

Differentiation Quiz Form A

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

1. $y = 3x^5 - 4x^2 - 15$

1. _____

2. $y = u^3, u = \sin z, z = e^x$

2. _____

3. $y = \ln 5x - 3^x - (4x - 1)^5$

3. _____

4. $y = \tan t, x = \sin t$

4. _____

5. $y = \tan^3(2x + 1)$

5. _____

6. $2x^2 - 7xy^3 + 4y^5 = 128$

6. _____

7. $y = \frac{15x^3 - 5x^2}{5x}$

7. _____

8. $y = (3x - 1)^3(1 + 2x)$

8. _____

9. $y = \frac{(x - 1)(x + 8)}{5x + 1}$

9. _____

10. $3y \sin x = e^{2x}$

10. _____

Answers

1. $15x^4 - 8x$

2. $3e^x (\sin e^x)^2 \cos e^x$

3. $\frac{1}{x} - 3^x \ln 3 - 20(4x-1)^4$

4. $\frac{dy}{dx} = \frac{dy/dt}{dx/dt} = \frac{-\sin t}{-\cos t} = \tan t$, but since $x = -\sin t$, set up a right triangle and find that

$$\tan t = \frac{-x}{\sqrt{1-x^2}}$$

5. $6 \tan^2(2x+1) \sec^2(2x+1)$

6. $\frac{7y^3 - 4x}{20y^4 - 21xy^2}$

7. $6x - 1$

8. $(3x - 1)^2 [24x + 7]$

9. $\frac{5x^2 + 2x + 47}{(5x + 1)^2}$

10. $\frac{-3y \cos x + 2e^{2x}}{3 \sin x}$

Differentiation Quiz A

Non-Parametric

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

1. $y = 3x^5 - 4x^2 - 15$

1. _____

2. $y = \sin^3(e^x)$

2. _____

3. $y = \ln 5x - 3^x - (4x - 1)^5$

3. _____

4. $y = \tan(\arcsin x)$

4. _____

5. $y = \tan^3(2x + 1)$

5. _____

6. $2x^2 - 7xy^3 + 4y^5 = 128$

6. _____

7. $y = \frac{15x^3 - 5x^2}{5x}$

7. _____

8. $y = (3x - 1)^3(1 + 2x)$

8. _____

9. $y = \frac{(x - 1)(x + 8)}{5x + 1}$

9. _____

10. $3y \sin x = e^{2x}$