

2

Cosine rule in triangle ABC

$$AC^2 = 5^2 + 6^2 - 2 \times 5 \times 6 \cos 60^\circ = 31$$

Sine rule in triangle ACD

$$\frac{AD}{\sin 60^\circ} = \frac{AC}{\sin 45^\circ}$$

$$AD = \frac{\sqrt{3}}{2} \times \sqrt{31} \times \sqrt{2} = \frac{1}{2} \sqrt{186}$$

M1**1.1a**

attempt to use the cosine rule

A1**1.1**

Need not be evaluated soi

M1**1.1a**Using their AC (not AC^2 in sine rule)**A1****1.1**

oe. Must be surd form FT their AC

[4]