



GCSE Foundation/Higher 01

Number



Questions



33 minutes



30 marks

Integers

Q1. (a) Write 126 as a product of prime factors.

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.....

Answer

(2)

(b) Work out the Highest Common Factor (HCF) of 72 and 126.

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.....
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Answer

(2)

(Total 4 marks)

Q2. A bag contains only red, blue and yellow counters.
There are three times as many blue counters as yellow counters.
There are 43 counters in the bag.

Some red counters are added to the bag.
There are now 50 counters in the bag.
The number of red counters has doubled.

How many yellow counters are in the bag?

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.....

Answer

(Total 3 marks)

Q3. (a) Write 0.3 as a fraction.

Answer

(1)

(b) Write 4% as a decimal.

Answer

(1)

(Total 2 marks)

Q4. (a) (i) The terms in a sequence are of the form $2p^2$, where p is a prime number.

Show that 8, 18 and 50 are the first three terms in this sequence.

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.....
.....

(2)

(ii) Work out the next term in the sequence.

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Answer

(1)

(b) The smallest number with exactly three **different** prime factors is 30.

$$30 = 2 \times 3 \times 5$$

What is the next smallest number that has exactly three different prime factors?

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Answer

(2)

(Total 5 marks)

Q5. P is a prime number.

Q is an odd number.

State whether each of the following is always odd or always even or could be either odd or even.

Tick the appropriate box.

(a) $P(Q + 1)$

.....

☐

Always odd

☐

Always even

☐

Could be either
odd or even

(1)

(b) $Q - P$

☐

Always odd

☐

Always even

☐

Could be either
odd or even

(1)

(Total 2 marks)

Q6. (a) Find the value of $3x + 5y$ when $x = -2$ and $y = 4$

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Answer

(2)

(b) Find the value of $3a^2 + 5$ when $a = 4$

.....

Answer

(2)

(c) k is an even number.

Jo says that $\frac{1}{2}k + 1$ is always even.

Give an example to show that Jo is wrong.

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(1)

- (d) The letters a and b represent prime numbers. Give an example to show that $a + b$ is **not** always an even number.

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.....

(1)
(Total 6 marks)

Q7. P is an odd number.
 Q is an even number.

- (a) Explain why $P + Q - 1$ is **always** an even number.

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.....
.....

(2)

- (b) Alex says that $P + Q - 1$ **cannot** be a prime number.
Explain why Alex is wrong.

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.....

(1)
(Total 3 marks)

Q8. Football teams are given points after each match they play as shown.

Win	3 points
Draw	1 point
Lose	0 points

- (a) Milly's team has played 10 matches and has been given 17 points.

Work out the **two** ways that her team could have been given 17 points.

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.....

.....

First way

Number of matches won	
Number of matches drawn	
Number of matches lost	

Second way

Number of matches won	
Number of matches drawn	
Number of matches lost	

(2)

- (b) Milly says that after two more matches the total points will still be an odd number.

Explain why she may **not** be correct.

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(1)

(Total 3 marks)

- Q9.** Prove that the sum of any two consecutive numbers is always an odd number.

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(Total 2 marks)

