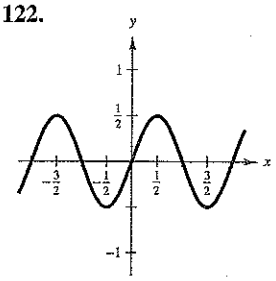
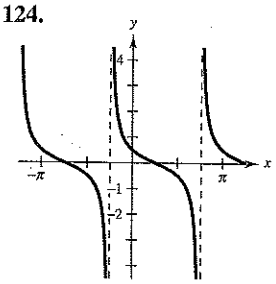
122.



124.



126. $A = 10°$
$C = 90°$
$b = 90.74$
$c = 92.14$

128. $A = 60.26°$
$B = 29.74°$
$C = 90°$
$c = 16.12$

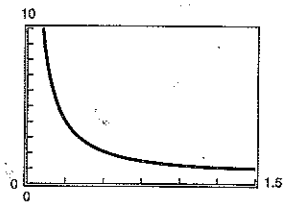
Section 5.2 *(page 389)*

2.–10. Answers will vary.

12.

x	0.2	0.4	0.6	0.8
y_1	5.0335	2.5679	1.771	1.394
y_2	5.0335	2.5679	1.771	1.394

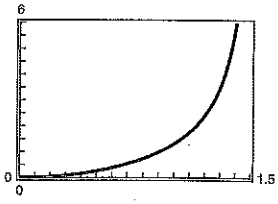
x	1.0	1.2	1.4
y_1	1.1884	1.0729	1.0148
y_2	1.1884	1.0729	1.0148



14.

x	0.2	0.4	0.6	0.8
y_1	0.0403	0.1646	0.3863	0.7386
y_2	0.0403	0.1646	0.3863	0.7386

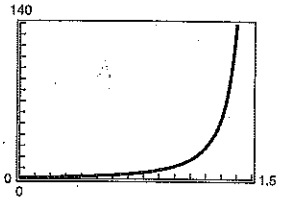
x	1.0	1.2	1.4
y_1	1.3105	2.3973	5.7135
y_2	1.3105	2.3973	5.7135



16.

x	0.2	0.4	0.6	0.8
y_1	1.4958	2.2756	3.5939	6.0760
y_2	1.4958	2.2756	3.5939	6.0760

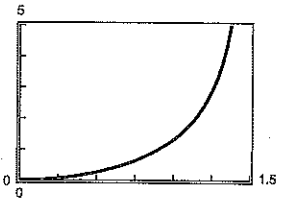
x	1.0	1.2	1.4
y_1	11.6160	28.4287	136.4545
y_2	11.6160	28.4287	136.4545



18.

x	0.2	0.4	0.6	0.8
y_1	0.04027	0.16464	0.38629	0.73862
y_2	0.04027	0.16464	0.38629	0.73862

x	1.0	1.2	1.4
y_1	1.3105	2.3973	5.7135
y_2	1.3105	2.3973	5.7135



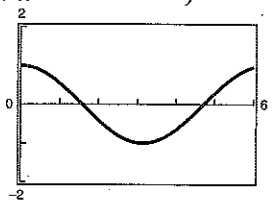
20. $\sec(-\theta) = \sec\theta$ and $\sin(-\theta) = -\sin\theta$ so,

$$\frac{1 + \sec(-\theta)}{\sin(-\theta) + \tan(-\theta)} = -\csc\theta.$$

22. $\dfrac{\sin^2 x - \cos^2 x}{\sin^2 x + \cos^2 x}$; $-(\cos^2 x - \sin^2 x)$

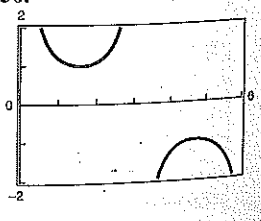
24.–52. Answers will vary.

54.



$\cos x$

56.



$\csc t$

58. and 60. Answers will vary. **62.** 1 **64.** 2

66.–70. Answers will vary. **72.** True

74. False. $\ln(\cos x)$ must always be positive while $\cos(\ln x)$ may be positive, zero, or negative.

76. $\sqrt{\tan^2 x} = |\tan x|; \frac{3\pi}{4}$ **78.** $|\tan\theta| = \sqrt{\sec^2\theta - 1}; \frac{3\pi}{4}$

80. Answers will vary.

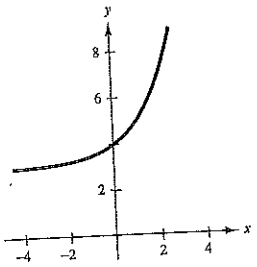
82. Answer is not unique. Sample answer:

$y = x^3 - x^2 + 64x - 64$

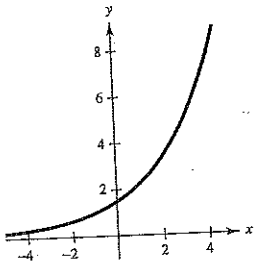
84. Answer is not unique. Sample answer:

$y = x^3 - 16x^2 + 85x - 148$

86.



