Differentiation Quiz

Use the rules for differentiation to find $\frac{dy}{dx}$ (no t's in your answers.)

1. $y = 4x^3 + 3x + 2$ — 1. _____

2. $y = \sqrt{u}, \quad u = \sin v, \quad v = x^3 - 1$ — 2. _____

3. $y = \log 3x - 10^x - \cos x + (3x + 5)^4$ — 3. _____

4. $y = \sin t, \quad x = \cos t$ — 4. _____

5. $y = \tan^3(2x - 4)$ — 5. _____

6. $x^4 - 5xy + 6y^4 = 212$ — 6. _____

7. $y = \frac{5}{\left(x^2 - 4\right)^3}$ — 7. _____

8. $y = (x + 4)^{10}(3x - 1)$ — 8. _____

9. $y = \frac{(2x+1)^3 (3x-4)^8}{3x-4}$ — 9. _____

10. $e^{3x} y = (\sec x)^2$ — 10. _____

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1. $\underline{12x^2+3}$

2. $\dfrac{3x^2\cos(x^3-1)}{2\sqrt{\sin(x^3-1)}}$

3. $\dfrac{1}{x\ln 10} - 10^x \ln 10 + \sin x + 12(3x+5)^3$

4. $\dfrac{-x}{\sqrt{1-x^2}}$

5. $6\tan^2(2x-4)\sec^2(2x-4)$

6. $\dfrac{5y - 4x^3}{24y^3 - 5x}$

7. $(x+4)^9(10(3x-1)+3(x+4))$
$(x+4)^9(33x+2)$

8. $-30x(x^2-4)^{-4}$ *or* $\dfrac{-30x}{(x^2-4)^4}$

9. *simplify first*
$(2x+1)^2(3x-4)^6(60x-3)$

10. $\dfrac{2\sec^2 x \tan x - 3ye^{3x}}{e^{3x}}$

Differentiation Quiz

Non-Parametric

Use the rules for differentiation to find $\frac{dy}{dx}$ (no t's in your answers.)

1. $y = 4x^3 + 3x + 2$ 1. _____

2. $y = \sqrt{\sin\left(x^3 - 1\right)}$ 2. _____

3. $y = \log 3x - 10^x - \cos x + (3x + 5)^4$ 3. _____

4. $y = \sin(\arccos x)$ 4. _____

5. $y = \tan^3(2x - 4)$ 5. _____

6. $x^4 - 5xy + 6y^4 = 212$ 6. _____

7. $y = \frac{5}{\left(x^2 - 4\right)^3}$ 7. _____

8. $y = (x + 4)^{10}(3x - 1)$ 8. _____

9. $y = \frac{(2x+1)^3 (3x-4)^8}{3x-4}$ 9. _____

10. $e^{3x}y = (\sec x)^2$ 10. _____