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

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

Name:	
Total Marks:	

1. Write down the 20th odd number.

[1]

2. Write down all the factors of 20

[2]

3. Write down the value of the 3 in the number 4376

..... [1]

4. Here is a list of numbers

4 7 9 25 27 31 64

From the numbers in the list, write down a cube number.

..... [1]

5. Show that 77 is not a square number.

[2]

6. Here is a list of numbers.

32 33 34 35 36 37 38 39 40

From this list, write down

(i) a multiple of 7,

(i) ..... [1]

(ii) a square number,

(ii) ..... [1]

(iii) a prime number.

(iii) ..... [1]

7. Write down a prime number between 14 and 22.

..... [1]

8. Write down a factor of 15.

..... [1]

9. Find three different numbers that are each

- a prime number
- two less than a square number.

.... [3]

10. Here are six numbers.

5	8	9	15	22	54

From these numbers, find a number that is

(a) a multiple of two and a multiple of three,

(a) ..... [1]

(b) a factor of 30 and a factor of 40.

(b) ..... [2]

11. Here is a list of five numbers.

14 15 16 17 18

From the list,

(i) write down the prime number,

..... [1]

(ii) write down the square number.

..... [1]

12. Write down three different multiples of 4 that add up to 40

..... [2]

13. Adam says,

"When you multiply an even number by an odd number the answer is always an odd number."

(a) Write down an example to show Adam is wrong.

.....
.....[1]

Betty says,

"When you multiply two prime numbers together the answer is always an odd number."

(b) Betty is wrong. Explain why.

.....
.....

.....
.....[2]

14. Jan writes down

one multiple of 9

and two different factors of 40

Jan adds together her three numbers.

Her answer is greater than 20 but less than 30

Find three numbers that Jan could have written down.

..... [3]

15. Here are some properties of numbers.

A Even

B Odd

C Prime

D Square

E Two-digit

(a) Which two properties does the number 4 have?

Circle the correct letters.

A B C D E

[1]

(b) Can one number have all of the properties?

Tick a box.

Yes No Cannot tell

Give a reason for your answer.

[1]

(c) Write down a number with three of the properties.

State which properties it has.

Number _____

Properties _____ _____ _____

[2]

16. Write down an even number that is a multiple of 7

..... [1]

17. Write down three different factors of 18 that add together to give a prime number.

.... [2]

18. Which of these numbers is one more than a multiple of 5?

Circle your answer.

[1]

15 19 26 30

19. Which of these numbers has exactly three factors?

Circle your answer.

[1]

3 4 5 6

20. Lucy says,

"3 is odd and 2 is even, so when you add a multiple of 3 to a multiple of 2 the answer is always odd."

Is she correct?

Write down a calculation to support your answer.

[1]

21. Which of these is a cube number?

Circle your answer.

[1]

3 9 27 100

22. When $x^2 = 16$ the only value that x can be is 4

Is this true or false?

Tick a box.

True ☐ False ☐

[1]

Reason:

23. Liam says,

"If you divide any multiple of 10 by 2 the answer always ends in 5"

Is he correct?

Write down a calculation to support your answer.

[1]

24. Write down all the factors of 18

[2]

25. I am thinking of a prime number.

Its digits add up to a square number.

Write down a prime number that I could be thinking of.

[2]

26. From the numbers

27 13 9 10 48 8

write down

a multiple of 5,

..... [1]

a prime number,

..... [1]

the value of 3^3,

..... [1]

$\sqrt{64}$.

..... [1]

27. (a) Write the number 7 500 000 in words.

[1]

(b) What is the value of the 9 in the number 239 815.

[1]

(c) Using all the digits 6 7 3 8 write down the smallest odd number.

[1]

28. Is the following statement true or false?

'Every whole number that ends in a 3 is a prime number'.

You must give a full explanation for your decision.

[1]

29. Circle the numbers that are multiples of both 3 and 4.

10 11 12 13 14 15

16 17 18 19 20

21 22 23 24

[2]

30. Bernard says: *"When you halve a whole number that ends in 8, you always get a number that ends in 4"*

(a) Write down an example to show that Bernard is wrong.

.....

.....[1]

Alice says: *"Because 7 and 17 are both prime numbers, all whole numbers that end in 7 are prime numbers."*

(b) Is Alice correct?

You must give a reason with your answer.

.....

.....[1]

31. Here is a list of six numbers.

1 3 6 9 12 24

Which number in the list is not a factor of 24?

[1]

32. Here is a list of numbers.

1 2 5 6 12

From the list, write down

(i) a multiple of 4

.....

(ii) a prime number

.....

[2]

33. Here are two numbers.

29 37

Nadia says both of these numbers can be written as the sum of two square numbers.

Is Nadia correct?

You must show how you get your answer.

[3]

34. Circle the number that is not a multiple of 6

[1]

24 76 108 144

35. a) The sum of two square numbers is 180 What are the two square numbers?

[2]

_____ and _____

b) Kim says, "The sum of any two different square numbers is always even." Is she correct?

Write down a calculation to support your answer.

[1]

36. y is a whole number.

Circle the words that describe 5y

[1]

always odd always even could be odd or even

37.

CREDITS AND NOTES

Q	Awarding Body	Q	Awarding Body	Q	Awarding Body
1	Pearson Edexcel	13	Pearson Edexcel	25	AQA
2	Pearson Edexcel	14	Pearson Edexcel	26	WJEC Eduqas
3	Pearson Edexcel	15	AQA	27	WJEC Eduqas
4	Pearson Edexcel	16	Pearson Edexcel	28	WJEC Eduqas
5	OCR	17	Pearson Edexcel	29	WJEC Eduqas
6	OCR	18	AQA	30	Pearson Edexcel
7	OCR	19	AQA	31	
8	OCR	20	AQA	32	
9	OCR	21	AQA	33	
10	OCR	22	AQA	34	AQA
11	Pearson Edexcel	23	AQA	35	AQA
12	Pearson Edexcel	24	AQA	36	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