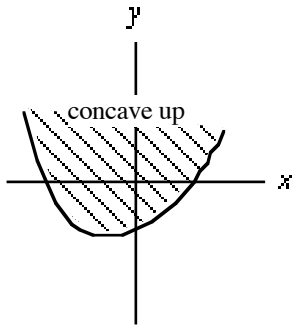
Chapter 4 Focus Exercise Answers

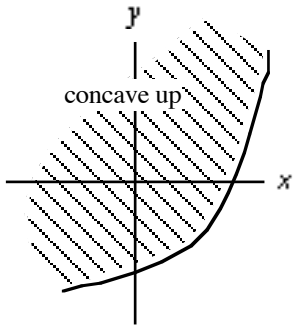
Sec. 4.1 Introduction to Graphing

1.



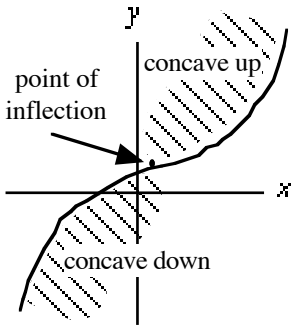
Both increasing and decreasing.

3.



Increasing only.

5.



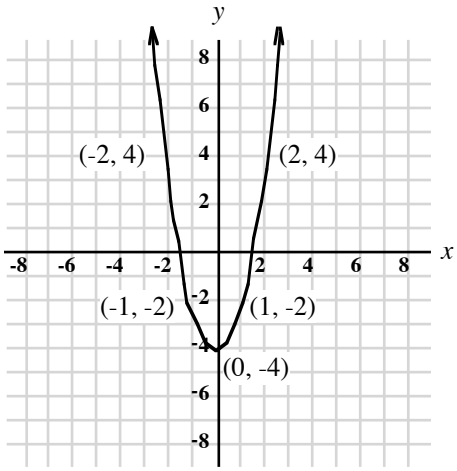
Increasing only.

7. a) Shifts up 6;
b) is narrower than the standard graph

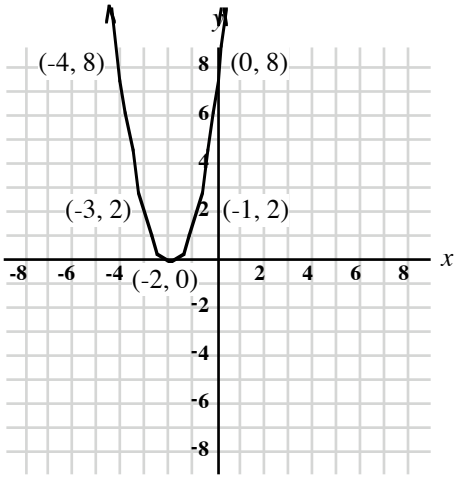
9. a) Shifts right 9;
b) is standard and reflected

