60 If the demand function for a product is given by :-

$$p^2(2q+1) = 100000$$

find the rate of change of quantity with respect to price when $p = 50\$$. Interpret this result

$$p^2(2q') + (2q+1)(2p) = 0$$

$$\rightarrow 2p^2q' + 4qp + 2p = 0$$

$$\frac{2p^2}{2p^2}q' = \frac{-4qp-2p}{2p^2} = \frac{-4qp-2p}{2p^2}$$

$$\therefore q' = \frac{-4qp-2p}{2p^2} = \frac{-2p(2q+1)}{2p^2}$$

$$\rightarrow \boxed{q' = -(2q+1)}$$

$$\frac{-(2(19.5)+1)}{50} = \boxed{-0.8}$$

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