Find $\dfrac{d}{dx} \displaystyle\int_0^{x^2} \cos t \, dt$.

Find $\dfrac{d}{dx}\displaystyle\int_0^{x^2}\cos t\, dt$.

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$\dfrac{d}{dx}\displaystyle\int_0^{x^2}\cos t\, dt$

$= \cos(x^2)\cdot 2x$

$= 2x\cos(x^2)$