11. a) Shifts left 2 and down 1;
b) is standard

13. $f(x) = 2x^2 - 4$

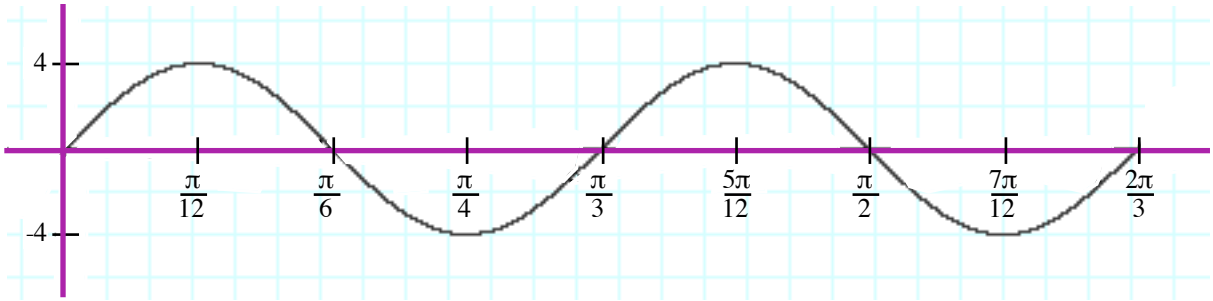


15. $f(x) = 2(x + 2)^2$

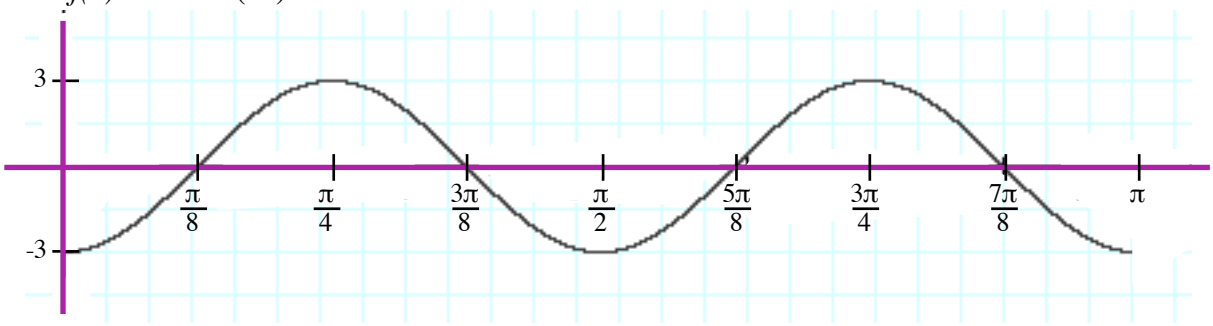


Section 4.2 Graphing the Sine and Cosine Functions

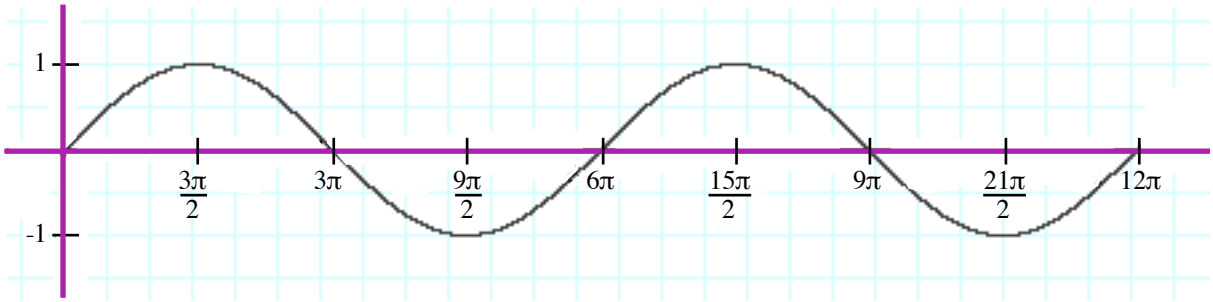
1. $f(x) = 4\sin(6x)$



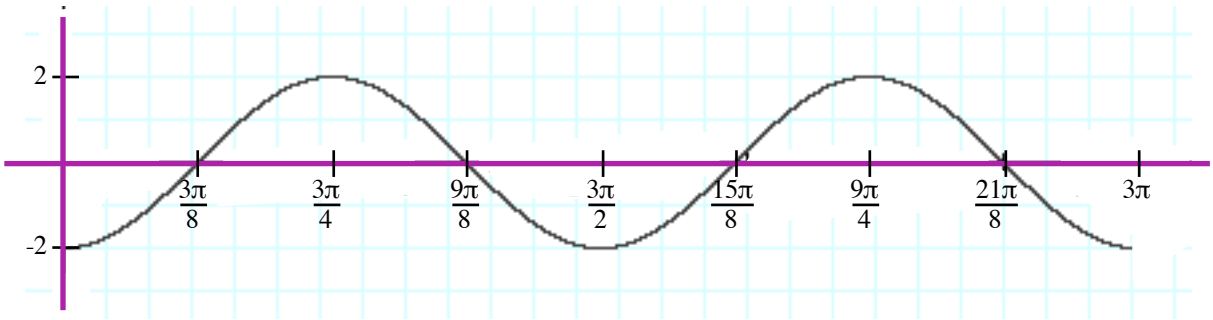
3. $f(x) = -3\cos(4x)$