88.



90. $\theta \approx 1.286$ rad **92.** Quadrant II **94.** Quadrant IV

Section 5.3 *(page 400)*

2.–6. Answers will vary. **8.** $x = -\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \frac{11}{4}$

10. $x = \pm 2$ **12.** $\frac{5\pi}{4}, \frac{7\pi}{4}$ **14.** $\frac{3\pi}{4}, \frac{7\pi}{4}$

16. $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

18. $\frac{\pi}{9}, \frac{2\pi}{9}, \frac{4\pi}{9}, \frac{5\pi}{9}, \frac{7\pi}{9}, \frac{8\pi}{9}, \frac{10\pi}{9}, \frac{11\pi}{9}, \frac{13\pi}{9}, \frac{14\pi}{9}, \frac{16\pi}{9}, \frac{17\pi}{9}$

20. $0, \frac{\pi}{2}, \frac{3\pi}{2}$ **22.** $0, \frac{\pi}{4}, \frac{\pi}{3}, \frac{2\pi}{3}, \pi, \frac{5\pi}{4}, \frac{4\pi}{3}, \frac{5\pi}{3}$

24. $\frac{\pi}{4}, \frac{2\pi}{3}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{4\pi}{3}, \frac{7\pi}{4}$ **26.** $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

28. $\frac{\pi}{2}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{3\pi}{2}$ **30.** $\frac{\pi}{3}, \frac{5\pi}{3}$ **32.** $\frac{2\pi}{3}, \frac{5\pi}{6}, \frac{5\pi}{3}, \frac{11\pi}{6}$

34. $\frac{\pi}{12}, \frac{5\pi}{12}, \frac{3\pi}{4}, \frac{13\pi}{12}, \frac{17\pi}{12}, \frac{7\pi}{4}$

36. $\frac{\pi}{12}, \frac{5\pi}{12}, \frac{7\pi}{12}, \frac{11\pi}{12}, \frac{13\pi}{12}, \frac{17\pi}{12}, \frac{19\pi}{12}, \frac{23\pi}{12}$

38. $\frac{7\pi}{6}, \frac{3\pi}{2}, \frac{11\pi}{6}$ **40.** $\frac{\pi}{3}, \frac{5\pi}{3}$

42. $0.3218, \frac{\pi}{4}, 3.4633, \frac{5\pi}{4}$ **44.** 3.8930, 6.0217

46. 0.2527, 2.8889, 4.7124 **48.** 1.0472, 5.2360

50. 1.1071, 4.2487 **52.** 1.1142, 2.7726

54. 0.5153, 2.7259, 3.6569, 5.8675

56. 0.5880, 2.0344, 3.7296, 5.1760 **58.** 1.998

60. −1.035, 0.870

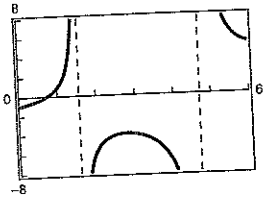
62. (a)

x	0	1	2	3
$f(x)$	−1	0.85	−5.81	−4.03

x	4	5	6
$f(x)$	−7.12	16.63	5.25

Any zeros are in the intervals (0, 1), (1, 2), and (4, 5) because f changes signs in those intervals.

(b)



The only interval is (0, 1). The result differs from that in part (a) because of the vertical asymptotes.

(c) 0.7391

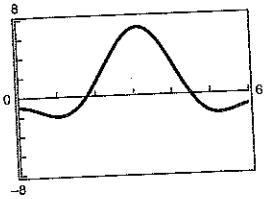
64. (a)

x	0	1	2	3
$f(x)$	−1	−1.99	1.36	6.88

x	4	5	6
$f(x)$	3.32	−1.81	−1.15

The zeros are in the intervals (1, 2) and (4, 5) because f changes signs in those intervals.

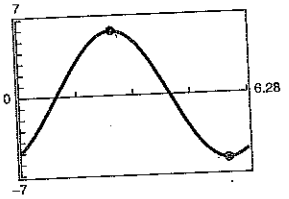
(b)



The intervals are the same as in part (a).

(c) 1.7794, 4.5038

66. (a)



Maximum: (2.6012, 5.8310)

Minimum: (5.7428, −5.8310)

(b) 2.6012, 5.7428