24. L_{30} for $f(x) = x^2$ on $[1, 2]$

25. L_{10} for $f(x) = \sqrt{4 - x^2}$ on $[-2, 2]$

26. R_{20} for $f(x) = \sin x$ on $[0, \pi]$

27. R_{100} for $\ln x$ on $[1, e]$

In the following exercises, graph the function then use a calculator or a computer program to evaluate the following left and right endpoint sums. Is the area under the curve between the left and right endpoint sums?

28. **[T]** L_{100} and R_{100} for $y = x^2 - 3x + 1$ on the interval $[-1, 1]$

29. **[T]** L_{100} and R_{100} for $y = x^2$ on the interval $[0, 1]$

30. **[T]** L_{50} and R_{50} for $y = \dfrac{x+1}{x^2-1}$ on the interval $[2, 4]$

31. **[T]** L_{100} and R_{100} for $y = x^3$ on the interval $[-1, 1]$

32. **[T]** L_{50} and R_{50} for $y = \tan(x)$ on the interval $\left[0, \frac{\pi}{4}\right]$

33. **[T]** L_{100} and R_{100} for $y = e^{2x}$ on the interval $[-1, 1]$

34. Let t_j denote the time that it took Tejay van Garteren to ride the jth stage of the Tour de France in 2014. If there were a total of 21 stages, interpret $\sum_{j=1}^{21} t_j$.

35. Let r_j denote the total rainfall in Portland on the jth day of the year in 2009. Interpret $\sum_{j=1}^{31} r_j$.

36. Let d_j denote the hours of daylight and δ_j denote the increase in the hours of daylight from day $j-1$ to day j in Fargo, North Dakota, on the jth day of the year. Interpret $d_1 + \sum_{j=2}^{365} \delta_j$.

37. To help get in shape, Joe gets a new pair of running shoes. If Joe runs 1 mi each day in week 1 and adds $\frac{1}{10}$ mi to his daily routine each week, what is the total mileage on Joe's shoes after 25 weeks?

38. The following table gives approximate values of the average annual atmospheric rate of increase in carbon dioxide (CO_2) each decade since 1960, in parts per million (ppm). Estimate the total increase in atmospheric CO_2 between 1964 and 2013.

Decade	Ppm/y
1964–1973	1.07
1974–1983	1.34
1984–1993	1.40
1994–2003	1.87
2004–2013	2.07

Table 5.2 Average Annual Atmospheric CO_2 Increase, 1964–2013 ***Source*: http://www.esrl.noaa.gov/gmd/ccgg/trends/.**