$3e^{yx^3} yx^2 + e^{yx^3} x^3 y' + 2x\cos x^2 = 3y^2 y'$

$3e^{yx^3} yx^2 + e^{yx^3} x^3 y' + 2x\cos x^2 - (3e^{yx^3} yx^2 + 2x\cos x^2) =$

$= 3y^2 y' - (3e^{yx^3} yx^2 + 2x\cos x^2)$

$e^{yx^3} x^3 y' = 3y^2 y' - 3e^{yx^3} yx^2 - 2x\cos x^2 - 3y^2 y'$

$e^{yx^3} x^3 y' = -3e^{yx^3} yx^2 - 2x\cos x^2 \;/ e^{yx^3} x^3 - 3y^2$

$$\frac{y'(e^{yx^3} x^3 - 3y^2)}{e^{yx^3} x^3 - 3y^2} = -\frac{3e^{yx^3} yx^2}{e^{yx^3} x^3 - 3y^2} - \frac{2x\cos x^2}{e^{yx^3} x^3 - 3y^2}$$

$$y' = \frac{-3e^{yx^3} yx^2 - 2x\cos x^2}{e^{yx^3} x^3 - 3y^2} \qquad \frac{dy}{dx} = \frac{-3e^{yx^3} yx^2 - 2x\cos x^2}{e^{yx^3} x^3 - 3y^2}$$

② $\vec{p} = 2i + k \qquad \vec{q} = i - 2j + k \qquad \vec{r} = -2i + 4j - 3k.$

$$(\vec{q} \times \vec{r}) = \begin{vmatrix} i & j & k \\ 1 & -2 & 1 \\ -2 & 4 & -3 \end{vmatrix} \Rightarrow i(6-4) - j(-3+2) + k(4-4) = 2i - j$$

$$\vec{p} \times (\vec{q} \times \vec{r}) \begin{vmatrix} i & j & k \\ 2 & 0 & 1 \\ 2 & 1 & 0 \end{vmatrix} = i(0-1) - j(0-2) + k(2+0) = -i + 2j + 2k$$

$$\left|\vec{p} \times (\vec{q} \times \vec{r})\right| = \sqrt{1+4+4} = \sqrt{9} = 3$$