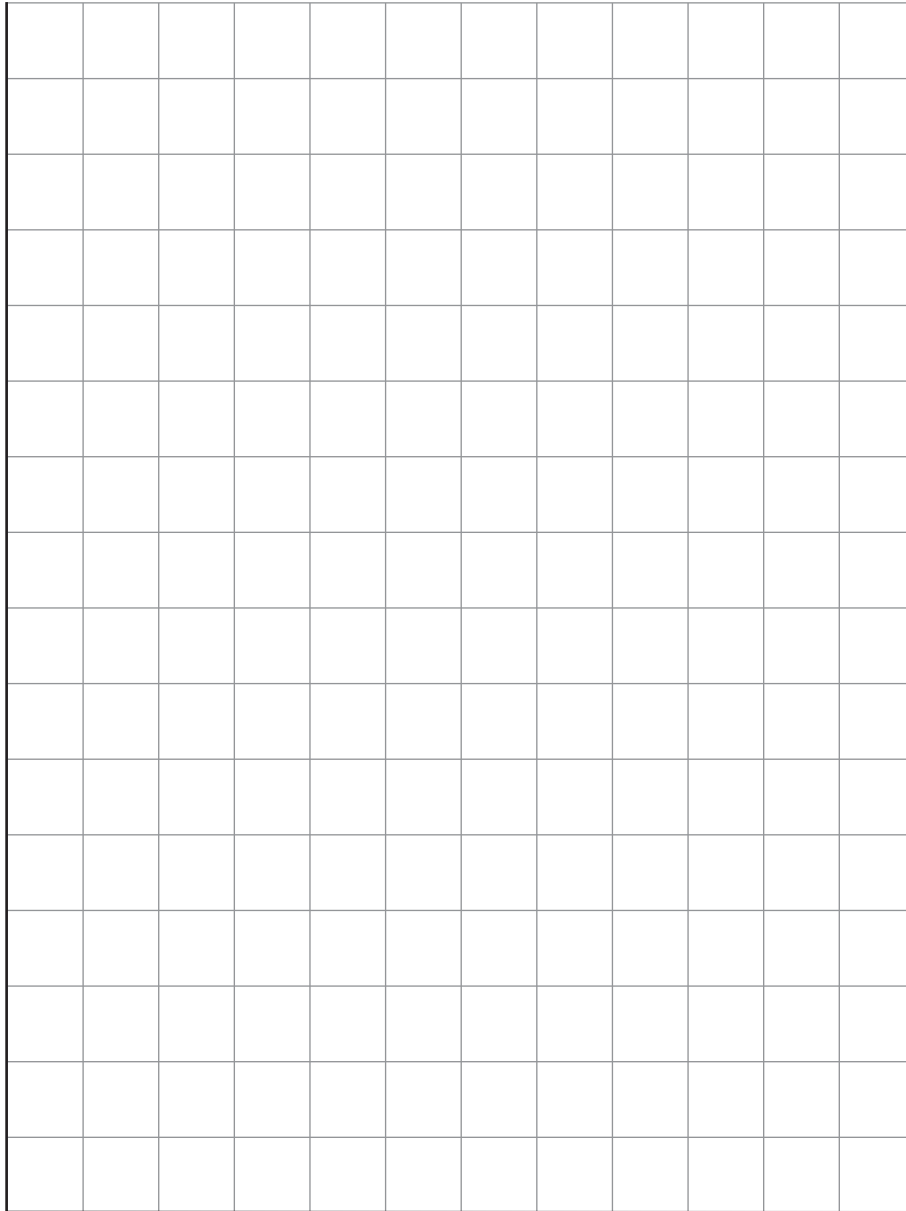
(d) (i) Using these results, complete the following:

The probability that the team scored exactly 2 goals in a match = $\dfrac{}{40}$

(ii) Explain why you cannot find the range for the number of goals scored.

....

....

[2]

Turn over.

