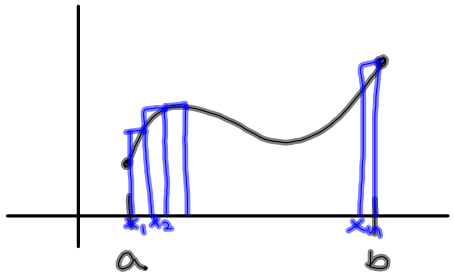
5.2



Area: base · height

$\Delta x_n \cdot f(x_n)$

Sum: $\Delta x_1 \cdot f(x_1) + \Delta x_2 \cdot f(x_2) + \dots + \Delta x_n \cdot f(x_n)$

$\sum_{k=1}^{n} \Delta x_k \cdot f(x_k)$

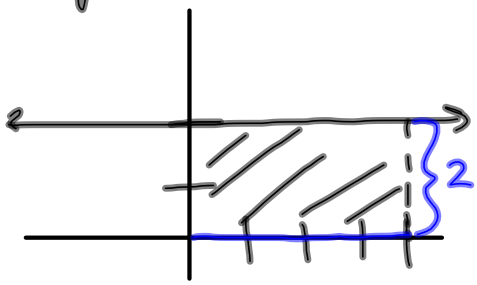
Exact:

$\lim_{n \to \infty} \sum_{k=1}^{n} \Delta x_k \cdot f(x_k)$ over $[a, b]$

$\int_a^b f(x)\,dx$

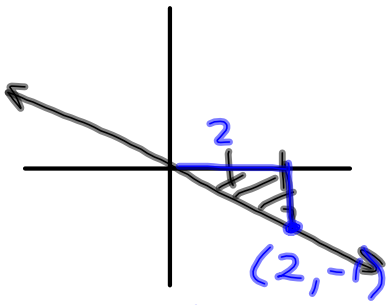
Jan 13-12:20 PM

1. $\int_0^4 2\,dx = 8$



$A = bh = 4 \cdot 2 = 8$

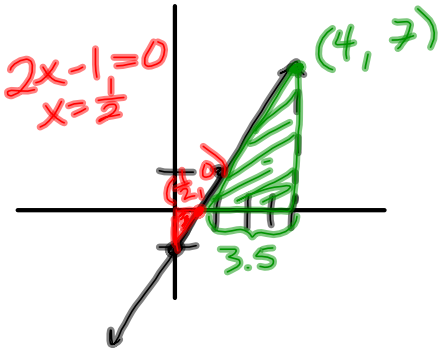
2. $\int_0^2 -\frac{1}{2}x\,dx$



$A = \frac{1}{2}(2)(-1) = -1$

Jan 13-1:18 PM

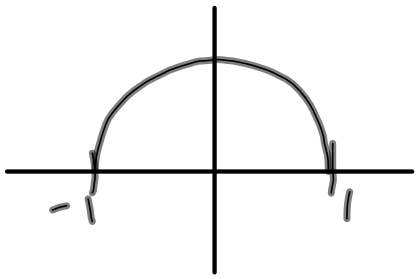
3. $\int_0^4 (2x-1)\,dx$



$A = \frac{1}{2}(\frac{1}{2})(-1) + \frac{1}{2}(3.5)(7)$

$= 12$

4. $\int_{-1}^{1} \sqrt{1-x^2}\,dx$

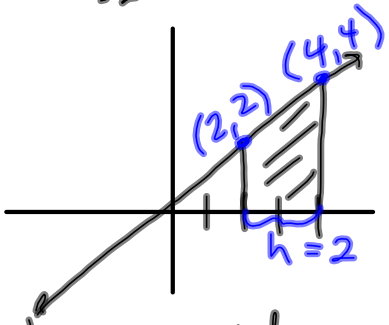


$A = \frac{1}{2}\pi r^2 = \frac{1}{2}\pi(1)^2$

$= \frac{\pi}{2}$

Jan 13-1:29 PM

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



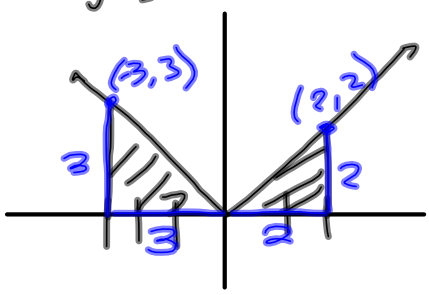
trapezoid

$A = \frac{1}{2}(b_1+b_2)h$

$= \frac{1}{2}(2+4)\cdot 2$

$= 6$

6. $\int_{-3}^{2} |x|\,dx$

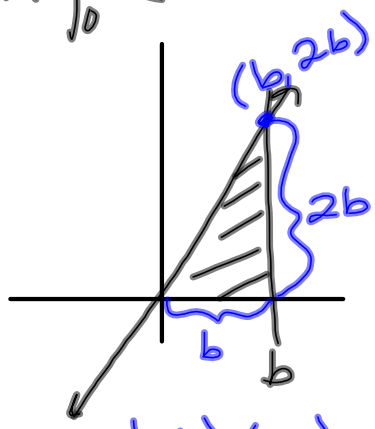


$A = \frac{1}{2}(3)(3) + \frac{1}{2}(2)(2)$

$= 6.5$

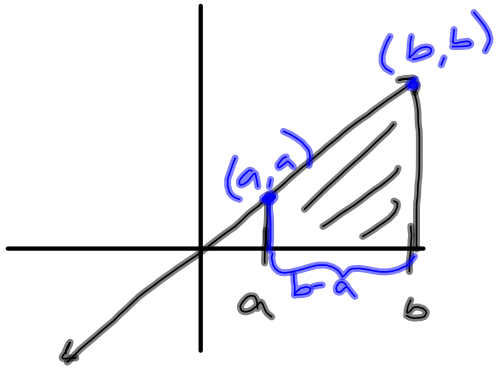
Jan 13-1:33 PM

7. $\int_0^b 2x\,dx$



$A = \frac{1}{2}(b)(2b)$
$= b^2$

8. $\int_a^b x\,dx$



$A = \frac{1}{2}(a+b)(b-a)$
$= \frac{1}{2}(b^2-a^2)$

Jan 13-1:43 PM

9. $\int_{-1}^{3} x^2\,dx = 9.333$

Math → fnInt → enter

fnInt(x^2, x, -1, 3)
fnInt(func, variable, lower bound, upper bound)

10. $\int_0^{\pi} \sin x\,dx = 2$

11. $\int_{-3}^{3} (9-x^2)\,dx = 36$

Jan 13-1:47 PM