

TUES 02-07-06

GIFT 5.3 ① $x^2 + C$ ② $t^3 + C$

③ $6x + C$ ④ $\frac{1}{7}y^7 + C$ ⑤ $\sin \theta + C$

⑥ $e^y + C$ ⑦ $\ln|x| + C$ ⑧ $4^u + C$

⑨ $\sin^{-1}u + C$ ⑩ $-\frac{3}{2}x^2 + C$

⑫ $\frac{1}{2}u + C$ ⑬ $-\cos x + C$

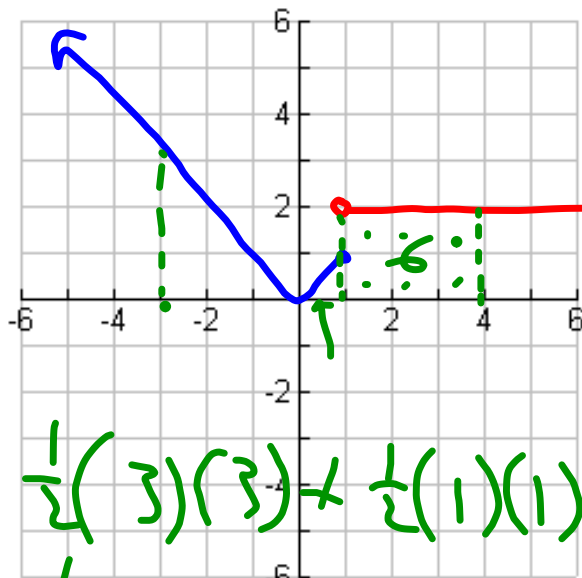
⑭ $\log_3 u + C$ ⑮ $\tan^{-1}x + C$

⑯ 20 SQ. UNITS ⑰ 5 SQ. UNITS

⑱ 11 SQ. UNITS

⑩ $x^5 + C$

$$\textcircled{18} \quad f(x) = \begin{cases} |x| & x \leq 1 \\ 2 & x > 1 \end{cases}$$



$$\int_{-3}^4 f(x) dx$$

$$A = \frac{1}{2}(3)(3) + \frac{1}{2}(1)(1) + 2(3)$$

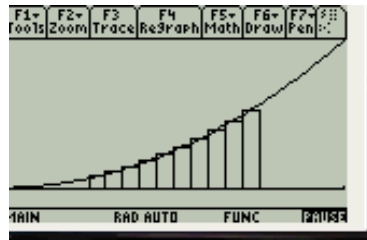
$$A = \frac{9}{2} + \frac{1}{2} + 6 = \underline{\underline{11}}$$

THE FUNDAMENTAL THEOREM OF INTEGRAL CALCULUS

IF y IS CONTINUOUS AT EVERY POINT
IN $[a, b]$, AND F IS AN ANTI-DERIVATIVE
OF y , THEN:

$$\int_a^b y(x) dx = F(b) - F(a)$$

$$Ex) \int_1^3 x^2 dx$$



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left sum =
7.88
right sum =
9.48
midpoint sum =
8.66
MAIN      RAD AUTO      FUNC      12/199

