Warm-up

Implicit Differentiation

3. Find $\frac{dy}{dx}$ if $3xy = 4x + y^2$

4. Find $\frac{dy}{dx}$ if $e^{x+y} = y$

3. Find $\frac{dy}{dx}$ if $3xy = 4x + y^2$

A) $\frac{4-3y}{3x-2y}$ B) $\frac{3x-4}{2x}$ C) $\frac{3y-x}{2}$

D) $\frac{4-3y}{2y-3x}$ E) $\frac{4+3y}{2y+3x}$

4. Find $\frac{dy}{dx}$ if $e^{x+y} = y$

A) $\frac{e^{x+y}}{1-e^{x+y}}$ B) $\frac{e^{x+y}}{1+e^{x+y}}$ C) $\frac{e^{x+y}}{e^{x+y}-1}$

D) e^{x+y} E) $2e^{x+y}$

16. If $x^2 + y^2 = 6$, then $\dfrac{d^2y}{dx^2} =$

(A) $\dfrac{-6}{y^3}$

(B) $-\dfrac{(x^2 + y^2)}{y^3}$

(C) $\dfrac{6}{y^3}$

(D) $\dfrac{6}{y^2}$

(E) $\dfrac{x - y}{y^2}$

Find $\frac{d^2y}{dx^2}$, for the equation $x^{\frac{7}{3}} + y^{\frac{7}{3}} = 5$