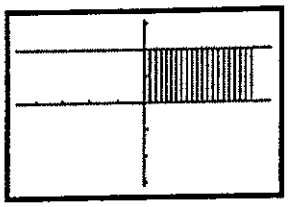
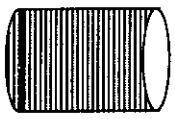
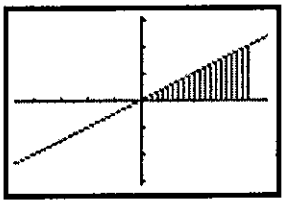
WHAT HISTORY SERIES IS PREFERRED READING BY CALCULUS TEACHERS?

Match each shaded region when rotated about the x-axis with a volume
a) using simple geometry **b)** using a definite integral.

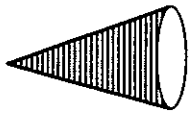


1) $y = 2,\ y = 0,\ x = 0,\ x = 4$





2) $y = \frac{1}{2}x,\ y = 0,\ x = 4$

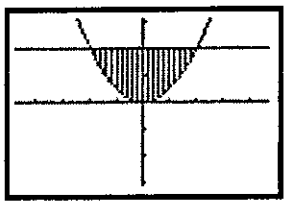
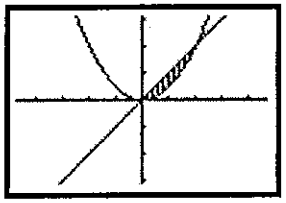
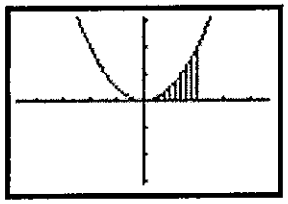
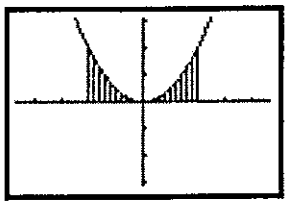
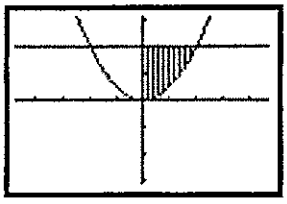
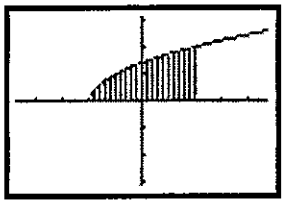
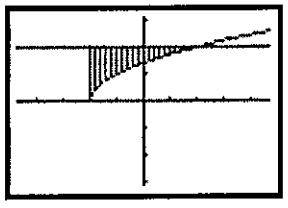
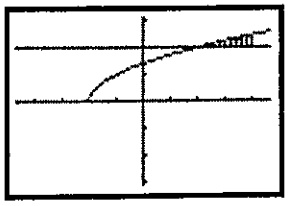


E. $\frac{1}{3}\pi(2)^2(4) = \frac{16}{3}\pi$	L. $\pi(2)^2(4) = 16\pi$	O. $\pi\int_0^4\left(\frac{x}{2}\right)^2 dx \approx 16.8$	V. $\pi\int_0^4 (2)^2 dx \approx 50.3$

a) Match each region bounded by the given conditions with a graph.
b) Match with a definite integral that will give the **volume** generated when the shaded region in part **a)** is rotated about the x-axis.

3) $y = \frac{1}{2}x^2,\ y = 0,\ x = 2$	4) $y = \frac{1}{2}x^2,\ y = 0,\ x = -2,\ x = 2$	5) $y = \frac{1}{2}x^2,\ y = 2$
6) $y = \frac{1}{2}x^2,\ y = x$	7) $y = \sqrt{x+2},\ y = 2,\ x = -2$	8) $y = \sqrt{x+2},\ y = 0,\ x = 2$

a) Graphs.

E. 	F. 	I. 	L. 
O. 	R. 	S. 	W. 

b) Definite Integrals.

M. $\pi\int_{-2}^{2}(2-x)dx$	N. $\pi\int_{-2}^{2}(x+2)dx$	O. $\pi\int_0^2\left(x^2-\frac{x^4}{4}\right)dx$	P. $\pi\int_0^2\left(x-\frac{x^2}{2}\right)^2 dx$
R. $2\pi\int_0^2\left(2-\frac{x^2}{2}\right)^2 dx$	T. $2\pi\int_0^2\left(4-\frac{x^4}{4}\right)dx$	U. $\pi\int_0^2\frac{x^4}{4}dx$	V. $2\pi\int_0^2\frac{x^4}{4}dx$

4b	6b	4a	3b	7b	2a	7a	2b	6a	
8a	5a	1b	6b	1a	3b	5b	3a	2b	8b