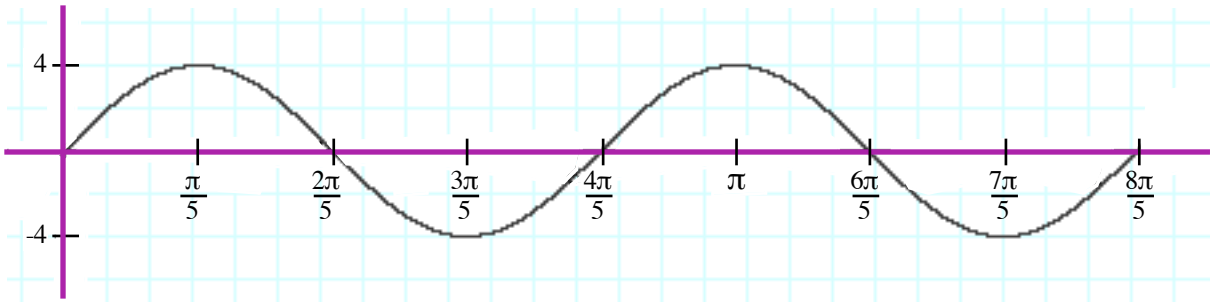
5. $f(x) = \sin\left(\frac{1}{3}x\right)$



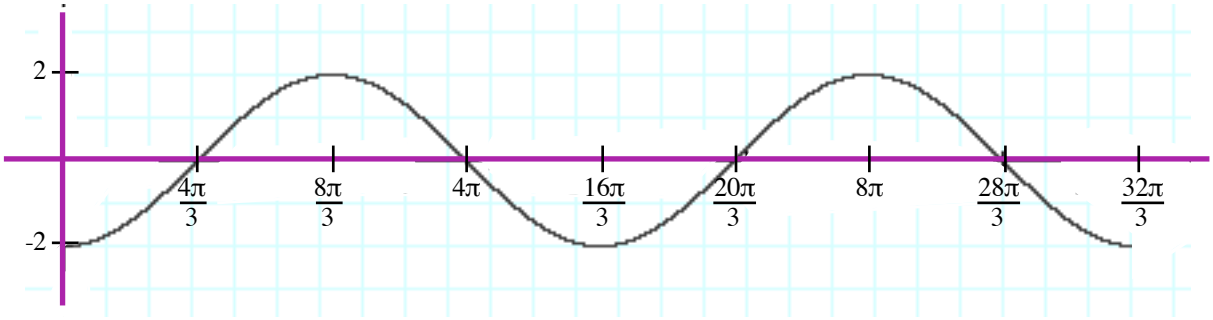
7. $f(x) = -2\cos\left(\frac{4}{3}x\right)$



9. $f(x) = 4\sin\left(\frac{5}{2}x\right)$



11. $f(x) = -2\cos\left(\frac{3}{8}x\right)$



Sec. 4.3 Find the Function (Note: The answers use *f(x)* instead of *y*.)

