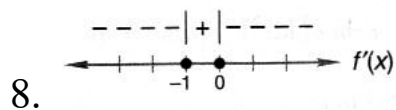


Calculus — Problem Set 47

2. $\frac{1}{400\pi} \frac{cm}{s}$

4. $2\left(\sqrt{e} - \frac{1}{e}\right) \approx 2.5617 \text{ units}^2$

6. $\frac{3}{4}(3\sqrt[3]{3} - 1) \approx 2.4951 \text{ units}^2$



10. $-\frac{e^x}{2}(e^x + 1)^{3/2}$

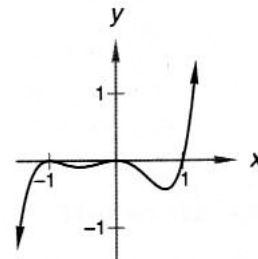
12. $4x + 3$

14. $4t^2(1 + 3\ln t)$

16. $\frac{\cos x}{x^2 + 1} - \frac{2x \sin x}{(x^2 + 1)^2}$

18. Relative max:
(0.7980, 0.4374)
Relative min:
(-0.7980, -0.4374)

20.



22. $\sin^2 x = \frac{1}{2} - \frac{1}{2} \cos(2x)$

24. D

Calculus — Problem Set 48


2. $\frac{4}{7} \frac{cm^2}{s}$

4. $-\csc^2 x$

6. $e^x \csc x(1 - \cot x)$

8. $(e^2 - \sqrt{e} + \ln 4) \text{ units}^2$

10. $\ln 3 \text{ units}^2$

12. $x = -\frac{b}{2}$ 

14. $\frac{dy}{dx} = 8x \cos(x^2)$

16. 21

18. $\frac{1}{2}x^2 + x + \ln|x| + C$

20. $\frac{\ln x}{\ln 2} \approx 1.4427 \ln x$

22. (-1, -1)

24.

“x is less than 2 away from $\frac{3}{2}$.”

