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To receive any credit for the following problems, you must show complete and accurate work. Use proper limit notation and give exact answers unless otherwise noted.

1. Use the Fundamental Theorem of Calculus to determine the exact value of

$$\int_{-1}^5 (2x^5 - 7x^3 - 3x^2 + 5x) dx = \frac{x^6}{3} - \frac{7x^4}{4} - \frac{3x^3}{3} + 5x$$

$$\left( \frac{5^6}{3} - \frac{7(5)^4}{4} - \frac{3(5)^3}{3} + 25 \right) - \left( \frac{(-1)^6}{3} - \frac{7(-1)^4}{4} - \frac{3(-1)^3}{3} - 5 \right)$$

$$\left( \frac{15625}{3} - \frac{875}{1} - \frac{75}{1} + 25 \right) - \left[ \frac{1}{3} + \frac{7}{4} - \frac{3}{3} - 5 \right]$$

$$\frac{29425}{6} + \frac{23}{6}$$

$$4908$$

2. Use the Fundamental Theorem of Calculus to determine the function whose slope is given by  $\sqrt{x^4 + 7}$  and passes through the point  $(-4, 2.3)$

$$F(x) = \int_{-4}^x \sqrt{x^4 + 7} dx + 2.3$$