

Tuesday 6 November 2012 – Morning

GCSE MATHEMATICS A

A502/01 Unit B (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:

- Geometrical instruments
- Tracing paper (optional)

Duration: 1 hour



| | | | |
|--------------------|--|-------------------|--|
| Candidate forename | | Candidate surname | |
|--------------------|--|-------------------|--|

| | | | | | | | | | | |
|---------------|--|--|--|--|--|------------------|--|--|--|--|
| Centre number | | | | | | Candidate number | | | | |
|---------------|--|--|--|--|--|------------------|--|--|--|--|

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is **60**.
- This document consists of **16** pages. Any blank pages are indicated.



This paper has been pre modified for carrier language

Formulae Sheet: Foundation Tier

Area of trapezium = $\frac{1}{2} (a + b)h$



Volume of prism = (area of cross-section) \times length



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- 1 In a sale, a shop reduces all its prices by the same percentage.

This table shows some original prices and their sale prices.



| Original price | Sale price |
|----------------|------------|
| £1.00 | £0.70 |
| £1.50 | £1.05 |
| £2.00 | £1.40 |
| £5.00 | £3.50 |
| £10.00 | £7.00 |

- (a) How much does Gemma pay for a scarf that had an original price of £10?

(a) £ _____ [1]

- (b) How much does Gemma save when she buys a purse that had an original price of £5?

(b) £ _____ [2]

- (c) Gemma finds a shirt without a price tag.
She takes it to the till and finds that she will **save** £6 in the sale.

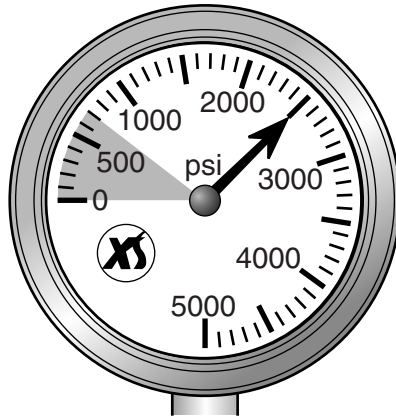
What was the original price of the shirt?
Show how you use values from the table to work out your answer.

(c) £ _____ [2]

- (d) How much does Gemma pay for a coat with an original price of £96.50?
Show how you use values from the table to work out your answer.

(d) £ _____ [3]

- 2 (a) Gareth is a diver.
The gauge shows the pressure, in psi, in his air tank.
When the pressure is in the shaded area he is dangerously short of air.



By how many psi can the pressure fall before it reaches the shaded area?

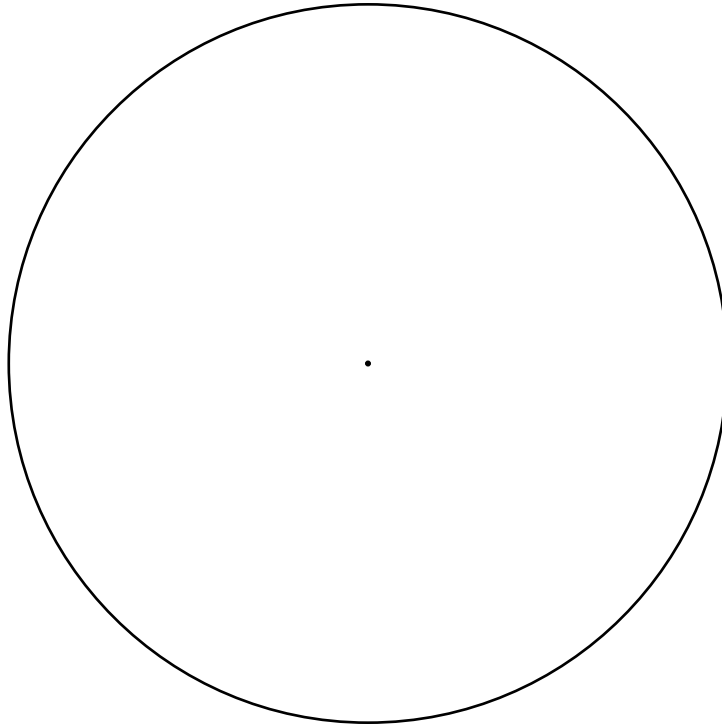
(a) _____ psi [2]

- (b) If Gareth dives to a depth of 60 feet he can stay there for 1 hour using one tank of air.
If he dives to only 30 feet he can stay there twice as long using one tank of air.

