

MATH 122 WORKSHEET 7

Show all work for full credit.

1. Find the derivative $f'(x)$.

$$f(x) = \frac{4}{5x^2} + \ln x + 3^x$$

2. Find the derivative $f'(x)$.

$$f(x) = \ln(5x^6 - 4x^3 + 7)$$

3. Find the derivative $f'(x)$.

$$f(x) = \sqrt[4]{10x^4 + 3x^2 - 5}$$

4. Find the derivative $f'(x)$.

$$f(x) = 5^{x^3+7x^2-1}$$

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5. Find the derivative $f'(x)$.

$$f(x) = \left(\frac{9x^3 + 4x^2}{8x^5 - 2} \right)^7$$

6. Find the derivative $f'(x)$.

$$f(x) = (2x^7 + 3x^3)^{1/3} (6x^5 - 2x^4)^9$$

7. Find the derivative $f'(x)$.

$$f(x) = \frac{\ln(3x^4 + 5x)}{(8x^3 + 7)^4}$$

8. A model for the temperature, T (in $^{\circ}F$), of a typical spring day is given by

$$T(t) = -0.95t^2 + 4.4t + 7.1,$$

where t is hours since noon. At what time will the temperature be *increasing* at a rate of $1.55^{\circ}F/\text{hour}$?