

1. Nov/2021/Paper_9709/31/No.6

When $(a + bx)\sqrt{1 + 4x}$, where a and b are constants, is expanded in ascending powers of x , the coefficients of x and x^2 are 3 and -6 respectively.

Find the values of a and b .

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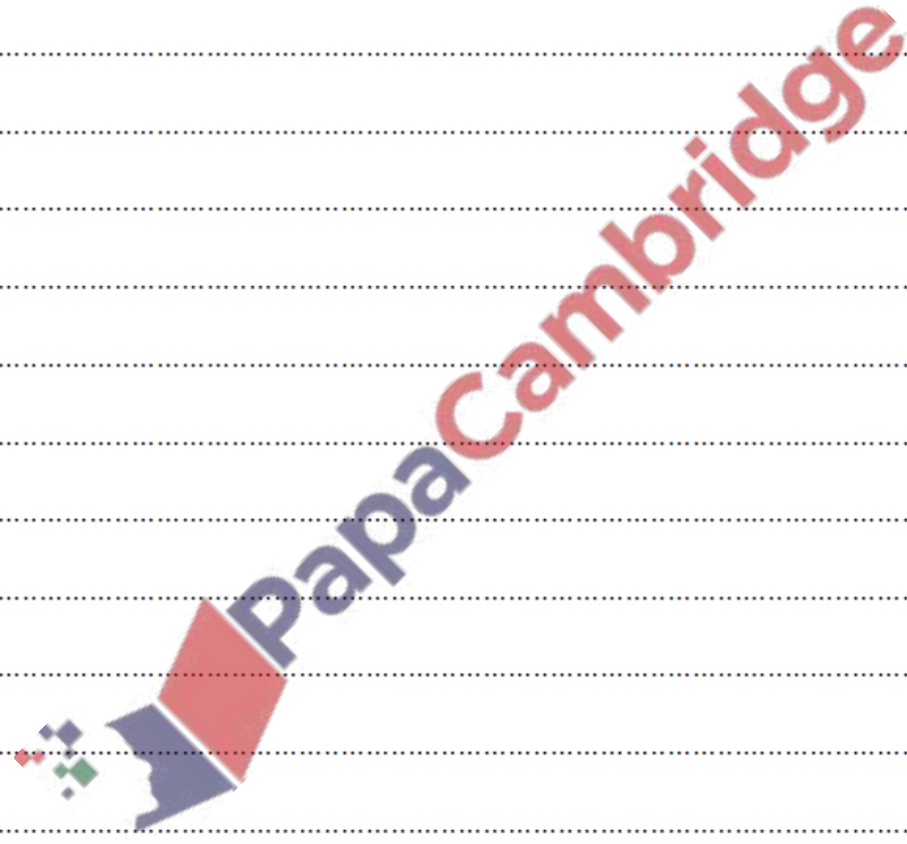
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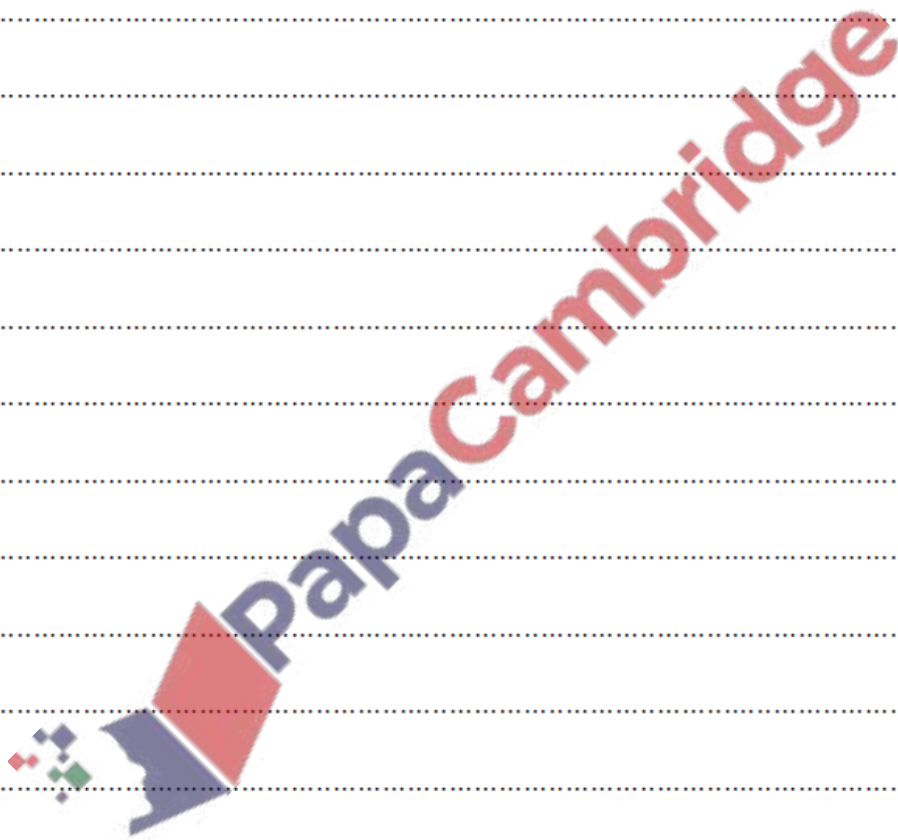
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Find the exact value of $\int_{\frac{1}{3}\pi}^{\pi} x \sin \frac{1}{2}x \, dx$.

[5]



3. Nov/2021/Paper_9709/32/No.6(a)

(a) Using the expansions of $\sin(3x + 2x)$ and $\sin(3x - 2x)$, show that

$$\frac{1}{2}(\sin 5x + \sin x) \equiv \sin 3x \cos 2x.$$

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