

INSTITUTO TECNOLÓGICO SUPERIOR DE SAN ANDRÉS TUXTLA

Ingeniería en Gestión Empresarial

Cálculo Diferencial

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Semestre 1 107-C

Tema: Ejercicios (Productos notables)

Fecha: 20 / Septiembre / 2024

18 / 09 / 2024

$$a^2 + 2ab + b^2$$

$$a^2 + b^2$$

$$\times \frac{a^2 + b^2}{a^2 + b^2}$$

$$(a^2)^2 + 2(a^2)(b^2) + (b^2)^2$$

$$a^4 + 2a^2b^2 + b^4$$

$$\left(\frac{2}{4}a + \frac{5}{2}b\right)^2 = \left(\frac{1}{2}a + \frac{5}{2}b\right)^2 = \left(\frac{a}{2} + \frac{5b}{2}\right)^2$$

$$\left(\frac{a}{2}\right)^2 + 2\left(\frac{a}{2}\right)\left(\frac{5b}{2}\right) + \left(\frac{5b}{2}\right)^2$$

$$\frac{a^2}{4} + \frac{10ab}{4} + \frac{25b^2}{4}$$

$$\frac{1}{4}(a^2 + 10ab + 25b^2)$$

$$a^2 + 2ab + b^2$$

$$= \frac{a^2}{4} + \frac{10ab}{4} + \frac{25b^2}{4}$$

$$= \frac{1}{4}(a^2 + 10ab + 25b^2)$$

$$\left(\frac{\sqrt{x}}{y} + \frac{\sqrt{y}}{x}\right)^2 = \left(\frac{\sqrt{x}}{y}\right)^2 + 2\left(\frac{\sqrt{x}}{y}\right)\left(\frac{\sqrt{y}}{x}\right) + \left(\frac{\sqrt{y}}{x}\right)^2$$

$$\frac{x}{y^2} + 2\left(\frac{\sqrt{xy}}{xy}\right) + \frac{y}{x^2}$$

$$\frac{x}{y^2} + \frac{2}{\sqrt{xy}} + \frac{y}{x^2}$$

$$\left(\frac{3\sqrt{x^3}}{u} + \frac{\sqrt[3]{x}}{2u^3}\right)^2 = \left(\frac{3x^{\frac{3}{2}}}{u}\right)^2 + 2\left(\frac{3x^{\frac{3}{2}}}{u}\right)\left(\frac{x^{\frac{1}{3}}}{2u^3}\right) + \left(\frac{x^{\frac{1}{3}}}{2u^3}\right)^2$$

$$\left(\frac{3x^{\frac{3}{2}}}{u} + \frac{x^{\frac{1}{3}}}{2u^3}\right)^2$$

$$\frac{9x^3}{u^2} + 2\frac{3x^{\frac{3}{2}+\frac{1}{3}}}{2u^4} + \frac{x^{\frac{2}{3}}}{4u^6}$$

$$\frac{9x^3}{u^2} + \frac{3x^{\frac{11}{6}}}{u^4} + \frac{x^{\frac{2}{3}}}{4u^6}$$

$$\frac{3}{2} \times \frac{2}{1} = \frac{6}{2} = 3$$

Cancelar máxima
común divisor

$$x^m \cdot x^n = x^{m+n}$$

$$\frac{3}{2} + \frac{1}{3} = \frac{11}{6}$$

$$(x^m)^n = x^{m \cdot n}$$

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$