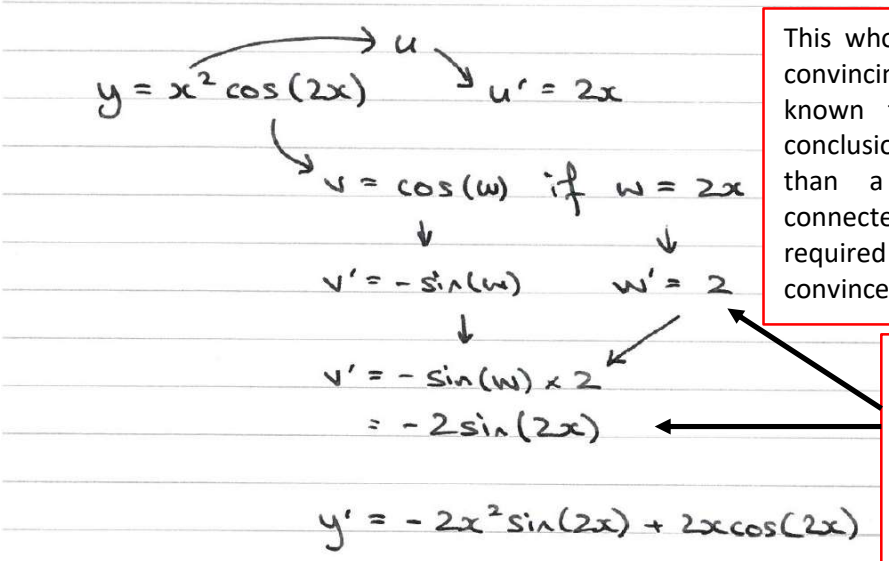
Question 1

The variables y and x are related as follows:

$$y = x^2 \cos(2x)$$

a) Find $\frac{dy}{dx}$.

(A)



This whole thing should take the form of a convincing argument that starts with the known facts and finishes with a logical conclusion. This, however, is nothing more than a string of expressions/equations connected by *meaningless arrows*. Words are required to elucidate the argument and convince the reader of the validity of the logic.

If w' is taken to mean $\frac{dw}{dx}$ then it must follow that $v' = \frac{dv}{dx}$. However, it appears that $v' = \frac{dv}{dw}$. So does the 'prime' denote differentiation with respect to x or w? It is one or the other, but certainly not both.

$\frac{dy}{dx} =$ $-2x^2\sin(2x) + 2x\cos(2x)$

Evidence of checking

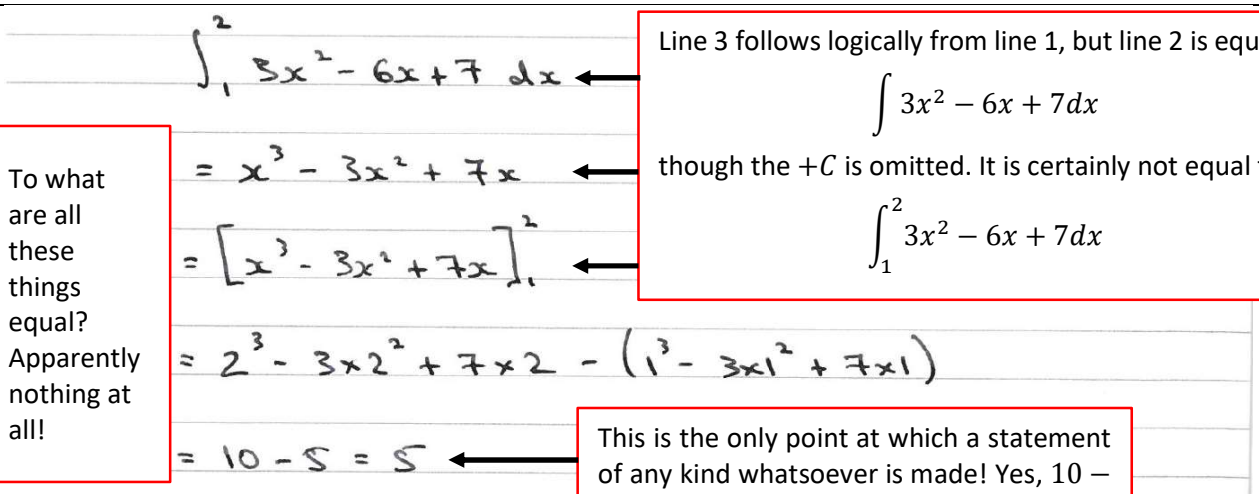
Delete this text and use this space to present evidence that you have checked your answer. Make this row as deep as is necessary to contain your work.

Comment on evidence

Replace this text and use this space to explain why you believe your check confirms your result. Make this row as deep as is necessary to contain your work.

b) Evaluate $\int_1^2 (3x^2 - 6x + 7)dx$.

(A)



Line 3 follows logically from line 1, but line 2 is equal to

$$\int 3x^2 - 6x + 7dx$$

though the $+C$ is omitted. It is certainly not equal to

$$\int_1^2 3x^2 - 6x + 7dx$$

To what are all these things equal? Apparently nothing at all!

This is the only point at which a statement of any kind whatsoever is made! Yes, $10 - 5$ is indeed equal to 5. Everything above is a meaningless string of symbols since no attempt has been made to relate any one expression to another.

