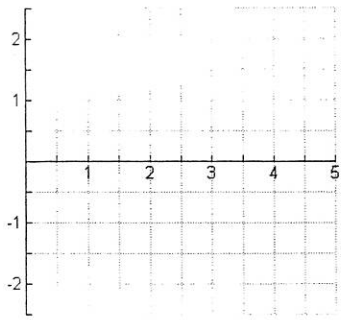
Fundamental Theorem WS #1

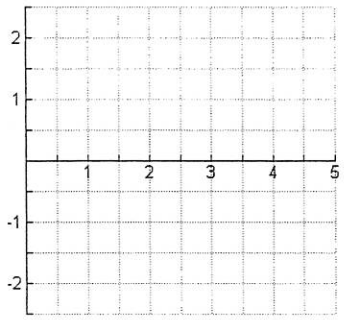
First Look at the Mechanics of the Fundamental Theorem $g(x)=\int_a^x f(t)\,dt$

Sketch the graph, shade the area, and evaluate each definite integral.

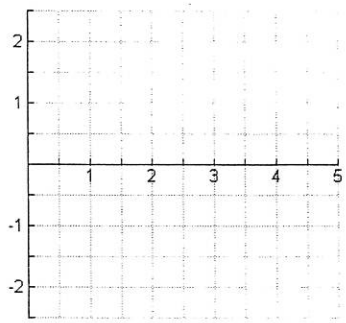
1. $\int_0^2 1\,dx$



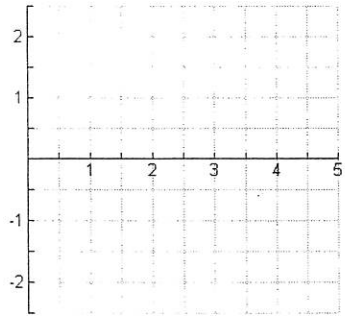
2. $\int_0^4 2\,dx$



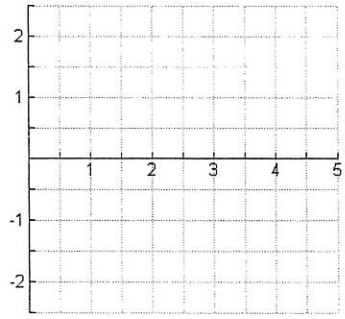
3. $\int_1^5 -2\,dx$



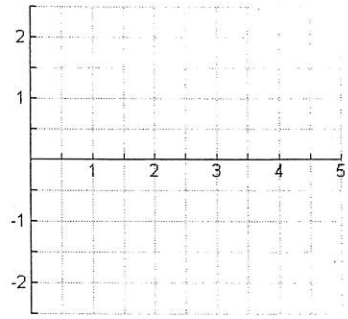
4. $\int_0^4 \frac{1}{4}x\,dx$



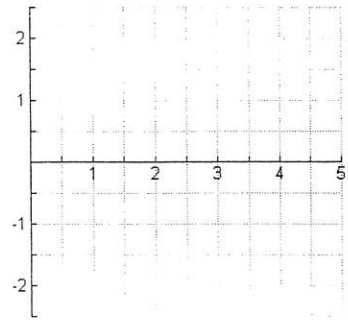
5. $\int_2^4 (x-2)\,dx$



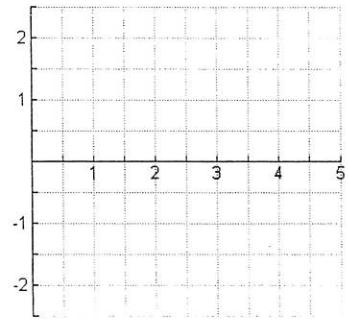
6. $\int_0^4 \left(-\frac{1}{2}x+2\right)dx$



