


Question 1. (AQA June 2004 Intermediate Paper 2 Calculator OK)

(a) 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.	(b) The letters a and b represent prime numbers. Give an example to show that $a + b$ is not always an even number.
[1 mark]	[1 mark]

Question 2. (AQA June 2006 Intermediate Paper 2 Calculator OK)

Hassan says



When you square a positive number the answer is always bigger than the original number.

For example $2.5^2 = 6.25$ and 6.25 is bigger than 2.5

Find an example to show that Hassan is wrong.
You **must** show your working.

[2 marks]

Question 3. (AQA June 2003 Intermediate Paper 1 NO Calculator)

p is an odd number. Explain why $p^2 + 1$ is always an even number.
[2 marks]

Question 4. (AQA June 2004 Intermediate Paper 1 NO Calculator)

Tom, Sam and Matt are counting drum beat. Tom hits a snare drum every 2 beats. Sam hits a kettle drum every 5 beats. Matt hits a bass drum every 8 beats.	How many beats is it before Tom, Sam and Matt next hit their drums at the same time?
They start by hitting their drums at the same time.	[2 marks]

Question 5. (AQA November 2004 Intermediate Paper 2 Calculator OK)

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) $P(Q + 1)$
<div>Always odd <input type="checkbox"/></div> <div>Always even <input type="checkbox"/></div> <div>Could be either odd or even <input type="checkbox"/></div>
(b) $Q - P$
<div>Always odd <input type="checkbox"/></div> <div>Always even <input type="checkbox"/></div> <div>Could be either odd or even <input type="checkbox"/></div>
(1 mark)

Question 6. (AQA June 2003 Intermediate Paper 1 NO Calculator)

(a) Work out the value of $5^7 \div 5^4$	(b) a and b are prime numbers. $ab^3 = 54$ Find the values of a and b .
[2 marks]	[2 marks]
(c) Find the Highest Common Factor (HCF) of 54 and 135.	[2 marks]

Question 7. (AQA June 2005 Intermediate Paper 1 NO Calculator)

(a) Write 18 as the product of its prime factors.	(b) What is the least common multiple (LCM) of 12 and 18?
[2 marks]	[1 mark]