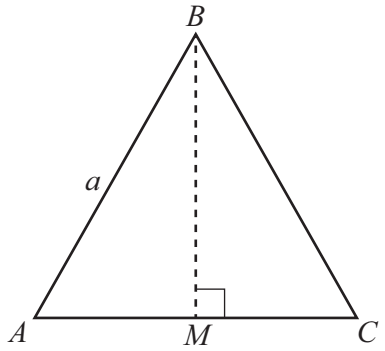
6 (a)



The diagram shows an equilateral triangle ABC with side a.
M is the midpoint of AC and angle $AMB = 90°$.

Use the diagram to find $\sec 30°$. [3]

(b) Show that $\dfrac{1}{\sec x - 1} + \dfrac{1}{\sec x + 1}$ can be written as $2\,\mathrm{cosec}\,x \cot x$. [4]

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7 The point O is the origin.
Two points P and Q are such that $\overrightarrow{PQ}$ is in the same direction as $-\mathbf{i}+5\mathbf{j}$.

(a) The point R is such that $\overrightarrow{OR}$ is in the same direction as $\overrightarrow{PQ}$ and the magnitude of $\overrightarrow{OR}$ is $3\sqrt{26}$.

Find $\overrightarrow{OR}$. [3]

(b) $\overrightarrow{OP}$ is in the same direction as $2\mathbf{i}-3\mathbf{j}$ and $\overrightarrow{OQ}=10\mathbf{i}+6\mathbf{j}$.

Find $\overrightarrow{OP}$. [4]

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