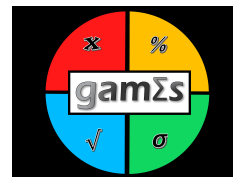


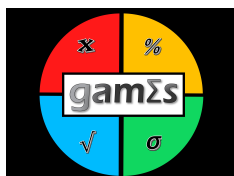
GAMES Practice Problems – Integration Part 1



- Consider the integral $\int_2^{10} 2x^2 + 3x + 2)dx$.
 - Find the Riemann sum for this integral using left endpoints and $n = 4$.
 - Find the Riemann sum for this same integral, using right endpoints and $n = 4$.
- Given that $6 \leq f(x) \leq 8$ for $4 \leq x \leq 8$, estimate the value of $\int_4^8 f(x)dx$.
- Suppose

$$\begin{aligned} f(x) &= 2 && \text{if } 4 \leq x < 12, \\ a &= -5 && \text{if } 12 \leq x \leq 20. \end{aligned}$$

- Evaluate the definite integral by interpreting it in terms of signed area: $\int_4^{20} f(x)dx$.
 - Find the average value of $f(x)$ over the interval $[4, 20]$.
- Evaluate the following definite integrals:
 - $\int_3^6 6dy$
 - $\int_5^x (2t + 7)dt$
 - The marginal cost of manufacturing x yards of a certain fabric is $C'(x) = 3 - 0.01x + 0.000006x^2$ (in dollars per yard). Find the increase in cost if the production level is raised from 1000 to 9000 yards.
 - A factory produces bicycles at a rate of $95 + 0.2t^2 - 0.9t$ bicycles per week (t in weeks). How many bicycles were produced from day 15 to 21?



This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) <https://creativecommons.org/licenses/by-nc-nd/4.0/> Unless otherwise noted, all content in this video was created by Catherine Pfaff, Sumon Majumdar, and Robert J. McKeown. You are free to copy and share this material in any format, but you must give appropriate credit to the authors. This project is made possible with funding by the Government of Ontario and through eCampusOntario's support of the Virtual Learning Strategy. To learn more about the Virtual Learning Strategy visit: <https://vls.ecampusontario.ca/>.