For how many minutes can he stay at a depth of 30 feet?

(b) _____ minutes [2]

- 3 The dot marks the centre of this circle.



- (a) Draw a diameter of this circle. [1]

- (b) Complete this statement.

The diagonals of any square bisect each other at an angle of _____° [1]

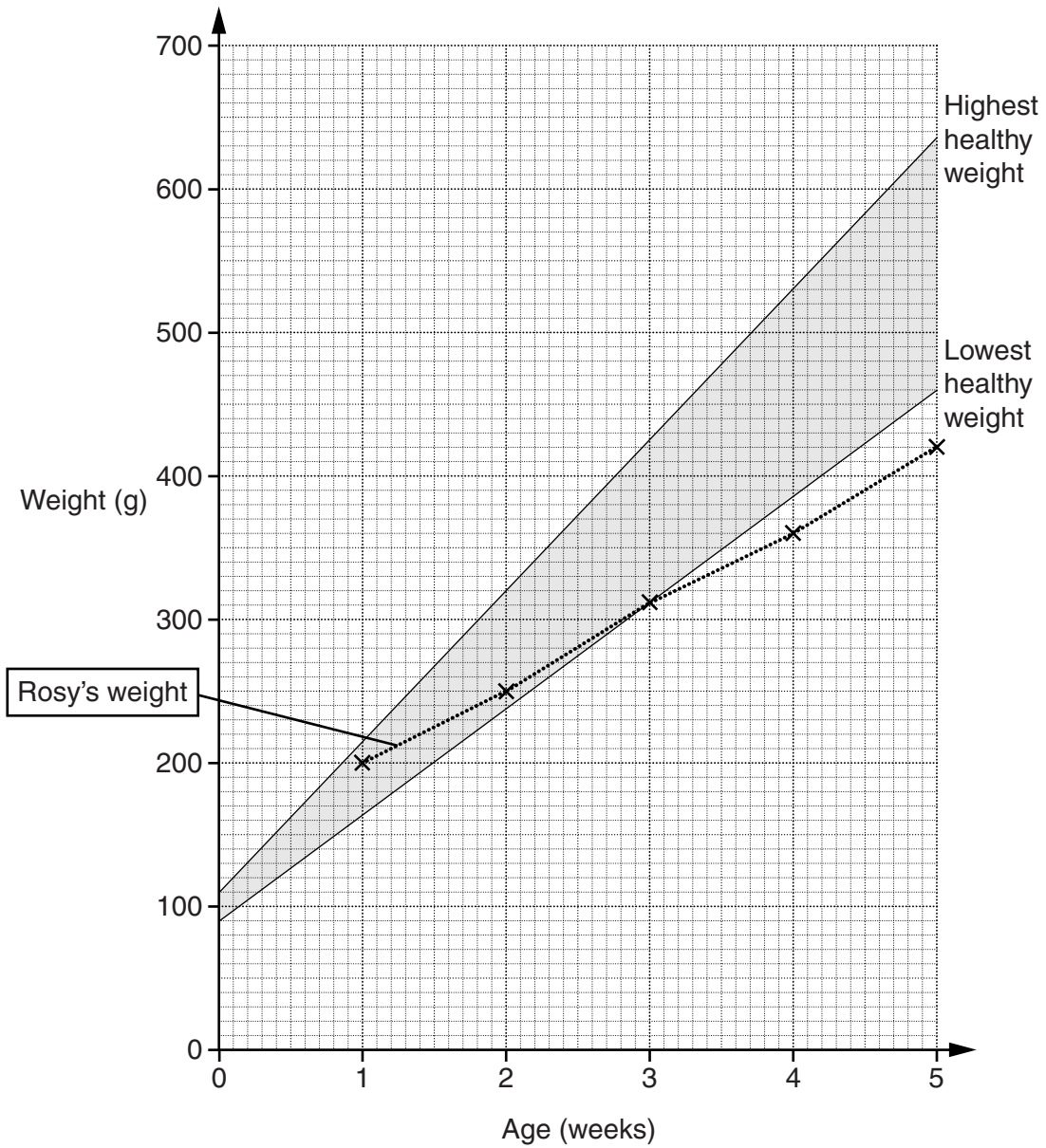
- (c) Using (a) and (b), draw a square with its corners on the circumference of the circle. [3]