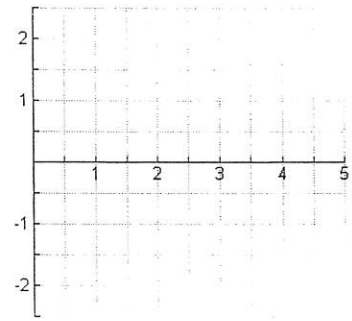
7. $\int_1^4 (x-1)\,dx$



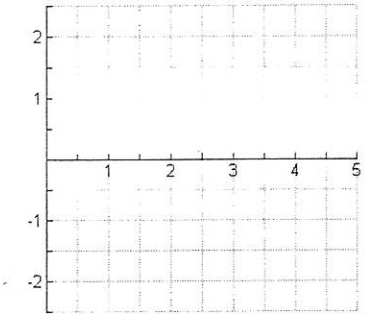
8. $\int_5^2 -2\,dx$



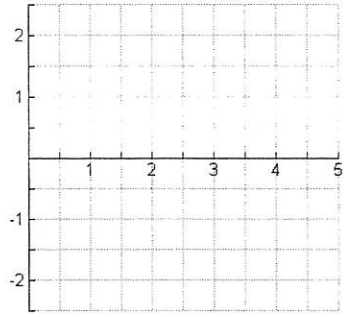
9. $\int_2^4 \left(\frac{1}{4}x-2\right)dx$



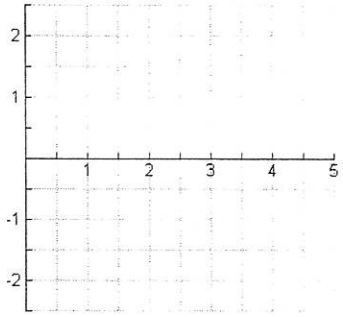
10. $\int_{4}^{0} 2\,dx$



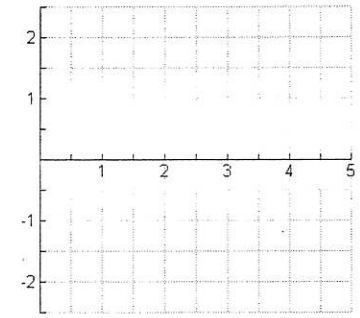
11. $\int_{1}^{4} (x-2)\,dx$



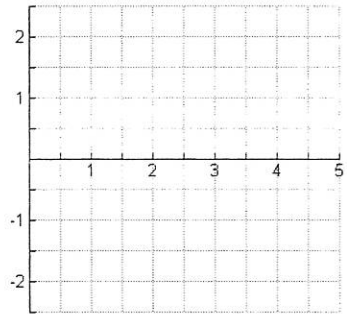
12. $\int_{0}^{4} \left(\frac{3}{4}x-2\right) dx$



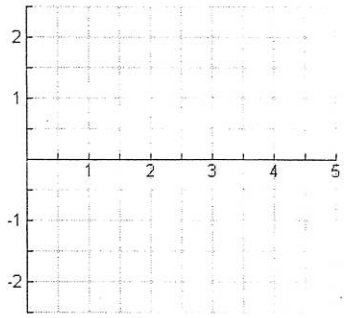
13. $\int_{2}^{2} x\,dx$



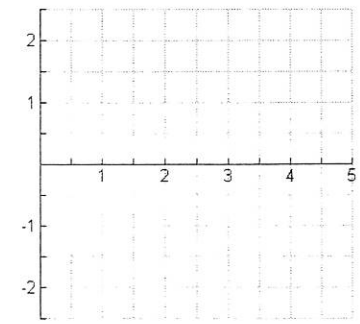
14. $\int_{4}^{0} (-2)\,dx$



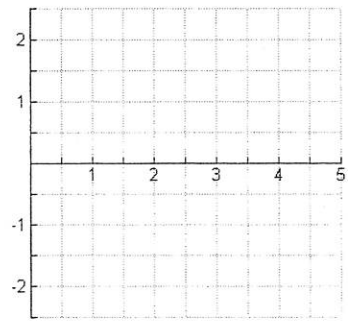
15. $-\int_{0}^{4} (-2)\,dx$



16. $-\int_{4}^{0} (-2)\,dx$



17. $\int_{1}^{3} \left(\frac{1}{2}x-1\right) dx$



18. $\int_{0}^{2} (-2x+2)\,dx$