

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

<p>(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.</p>	<p>(b) The letters a and b represent prime numbers. Give an example to show that $a + b$ is not always an even number.</p>
[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>p is an odd number. Explain why $p^2 + 1$ is always an even number.</p>
[2 marks]

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

<p>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.</p> <p>They start by hitting their drums at the same time.</p>	<p>How many beats is it before Tom, Sam and Matt next hit their drums at the same time?</p>
	[2 marks]

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

<p>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.</p>		
<p>(a) $P(Q + 1)$</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"><input type="checkbox"/> Always odd</div> <div style="text-align: center;"><input type="checkbox"/> Always even</div> <div style="text-align: center;"><input type="checkbox"/> Could be either odd or even</div> </div>	[1 mark]	
<p>(b) $Q - P$</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"><input type="checkbox"/> Always odd</div> <div style="text-align: center;"><input type="checkbox"/> Always even</div> <div style="text-align: center;"><input type="checkbox"/> Could be either odd or even</div> </div>	[1 mark]	

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

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

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

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