- (d) Choose a word from this list to complete the sentence.

| | | | |
|----------|-------|--------|---------|
| diameter | chord | radius | tangent |
|----------|-------|--------|---------|

Each side of the square is a _____ of the circle. [1]

- 4 This graph shows the highest and lowest “healthy weights” for kittens from birth to 5 weeks old. To be considered “healthy” a kitten’s weight should be between the two lines. It also shows the weight in grams, recorded at the end of each week, of a kitten called Rosy.



- (a) Use information from the graph to write **two** statements about Rosy’s weight for the first five weeks of her life. At least one statement should be about whether she has a “healthy” weight or not.

1 _____

2 _____

[2]

(b) These are the weights of Toby, another kitten, recorded at the end of each week.

| Age (weeks) | Weight (g) |
|-------------|------------|
| 1 | 120 |
| 2 | 150 |
| 3 | 200 |
| 4 | 350 |

(i) On the grid, plot the points and draw a time series graph for Toby's weight. [2]

(ii) At the end of week 5 Toby has a "healthy weight".

By how much could his weight have increased from the end of week 4?

(b)(ii) _____ g [1]

- 5 (a) Put these numbers in order of size, starting with the smallest.

4.01 40.1 0.401 0.0401

(a) _____ [1]
smallest

- (b) Write a number in the box so that the two fractions are equivalent.

$$\frac{2}{5} = \frac{\boxed{}}{15}$$

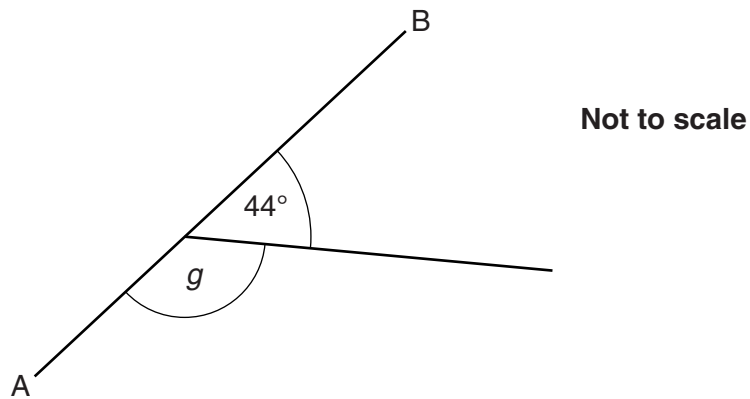
[1]

- (c) Put these fractions in order of size, starting with the smallest.
 Show your working.

$\frac{5}{8}$ $\frac{1}{2}$ $\frac{3}{4}$

(c) _____ [2]
smallest

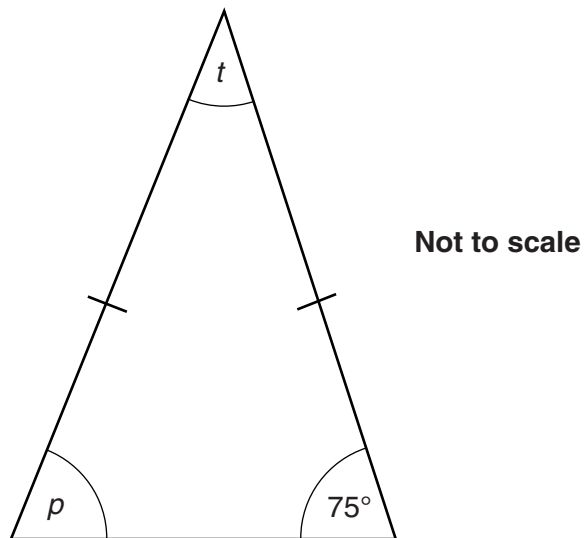
- 6 (a) AB is a straight line.



