

10  $O$ ,  $A$  and  $B$  are fixed points such that

$$\vec{OA} = (b+1)\mathbf{i} + b\mathbf{j}$$

$$\vec{AB} = 3\mathbf{i}$$

The unit vector parallel to  $\vec{OB}$  is  $\frac{\sqrt{17}}{34}[(3a+2)\mathbf{i} + b\mathbf{j}]$

Given that  $a$  and  $b$  are constants where  $a > 0$  and  $b > 0$

find the exact value of

(i)  $a$

(ii)  $b$

(10)

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**Question 10 continued**

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**Question 10 continued**

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**Question 10 continued**

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**(Total for Question 10 is 10 marks)**

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