

Q1. Tarish says,

'The sum of two prime numbers is always an even number'.

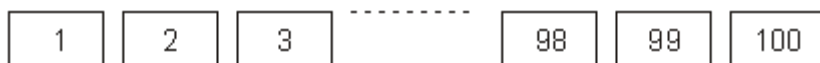
He is **wrong**.

Explain why.

.....
.....

(Total 2 marks)

Q2.



The diagram represents 100 cards. Each card has a whole number from 1 to 100 on it.
No cards have the same number.

Bill puts a red dot on every card which has a multiple of 6 on it.
Parul puts a green dot on every card which has a multiple of 9 on it.

All the cards are placed in a bag.
Vicki selects a card at random.

What is the probability that the card has both a red and a green dot on it?

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(Total 3 marks)

M1.

Answer	Mark	Additional Guidance
2 + 'prime number' is odd	2	<p>M1 for a counter example showing intent to add 2 and another prime number; ignore incorrect examples</p> <p>A1 for a correctly evaluated counter example with no examples given that involve either non-primes or incorrect evaluation</p> <p>Alternative method</p> <p>B2 for fully correct explanation '2 is a prime number, odd + even (or 2) = odd' oe with no accompanying incorrect statements or examples</p> <p>(B1 for '2 is a prime number' or recognition that not all prime numbers are odd or odd + even (or 2) = odd; ignore incorrect examples or statements)</p>
Total for Question: 2 marks		

M2.

Working	Answer	Mark	Additional Guidance
Reds 6, 12, 18, 24, 30... Greens 9, 18, 27...	$\frac{1}{20}$	3	<p>B1 list of red and green multiples (both to at least 18) or explicitly states 'LCM'</p> <p>B1 works out highest number (90 seen)</p>

Total for Question: 3 marks

- E1.** Many candidates thought that 1 was a prime number. Others had trouble with the word “sum”, misinterpreting it as product.

Successful candidates usually offered a correct counter example, frequently $2 + 3 = 5$, and often backed this up by a written explanation. On occasions, a correct counter-example worthy of full marks was spoiled by further embellishment including incorrect statements or other examples involving non-primes.