Work out the size of angle g .
Give a reason for your answer.

$g =$ _____ $^{\circ}$ because _____
_____ [2]

- (b) The diagram shows an isosceles triangle.



Work out the size of angle p and the size of angle t .

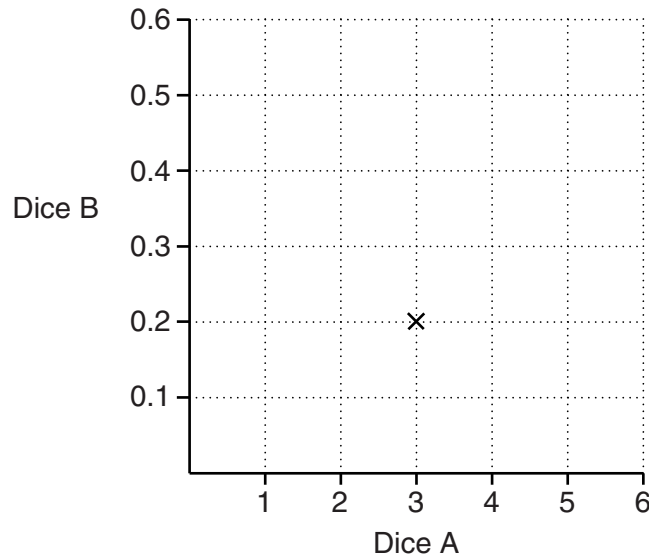
(b) $p =$ _____ $^{\circ}$ and $t =$ _____ $^{\circ}$ [3]

7 (a) Work out.

$$0.2 \times 5$$

(a) _____ [1]

(b) Karen has two fair dice, dice A and dice B.
 Dice A is numbered from 1 to 6. Dice B is numbered from 0.1 to 0.6.
 She throws both dice and uses the numbers shown on them to plot the point marked on the grid.



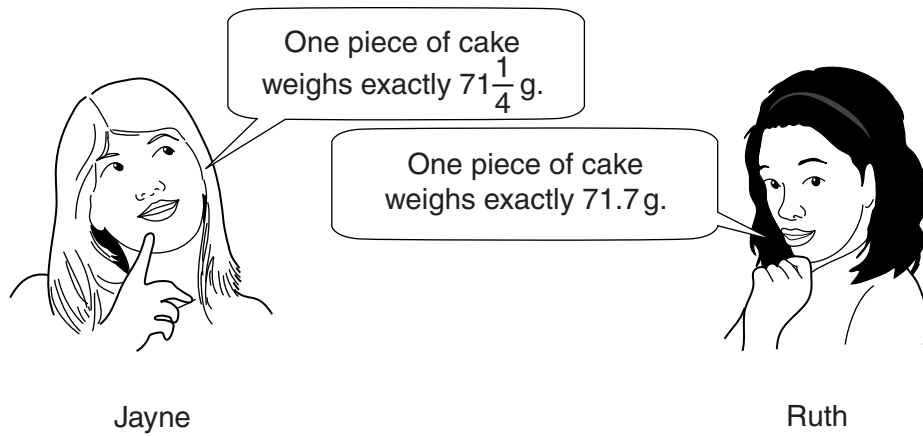
(i) Write down the number shown on each dice.

(b)(i) Dice A _____ Dice B _____ [1]

(ii) Karen multiplies the numbers shown on the two dice and the product is 0.6.

On the grid, plot the other three points that represent the numbers Karen could throw so that the product is also 0.6. [3]

8* Dirck cuts a cake that weighs 430 g into 6 equal pieces.

