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Nombre del tema: problemario

Nombre de la Materia: calculo

Nombre de bachillerato: Enfermería

Semestre: 4

Problemas

$$1. y = 2x^3 - 3x + 9$$

$$2x^3 = 2 \cdot 3x^2 = 6x^2 \quad \frac{dy}{dx} = 6x^2 - 3$$

$$-3x = -3$$

$$9 = 0$$

$$2. y = \frac{4}{x^2} = 4x^{-2}$$

$$4x^{-2} = 4 \cdot (-2)x^{-3} = -8x^{-3} \quad \frac{dy}{dx} = \frac{8}{x^3}$$

$$3. y = \frac{5}{4+x^2}$$

$$y = 5(4+x^2)^{-1}$$

$$\frac{dy}{dx} = 5 \cdot (-1)(4+x^2)^{-2} \cdot (2x) = -\frac{10x}{(4+x^2)^2} \quad \frac{dy}{dx} = \frac{10x}{(4+x^2)^2}$$

$$4. y = x + \frac{2}{x} = y = x + 2x^{-1}$$

$$x = 1 \quad \frac{dy}{dx} = 1 - \frac{2}{x^2}$$

$$2x^{-1} = 2 \cdot (-1)x^{-2} = -2x^{-2}$$

$$5. y = (a - bx)^2$$

$$\frac{dy}{dx} = 2(a - bx)(-b) = -2b(a - bx)$$

$$6. y = \frac{2}{x^2 + 4} \quad y = 2(x^2 + 4)^{-1}$$

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

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

$$7. y = (1 + 2x)^2$$

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

$$8. y = \frac{2-x}{x-2} \quad \frac{dy}{dx} = \frac{y \cdot u' - u \cdot v'}{v^2}$$

$$u = 2 - x = u' = -1 \quad \frac{dy}{dx} = \frac{(x-2)(-1) - (2-x)(1)}{(x-2)^2}$$

$$v = x - 2 = v' = 1 \quad -(x-2) - (2-x) = -x + 2 - 2 + x = 0$$

$$\frac{dy}{dx} = 0$$