1. $f(x) = 4\cos\left(\frac{1}{2}x\right)$

3. $f(x) = 5\sin(3x)$

5. $f(x) = -3\sin\left(\frac{16}{5}x\right)$

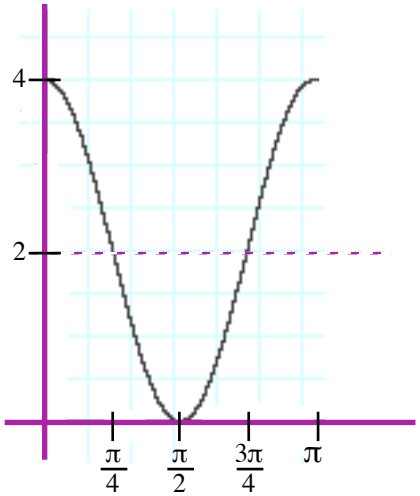
7. $f(x) = 2\cos\left(\frac{4}{3}x\right)$

9. $f(x) = -\frac{5}{2}\cos(4x)$

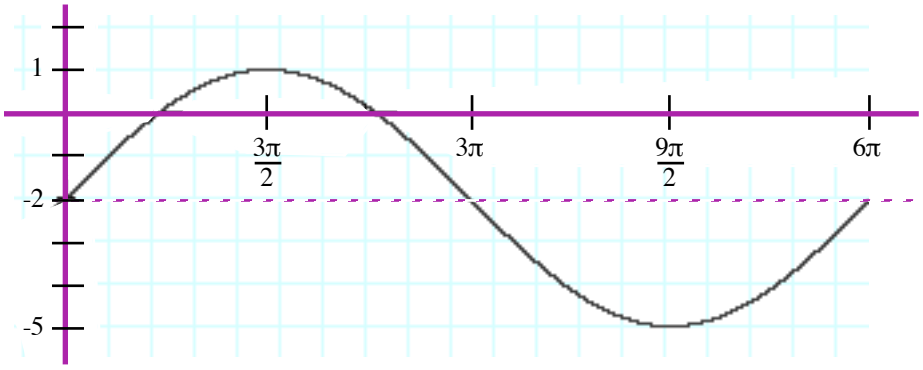
11. $f(x) = \sin\left(\frac{8}{3}x\right)$

Section 4.4 Graphing with Vertical and Horizontal Shifts

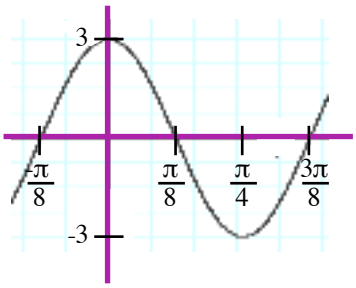
1. $f(x) = 2\cos(2x) + 2$



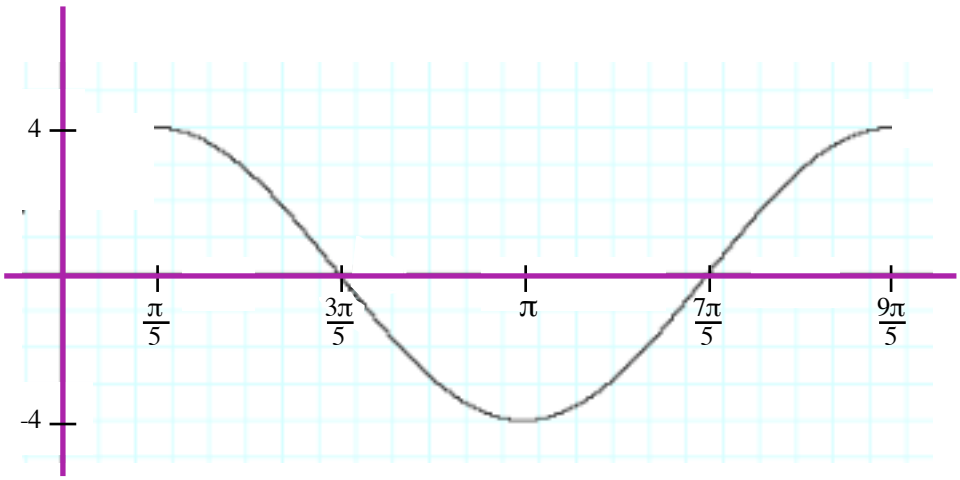
3. $f(x) = -2 + 3\sin\left(\frac{1}{3}x\right)$