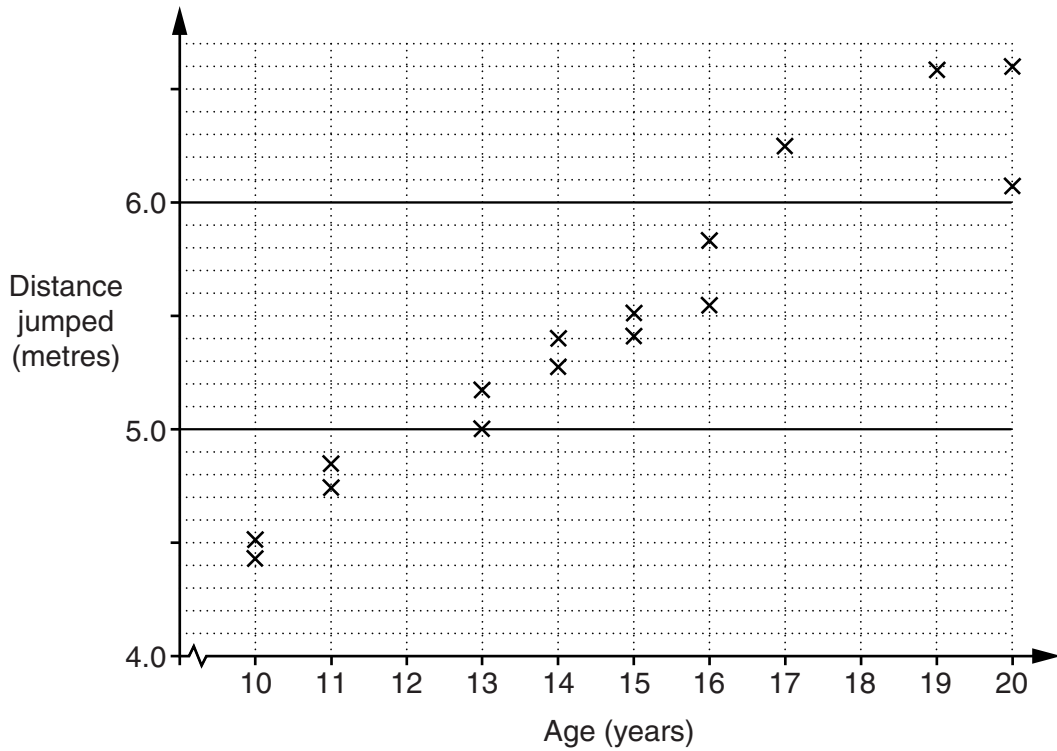


Both answers are incorrect.

Has Jayne or Ruth given the better estimate?
What is the exact weight of one piece of cake?

[5]

- 9 This scatter graph represents the ages of 16 young people and the distance they jumped in a long jump competition.



The ages of two more competitors and the distance each jumped are given below.

| Age (years) | Distance jumped (m) |
|-------------|---------------------|
| 17 | 5.45 |
| 19 | 5.80 |

- (a) Plot these values on the scatter graph. [2]
- (b) Draw a line of best fit on your scatter graph. [1]
- (c) Marco, aged 12, and Carl, aged 18, also took part in the competition.
- (i) Use your line of best fit to estimate the distance each jumped.