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MIDPOINT SUM =
8.66

avg of left,right,midpt=
8.67333

that's all folks!
MAIN      RAD AUTO      FUNC      3/30

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$$f(x) = x^2$$

$$F(x) = \frac{1}{3}x^3 + C$$

$$F(3) = 9 + C$$

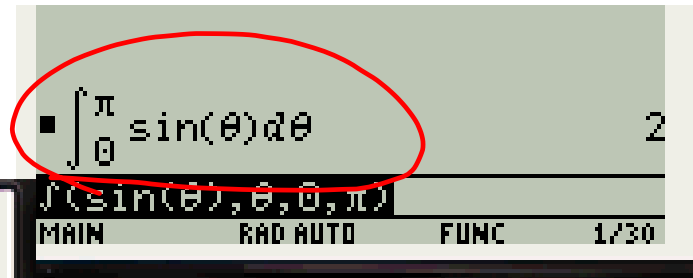
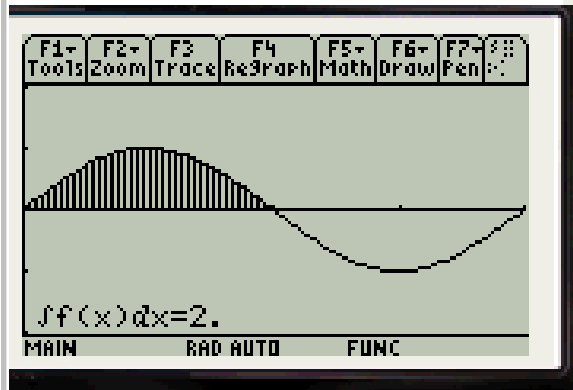
$$F(1) = \frac{1}{3} + C$$

$$= 9 + C - \left(\frac{1}{3} + C \right)$$

$$= \frac{27}{3} + C - \frac{1}{3} - C$$

$$= \frac{26}{3}$$

$$\begin{aligned}
 \int_0^{\pi} \sin \theta \, d\theta &= \left[-\cos \theta + C \right]_{\theta=0}^{\theta=\pi} \\
 &= \left[-\cos \pi + C \right] - \left[-\cos 0 + C \right] \\
 &= -\cos \pi + C + \cos 0 - C \\
 &= -(-1) + 1 \\
 &= 2
 \end{aligned}$$



$$(x) \int_2^4 (x^2 - 2x) dx$$

*EMPHASIZE
PROPER FORM

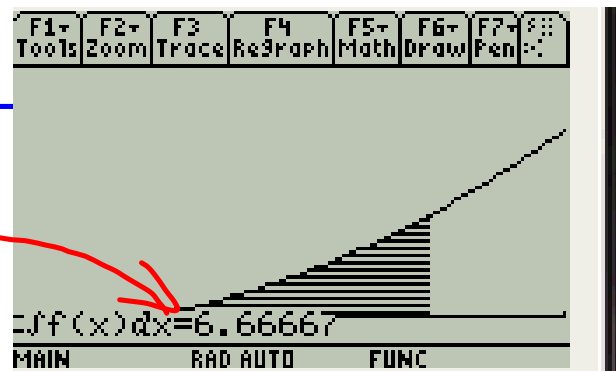
$$= \left[\frac{1}{3}x^3 - x^2 \right]_{x=2}^{x=4}$$