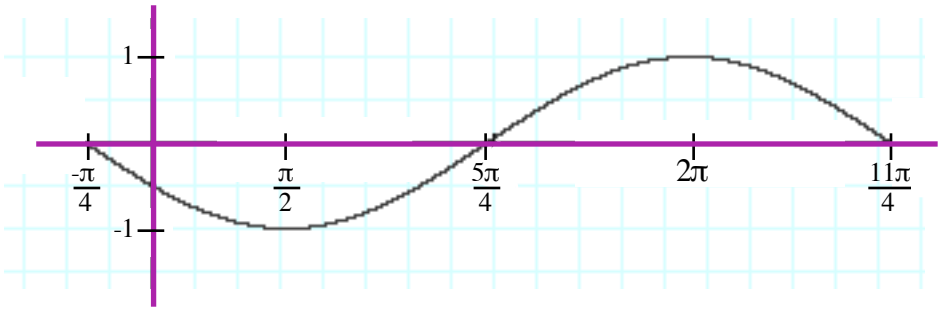
5. $f(x) = 3\sin\left(4x + \frac{\pi}{2}\right)$



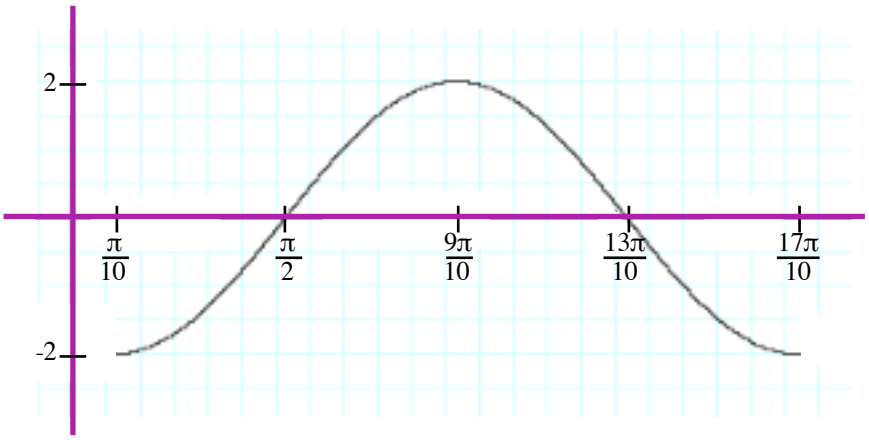
7. $f(x) = 4\cos\left(\frac{5}{4}x - \frac{\pi}{4}\right)$



9. $f(x) = -\sin\left(\frac{2}{3}x + \frac{\pi}{6}\right)$



11. $f(x) = -2\cos\left(\frac{5}{4}x - \frac{\pi}{8}\right)$



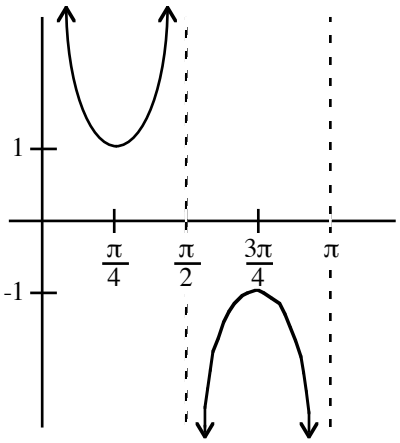
Sec. 4.5 Find the Function

1. Period = π **2.** B = 2 **3.** $f(x) = 3\cos\left(2x + \frac{\pi}{3}\right)$ **5.** $f(x) = -3\sin\left(2x - \frac{\pi}{6}\right)$