(c)(i) Marco _____ m

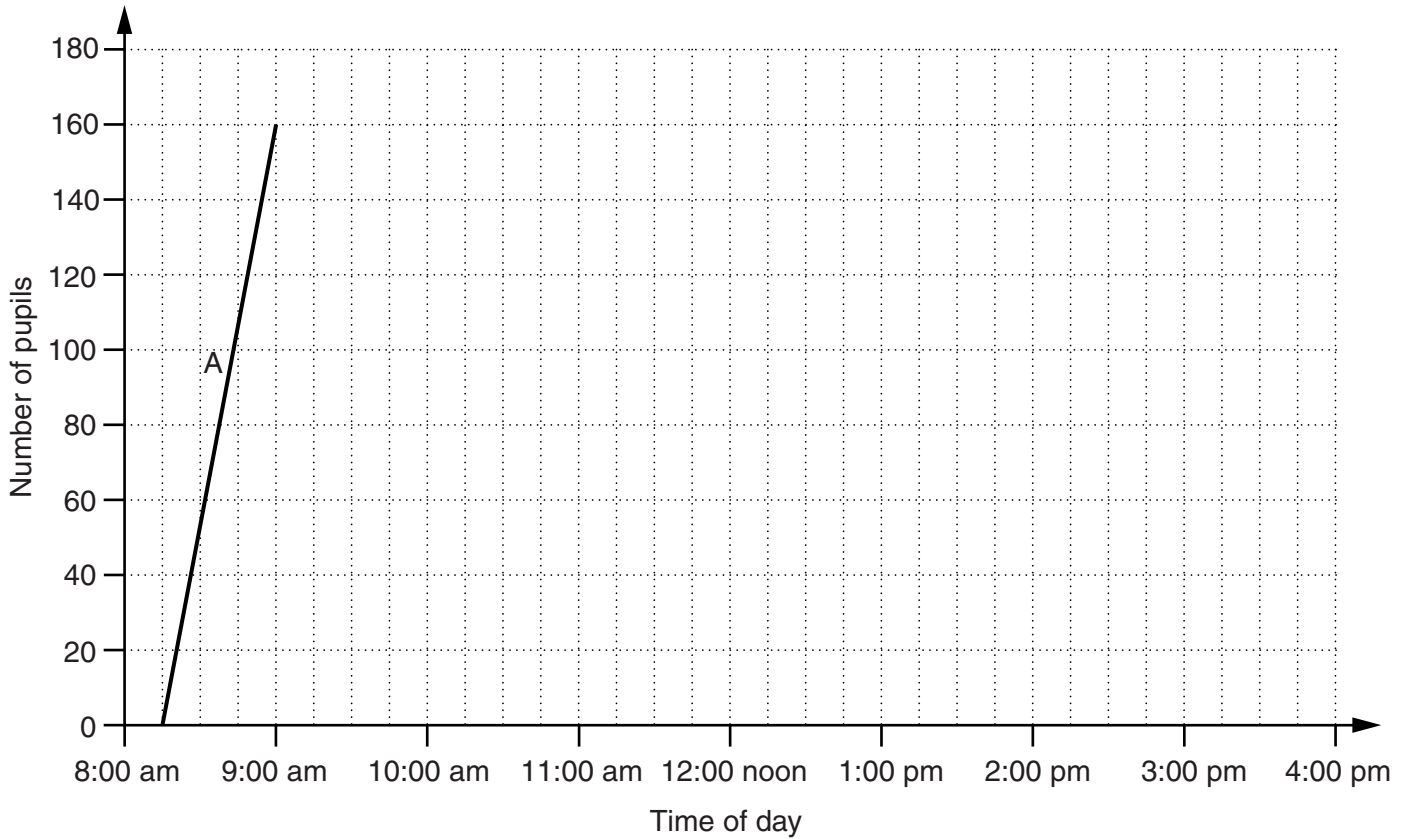
Carl _____ m [2]

- (ii) Which estimate in part (c)(i) is likely to be closer to the actual distance jumped? Explain why.

_____ because _____

_____ [2]

- 10 A primary school has 180 pupils.
The headteacher records the number of pupils at the school throughout the course of one day.
She shows the results on a graph.



Complete the graph using the descriptions in the table.
Section A has been drawn for you.

| Section | Description |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A | The school opens at 8:15 am and 160 pupils have arrived by 9:00 am. |
| B | All 180 pupils have arrived by 10:00 am. |
| C | All the pupils stay in school until lunchtime at 12:00 noon. At this time, half of the pupils leave the school to go home for lunch. They have all returned by 1:00 pm. |
| D | All pupils stay in school until it finishes at 3:00 pm. All the pupils have left by 3:30 pm. |

[5]

- 11 (a) Write down the smallest whole number that satisfies this inequality.

$$a > 5.3$$

(a) _____ [1]

- (b) Solve this inequality.

$$3x - 2 > 10$$

(b) _____ [2]

- 12 (a) Write down the value of 6^2 as an ordinary number.

(a) _____ [1]

- (b) Show that this statement is true.

$$\frac{5^7}{5^4} > 6^2$$

_____ [2]

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