

Derivative Skills Test Sample

Math 251

Name _____

Find the derivative with respect to x .

1. $y = \frac{-4x^6}{5}$ 1. _____

2. $y = 3x^4 e^{2x}$ 2. _____

3. $y = 8\ln(x-9)$ 3. _____

4. $y = 6 \tan(2x)$ 4. _____

5. $y = x^5 - 3x^7$ 5. _____

6. $y = 3x^{3/4}$ 6. _____

7. $y = \sqrt{9-5x}$ 7. _____

8. $y = 4\sin(7x)$ 8. _____

9. $y = 11x^4 - x^6 + 3x$ 9. _____

10. $y = \frac{x^9}{5x-3}$ 10. _____

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Name _____

Find the derivative with respect to x .

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|----------------------------|---|
| 1. $y = \frac{-4x^6}{5}$ | 1. $\frac{-24x^5}{5}$
$\frac{6x^3 e^{2x}(x+2)}{6x^3 e^{2x}(x+2)}$ |
| 2. $y = 3x^4 e^{2x}$ | 2. $\frac{e^{2x}(6x^4 + 12x^3)}{e^{2x}(6x^4 + 12x^3)}$ |
| 3. $y = 8 \ln(x-9)$ | 3. $\frac{8}{x-9}$ |
| 4. $y = 6 \tan(2x)$ | 4. $\frac{12 \sec^2(2x)}{12 \sec^2(2x)}$ |
| 5. $y = x^5 - 3x^7$ | 5. $\frac{5x^4 - 21x^6}{5x^4 - 21x^6}$ |
| 6. $y = 3x^{3/4}$ | 6. $\frac{\frac{9}{4} x^{-1/4}}{\frac{9}{4} x^{-1/4}} = \frac{9}{4\sqrt[4]{x}}$ |
| 7. $y = \sqrt{9-5x}$ | 7. $\frac{-5}{2\sqrt{9-5x}}$ |
| 8. $y = 4 \sin(7x)$ | 8. $\frac{28 \cos(7x)}{28 \cos(7x)}$ |
| 9. $y = 11x^4 - x^6 + 3x$ | 9. $\frac{44x^3 - 6x^5 + 3}{44x^3 - 6x^5 + 3}$ |
| 10. $y = \frac{x^9}{5x-3}$ | 10. $\frac{40x^9 - 27x^8}{(5x-3)^2}$ |

$$\frac{(5x-3) 9x^8 - x^9 (5)}{(5x-3)^2} = \frac{45x^9 - 27x^8 - 5x^9}{(5x-3)^2}$$