Q. 3 If $f, g : R \to R$ be defined by $f(x) = 2x + 1$ and $g(x) = x^2 - 2, \forall\ x \in R$, respectively. Then, find *gof*.

Thinking Process

If $f, g : R \to R$ be two functions, then $gof(x) = g\{f(x)\}\ \forall x \in R$.

Sol. Given that, $f(x) = 2x + 1$ and $g(x) = x^2 - 2, \forall x \in R$

$\therefore$
$$\begin{aligned} gof &= g\{f(x)\} \\ &= g(2x + 1) = (2x + 1)^2 - 2 \\ &= 4x^2 + 4x + 1 - 2 \\ &= 4x^2 + 4x - 1 \end{aligned}$$