## Question 5

(a) (i) The lengths of the sides of a right-angled triangle are given by the expressions $x-1,4 x$, and $5 x-9$, as shown in the diagram. Find the value of $x$.


(ii) Verify, with this value of $x$, that the lengths of the sides of the triangle above form a pythagorean triple.

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(b) (i) Show that $f(x)=3 x-2$, where $x \in \mathbb{R}$, is an injective function.

(ii) Given that $f(x)=3 x-2$, where $x \in \mathbb{R}$, find a formula for $f^{-1}$, the inverse function of $f$. Show your work.


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