6. The diagram represents a 11 cm by 5 cm rectangle.

5 cm

11 cm
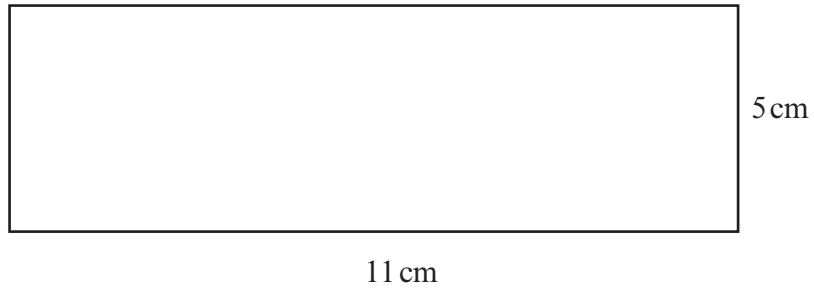
Diagram not drawn to scale

(a) Calculate the perimeter of the rectangle.

....

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....

[1]

(b) Calculate the area of the rectangle, giving the units of your answer.

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[3]

7. *(a)* The tickets for a concert cost £39 each.
A group of 56 pupils are going to this concert.
How much will the tickets cost altogether?

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....

[3]

(b) Write down the value of $\sqrt{144}$.

....

[1]

(c) Calculate 3% of 500.

....

....

[2]

(d) Alice thinks of a number.
She multiplies it by 5 and subtracts 6.
Her answer is 39.
What was her number?

....

....

....

....

[2]

Turn over.

0185
070009

8. *(a)* Plot the points $A(3, 1)$, $B(-3, 2)$ and $C(-2, -1)$.

[3]
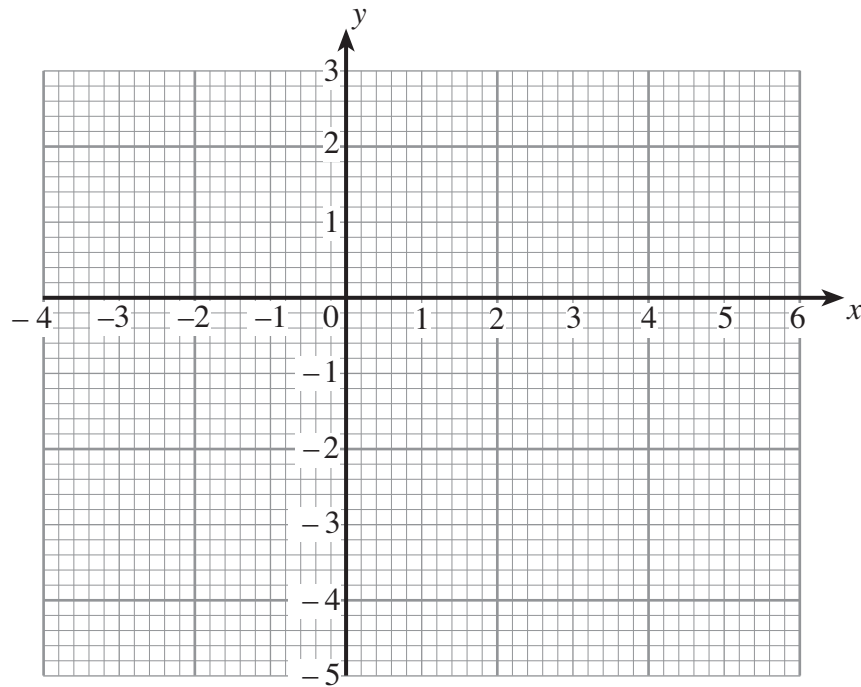
(b) The coordinates of each of the points (1, 3), (2, 4) and (3, 5) satisfy a rule.
The coordinates of the point (x, y) satisfy the same rule.
Write down the rule that connects x and y.

....

....

....

[2]

9. *(a)* A number is represented by the letter k.
Write down, in terms of k,

(i) the number that is 5 more than k,

....

(ii) the number that is 4 less than k,

....

(iii) the number that is 3 times k,

....

(iv) the number that is 7 more than 10 times k.

....

[4]

(b) Simplify

(i) $5x + 3x + 4x$,

....

....

....

(ii) $7a - a$.

....