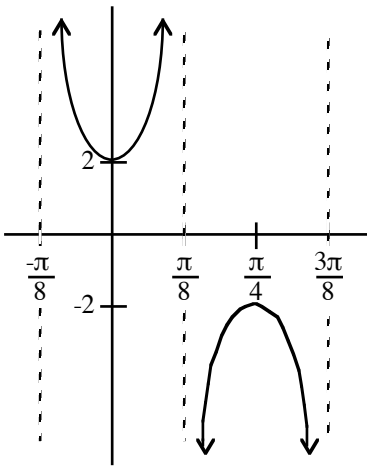
7. Period = 3π **8.** B = $\frac{2}{3}$ **9.** $f(x) = -2\sin\left(\frac{2}{3}x - \frac{\pi}{9}\right)$ **11.** $f(x) = 2\cos\left(\frac{2}{3}x + \frac{7\pi}{18}\right)$

Section 4.6 Graphing Secant and Cosecant

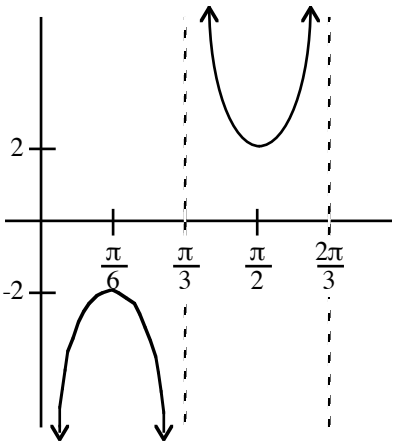
1. $f(x) = \csc(2x)$



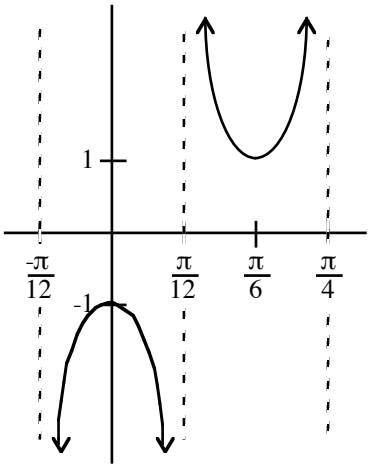
3. $f(x) = 2\sec(4x)$



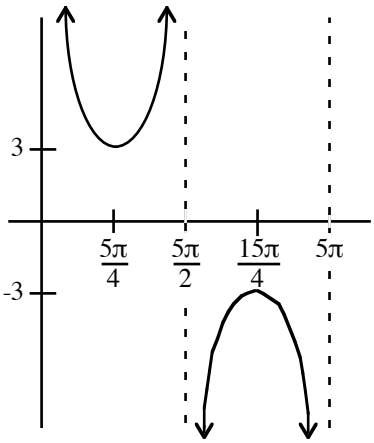
5. $f(x) = -2\csc(3x)$



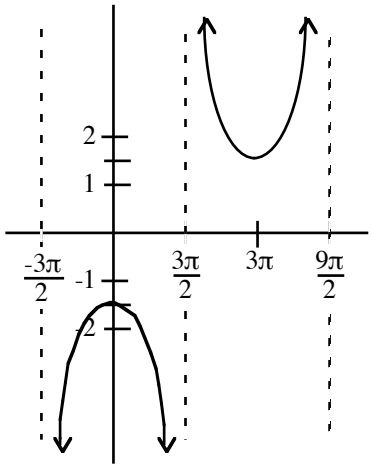
7. $f(x) = -\sec(6x)$



9. $f(x) = 3\csc\left(\frac{2}{5}x\right)$

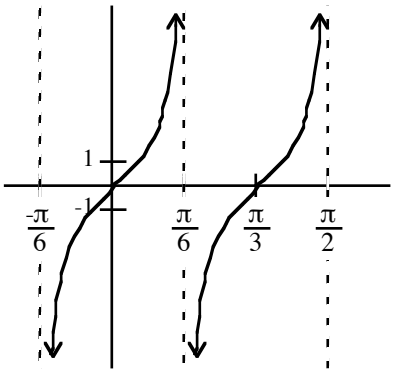


11. $f(x) = -\frac{3}{2}\sec\left(\frac{1}{3}x\right)$

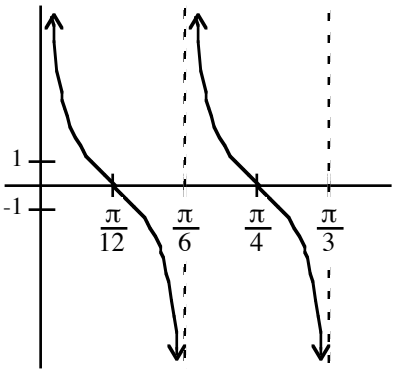


Section 4.7 Graphing Tangent and Cotangent

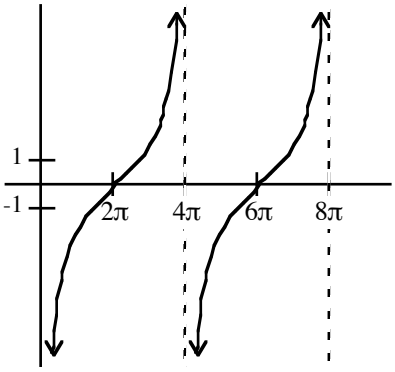