$\int_1^2 (3x^2 - 6x + 7)dx =$	**5**

Evidence of checking

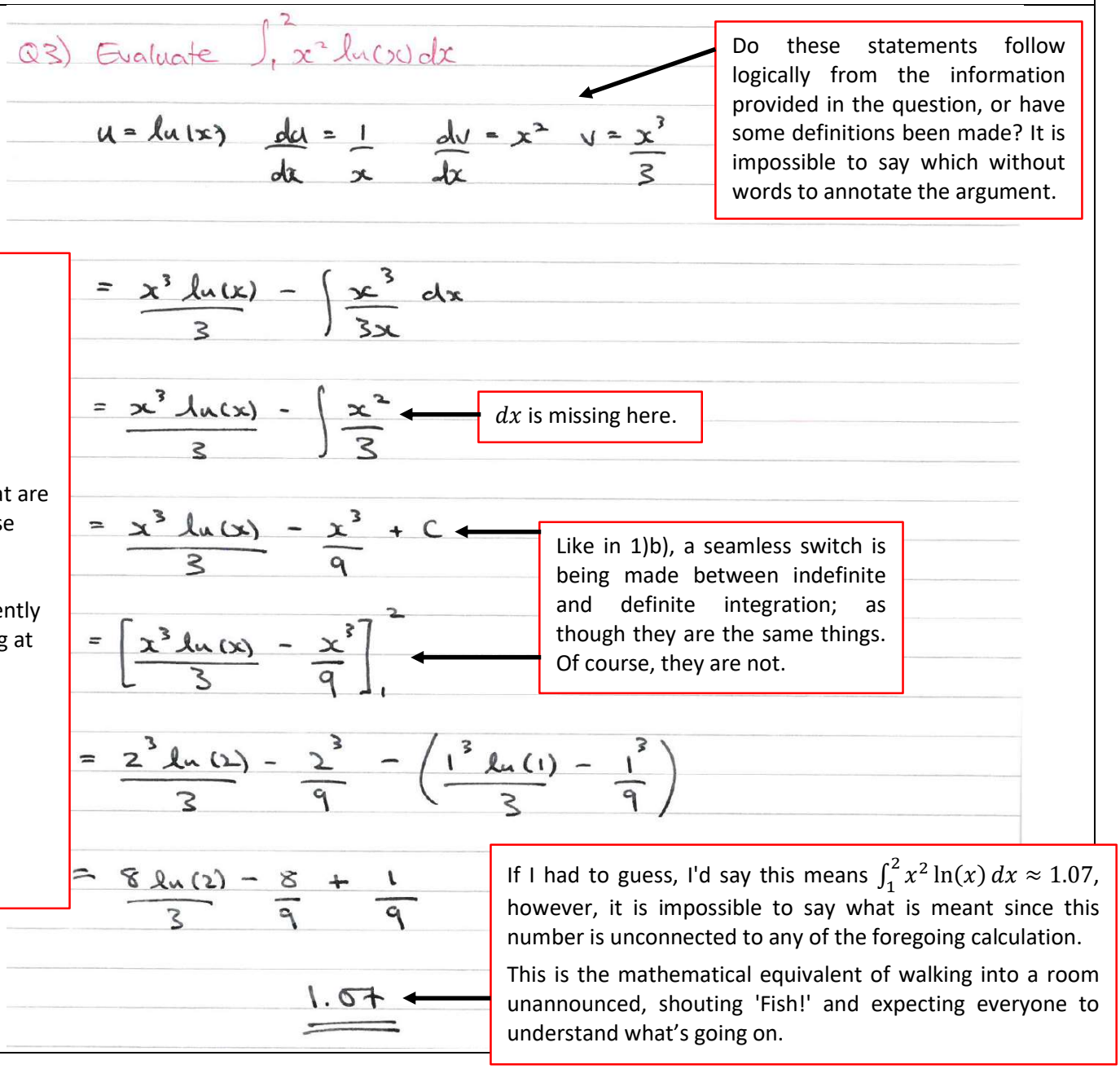
Delete this text and use this space to present evidence that you have checked your answer. Make this row as deep as is necessary to contain your work.

Comment on evidence

Replace this text and use this space to explain why you believe your check confirms your result. Make this row as deep as is necessary to contain your work.

c) Evaluate $\int_1^2 x^2 \ln(x)\, dx$.

(B)



Do these statements follow logically from the information provided in the question, or have some definitions been made? It is impossible to say which without words to annotate the argument.

dx is missing here.

Like in 1)b), a seamless switch is being made between indefinite and definite integration; as though they are the same things. Of course, they are not.

To what are all these things equal? Apparently nothing at all!

If I had to guess, I'd say this means $\int_1^2 x^2 \ln(x)\, dx \approx 1.07$, however, it is impossible to say what is meant since this number is unconnected to any of the foregoing calculation.

This is the mathematical equivalent of walking into a room unannounced, shouting 'Fish!' and expecting everyone to understand what's going on.

$\int_1^2 x^2 \ln(x)\, dx =$	**1.07**
Evidence of checking	
Delete this text and use this space to present evidence that you have checked your answer. Make this row as deep as is necessary to contain your work.	
Comment on evidence	
Replace this text and use this space to explain why you believe your check confirms your result. Make this row as deep as is necessary to contain your work.	