....
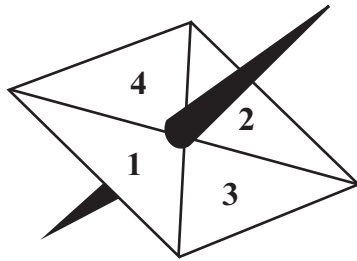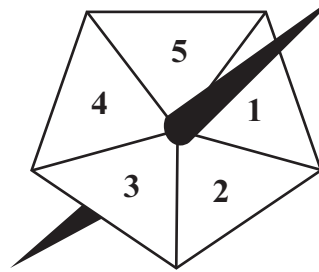
[2]

0185
070011

10. A square shaped spinner has the numbers 1, 2, 3 and 4 written on it. Another spinner, in the shape of a regular pentagon, has the numbers 1, 2, 3, 4 and 5 written on it.

Square spinner   Pentagon spinner

In a game, a player spins both spinners and multiplies the two numbers showing on the spinners to get the score for the game.

For example, if the number on the square spinner is 3 and the number on the pentagon spinner is 2, the player works out $3 \times 2 = 6$ and the player scores 6.

(a) Complete the following table to show all the possible scores.

Pentagon spinner					
5	5	....	....	....	
4	4	....	....	....	
3	3	....	....	....	
2	2	4	6	8	
1	1	2	3	4	
	1	2	3	4	

Square spinner

[2]

(b) (i) What is the probability that a player scores 4?

....

....

(ii) What is the probability that a player does not score 4?

....

....

[3]

A player wins a prize by getting a score of 3 or less.

(c) Toby plays the game once. What is the probability that he wins a prize?

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[1]

(d) (i) 800 people each play the game once.
Approximately how many would you expect to win a prize?

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[2]

(ii) It costs 50p to play the game once. The prize for getting a score of 3 or less is
£1.50. If the 800 people each play the game once, approximately how much profit
do you expect the game to make?

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....

[2]

11. *(a)* Find the size of the angle marked *x*.
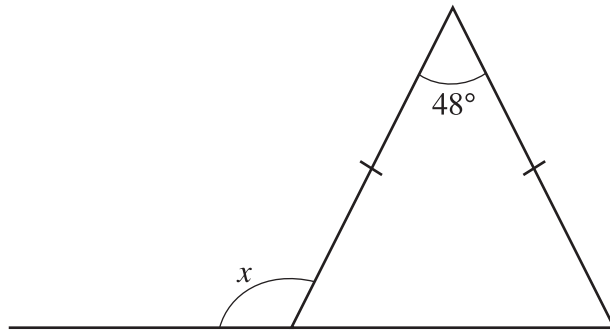
Diagram not drawn to scale

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$x = $ .... °

[3]

(b) Find the size of the angle marked *y*.
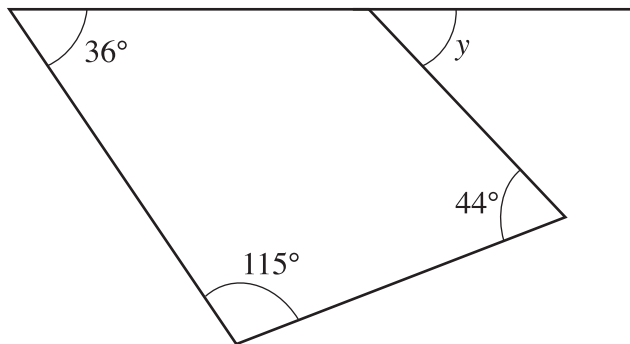
Diagram not drawn to scale

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$y = $ .... °

[3]

12. *(a)* Two cubes, each with sides 3 cm, are stuck together by matching up two complete faces to form a cuboid.
Draw a sketch of the cuboid.

[2]

(b) Find the volume of the cuboid.

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[2]

Turn over.

