

Q The equation of the curve passing through origin & satisfying the differential eq.  $(1+x^2)\frac{dy}{dx} + 2xy = 4x^2$  is

$$(1+x^2)\frac{dy}{dx} + 2xy = 4x^2$$

$$\int d[(1+x^2)y] = \int 4x^2 dx$$

$$(1+x^2)y = \frac{4x^3}{3} + C$$

It passes through  $(0,0)$

$$\Rightarrow C = 0$$

$$\Rightarrow \boxed{3y(1+x^2) = 4x^3}$$