Factors, Multiples, Primes (number properties) (H)

A collection of 9-1 Maths GCSE Sample and Specimen questions from AQA, OCR, Pearson-Edexcel and WJEC Eduqas.

Name:	
Total Marks:	

1. Give one reason why 0 is an even number.

[1]

2. Marta says

odd square numbers have exactly three factors.

Give one example where this is correct and another where this is not correct.

In each case, write down the number and its factors.

Correct

Not correct

[2]

3. Here are some properties of a number.

- It is a common factor of 288 and 360.
- It is a common multiple of 4 and 6.
- It is larger than 25.

Find the two possible numbers with these properties.

..... and ..... [4]

4. Which of these is not a square number?

Circle your answer.

4×10^2 4×10^6 9×10^3 9×10^4

[1]

5. a, b and c are different prime numbers less than 20

$a = \sqrt{4b + c}$

Work out two possible sets of values of a, b and c.

Set 1 a = _____ b =_____ c =_____

Set 2 a = _____ b =_____ c =_____

[3]

6. Mersenne primes are prime numbers that can be written in the form

$2^n - 1$ where n is a whole number.

For example, 3 can be written as 2^2 - 1

a) Prove that 2^9 - 1 is not a Mersenne prime.

[2]

b) There are Mersenne primes when n = 5 and when n = 7

Ama says,

"The ratio of the indices is 5 : 7

This means the ratio of the Mersenne primes is 5 : 7"

Show that Ama is wrong.

[1]

CREDITS AND NOTES

Q	Awarding Body
1	OCR
2	OCR
3	AQA
4	AQA
5	AQA
6	AQA

Notes:

These questions have been retyped from the original sample/specimen assessment materials and whilst every effort has been made to ensure there are no errors, any that do appear are mine and not the exam board s (similarly any errors I have corrected from the originals are also my corrections and not theirs!).

Please also note that the layout in terms of fonts, answer lines and space given to each question does not reflect the actual papers to save space.

These questions have been collated by me as the basis for a GCSE working party set up by the GLOW maths hub - if you want to get involved please get in touch. The objective is to provide support to fellow teachers and to give you a flavour of how different topics "could" be examined. They should not be used to form a decision as to which board to use. There is no guarantee that a topic will or won't appear in the "live" papers from a specific exam board or that examination of a topic will be as shown in these questions.

Links:

AQA http://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300

OCR http://ocr.org.uk/gcsemaths

Pearson Edexcel http://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html

WJEC Eduqas http://www.eduqas.co.uk/qualifications/mathematics/gcse/

Contents:

This version contains questions from:

AQA – Sample Assessment Material, Practice set 1 and Practice set 2

OCR – Sample Assessment Material and Practice set 1

Pearson Edexcel – Sample Assessment Material, Specimen set 1 and Specimen set 2

WJEC Eduqas – Sample Assessment Material