1. $f(x) = \tan(3x)$



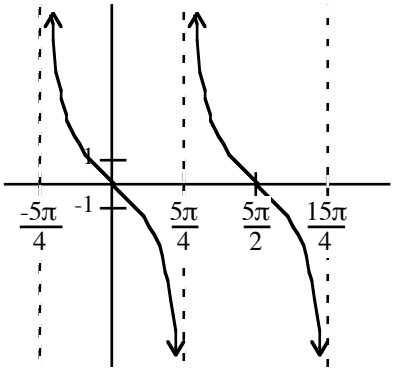
3. $f(x) = \cot(6x)$



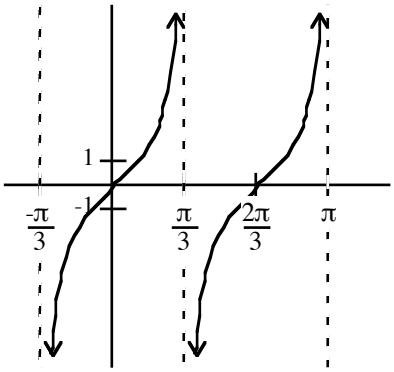
5. $f(x) = -\cot\left(\frac{1}{4}x\right)$



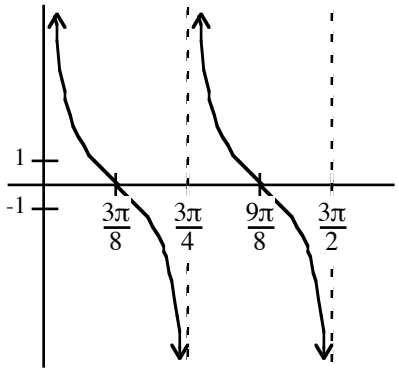
7. $f(x) = -\tan\left(\frac{2}{5}x\right)$



9. $f(x) = \tan\left(\frac{3}{2}x\right)$



11. $f(x) = \cot\left(\frac{4}{3}x\right)$



Section 4.8 Inverse Trigonometric Functions

1. $\frac{\pi}{6}$	**3.** $-\frac{\pi}{4}$	**5.** $\frac{\pi}{6}$	**7.** 0
9. $-\frac{\pi}{6}$	**11.** $-\frac{\pi}{3}$	**13.** $\frac{\pi}{4}$	**15.** $\frac{\pi}{4}$
17. $\frac{\pi}{6}$	**19.** π	**21.** $-\frac{\pi}{3}$	**23.** $\frac{\pi}{2}$
25. 0	**27.** $-\frac{\pi}{6}$	**29.** $\frac{\pi}{3}$	**31.** $\frac{5\pi}{6}$
33. $-\frac{\pi}{2}$	**35.** 0		