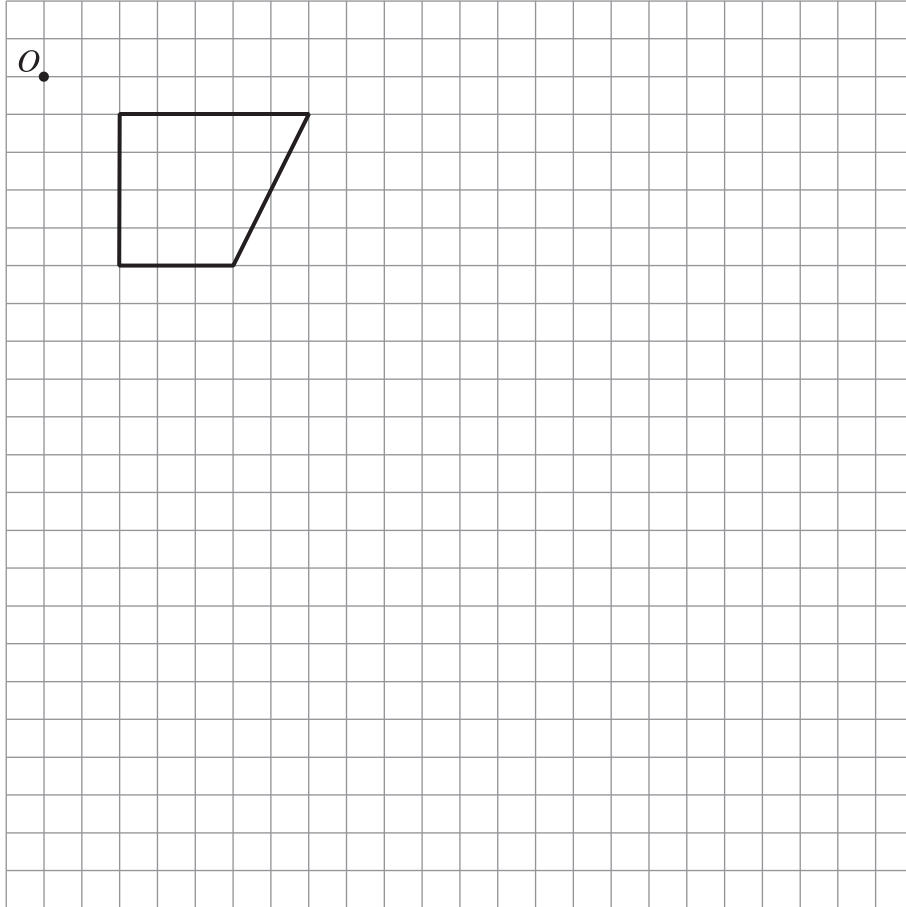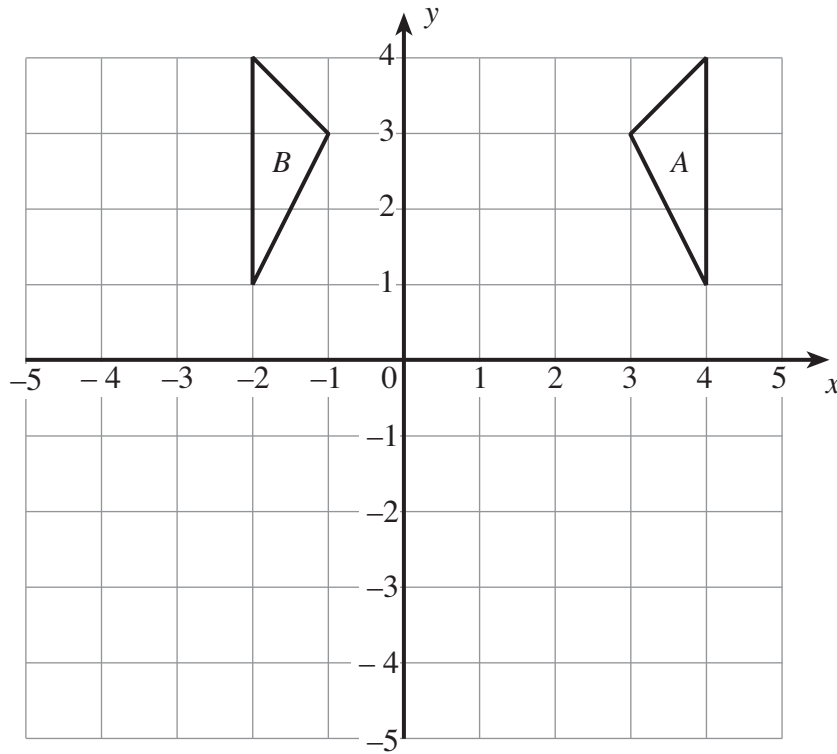**13.** *(a)*   On the grid below, draw the enlargement of the given shape using a scale factor of 2 and centre *O*.

[3]

(b) Describe fully the transformation that transforms triangle *A* into triangle *B*.

