

ODD AND EVEN

OCR GSCE – Tuesday 11 June 2019 – Paper 6 (Calculator) Higher Tier

1.

13 Prove that the mean of any four **consecutive** even integers is an integer. **[4]**

OCR GSCE – Thursday 8 June 2017 – Paper 5 (Non - Calculator) Higher Tier

2.

21 n is an integer.

(a) Explain why $2n + 1$ is an odd number.

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

(b) Prove that the difference between the squares of two **consecutive** odd numbers is a multiple of 8.

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.....
.....
.....
.....
..... **[5]**

OCR GCSE – Sample Papers – Paper 4 (Calculator) Higher Tier

3.

11 (a) Give **one** reason why 0 is an even number.

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

(b) The lengths of the sides of a **right-angled** triangle are all integers.

Prove that if the lengths of the two shortest sides are even, then the length of the third side must also be even.

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.....
.....
.....
.....
..... [3]

OCR GCSE – Sample Papers – Paper 6 (Calculator) Higher Tier

4.

8 (a) Prove that the sum of four consecutive whole numbers is always even. [3]

(b) Give an example to show that the sum of four consecutive integers is **not** always divisible by 4.

..... [2]

AQA GCSE – Thursday 6 June 2019 – Paper 2 (Calculator) Higher Tier

5.

- 14** Ali and Mel are making 3-digit codes.
The digit 0 is **not** used.
Ali only uses odd digits.
Mel only uses even digits.

- 14 (a)** Ali can make x more codes than Mel.
Assume that digits **cannot** be repeated.

Work out the value of x .

[3 marks]

Answer _____

- 14 (b)** In fact, digits **can** be repeated.
What does this tell you about the actual value of x ?
Tick **one** box.

[1 mark]

- It is bigger than my answer to part (a)
- It is smaller than my answer to part (a)
- It is the same as my answer to part (a)

AQA GCSE – Thursday 8 November 2018 – Paper 2 (Calculator) Higher Tier

6.

17 a is a prime number.

b is an even number.

$$N = a^2 + ab$$

Circle the correct statement about N .

[1 mark]

could be
even or odd

always even

always prime

always odd

AQA GCSE – Sample Paper 2 (Calculator) Higher Tier

7.

16 c is a positive integer.

Prove that $\frac{6c^3 + 30c}{3c^2 + 15}$ is an even number.

[3 marks]
