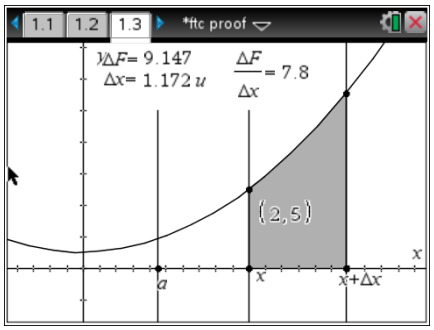
5.4 Fundamental Theorem of Calculus (FTC)

Run ftc proof and answer the questions in the document.



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State both parts of the Fundamental Theorem of Calculus

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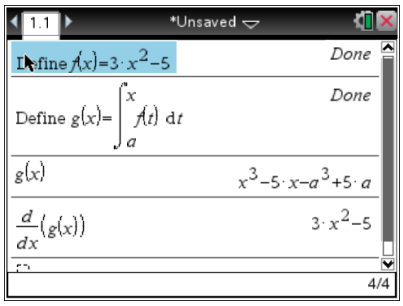
On a calculator page:

Define $f(x) = 3x^2 - 5$

Define $g(x) = \int_a^x f(t)dt$

g(x)

$\frac{d}{dx}(g(x))$



how does this support the FTC?

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Evaluate the following definite integrals. Support your answer with Nspire.

$\int_0^5 \left(x^{\frac{3}{2}} \right) dx$

$\int_{\frac{\pi}{6}}^{\frac{5\pi}{6}} \left(\csc^2 \theta \right) d\theta$

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total area vs. net area

what are the differences/similarities?

how do I calculate total area?

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Find the total area of the region between the curve and the x-axis.

$y = x^3 - 4x, \ -2 \le x \le 2$

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Find the value of k so that the line x = k divides the area under $y = x^2$ from $0 \le x \le 5$ in half.

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