Problem Set 25

2. $P = \dfrac{250NL}{K}$ newtons per square meter

4. $D_x y = 14x^{13}$

6. $f'(x) = \dfrac{3}{2}x^{\frac{1}{2}} = \dfrac{3\sqrt{x}}{2}$

8. $f'(x) = x^4 - 10x^{-3} + 24x^3$

10. $s'(t) = v_0 + at$

12. $\theta = \dfrac{\pi}{3},\ \pi,\ \dfrac{5\pi}{3}$

14a. no real zeros

b. $x = \dfrac{1}{2} \pm \dfrac{\sqrt{15}}{2}i$

16. never increasing

18. $x = 1$

20. $$\frac{2\cos x}{\sin(2x)}\csc(-x) = \frac{2\cos x}{2\sin x\cos x}\left(-\frac{1}{\sin x}\right)$$
$$= -\frac{1}{\sin^2 x}$$
$$= -\csc^2 x$$

22. 40

24. C