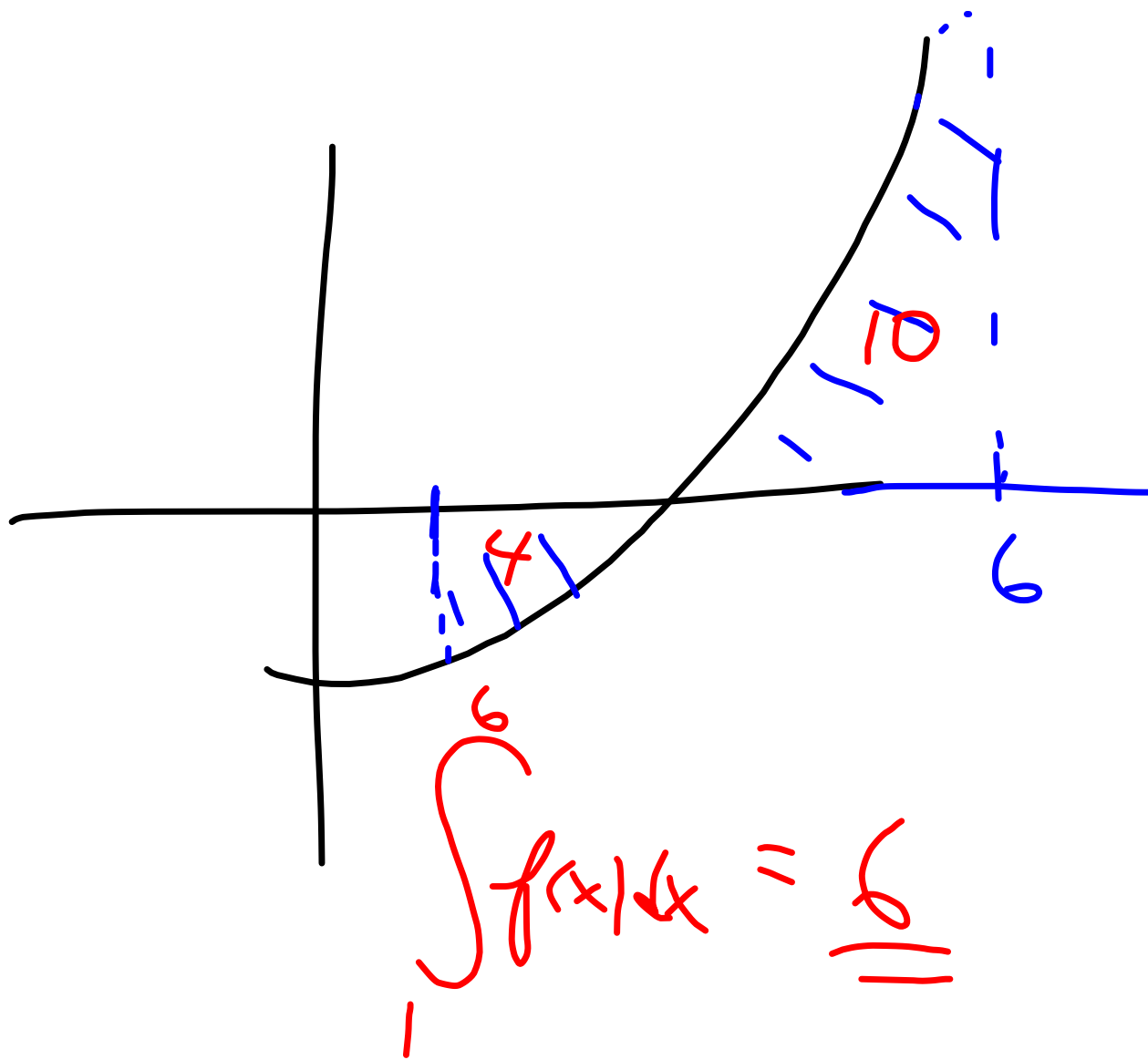
$$= \left[\frac{1}{3}(4)^3 - (4)^2 \right] - \left[\frac{1}{3}(2)^3 - (2)^2 \right]$$

$$= \frac{64}{3} - \frac{48}{3} - \left[\frac{8}{3} - \frac{12}{3} \right]$$

$$= \frac{64 - 48 - 8 + 12}{3}$$

$$= \frac{20}{3}$$





O.T.L. THIS GIFT

AP CALCULUS GIFT 5.3 (the short one)

Evaluate the definite integrals using The Fundamental Theorem of Integral Calculus. Show your work on your paper. Make a sketch for each one, shading the area that is being found. Check with your graphing calculator.

$$1. \int_2^5 4 \, dx$$

$$2. \int_1^4 x \, dx$$

$$3. \int_{-2}^3 (t^2 + 2) \, dt$$

$$4. \int_{-1}^2 (9 - x^3) \, dx$$

$$5. \int_0^{\frac{\pi}{2}} \sin \theta \, d\theta$$

$$6. \int_{\frac{\pi}{2}}^{\frac{3\pi}{2}} \cos t \, dt$$

$$7. \int_1^5 \frac{1}{x} \, dx$$

$$8. \int_{-2}^2 e^u \, du$$

$$9. \int_0^{\sqrt{3}} \frac{1}{1+t^2} \, dt$$

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