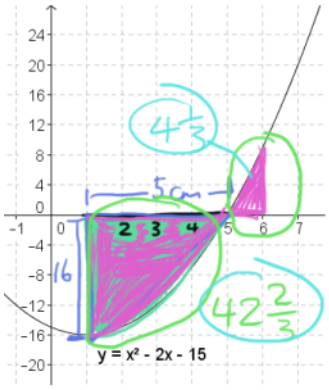
Integration lesson 6

Wednesday, December 18, 2013
4:53 PM

Finding the area under the curve part ~~2~~ 3



$$\int_1^5 x^2-2x-15\,dx + \int_5^6 x^2-2x-15\,dx$$

$$= -42\tfrac{2}{3} + \left[\frac{x^3}{3} - \frac{2x^2}{2} - 15x\right]_5^6$$

$$= -42\tfrac{2}{3} + \left(\left[\frac{6^3}{3} - 6^2 - 15\times 6\right] - \left[\frac{5^3}{3} - 5^2 - 15\times 5\right]\right)$$

$$= -42\tfrac{2}{3} + \left(-54 - -58\tfrac{1}{3}\right)$$

$$= -42\tfrac{2}{3} + 4\tfrac{1}{3}$$

$$\text{Area} = \left|-42\tfrac{2}{3}\right| + 4\tfrac{1}{3} = 42\tfrac{2}{3} + 4\tfrac{1}{3}$$

$$= 47 \text{ units squared}$$