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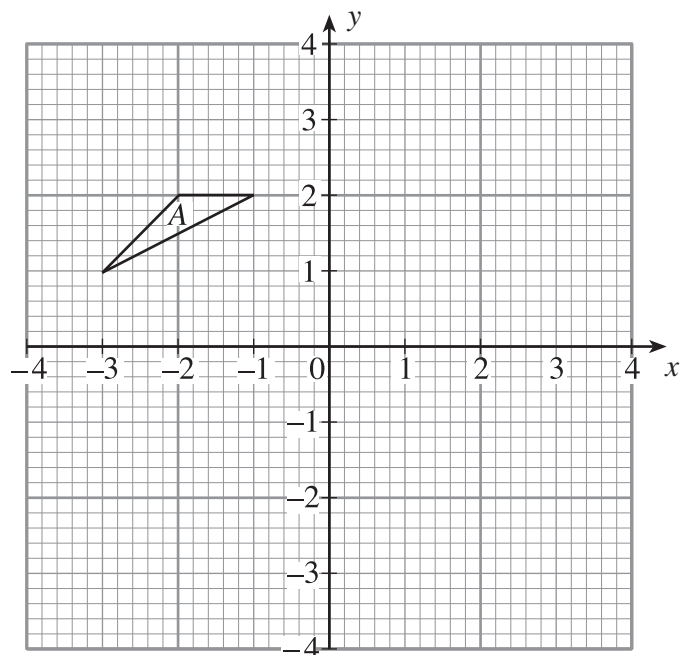
[2]

(c) Rotate the triangle *A* through 90° anticlockwise about the origin.

[2]

Turn over.

14.
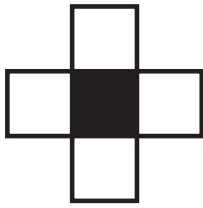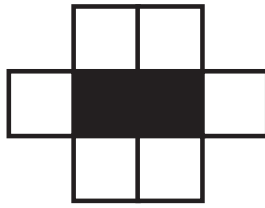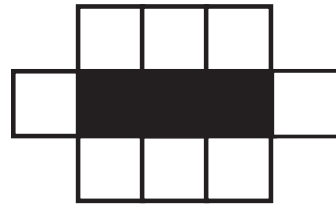
Pattern 1   Pattern 2   Pattern 3

Complete the following table.

Pattern number	Number of black squares	Number of white squares
1	1	4
2	2	6
3	3	8
15		
100		
n		

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[5]

15. *(a)*   Share £385 in the ratio 2 : 9.

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[2]

(b)   Estimate the value of $\dfrac{607 \cdot 45}{0 \cdot 2498}$.

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[2]

16. *(a)*   Simplify $\dfrac{m^4 \times m^5}{m^3}$.

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[1]

(b)   Solve $7(x - 4) = 3x - 10$.

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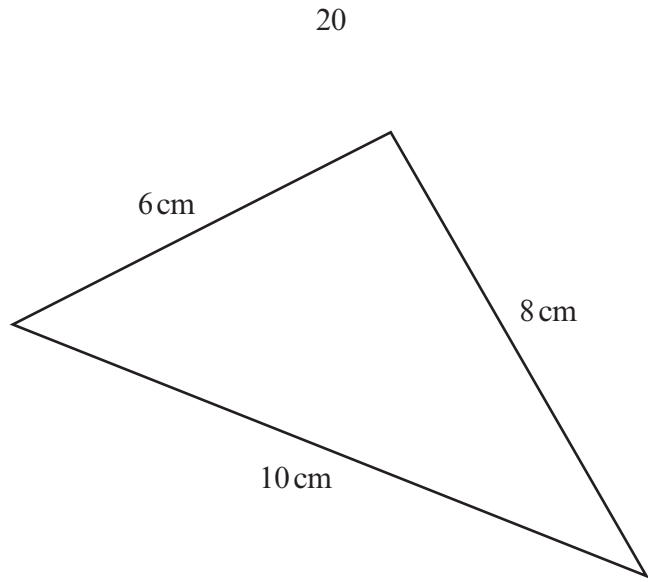
[3]

Turn over.

17. *(a)*

6 cm

8 cm

10 cm

Diagram not drawn to scale

Show, by calculation, that the triangle drawn above is a right-angled triangle.

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[2]

(b) Calculate the area of a semicircle with a radius of 20 cm using $\pi = 3 \cdot 14$.

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[2]