

Chapter 7 Review Extra Practice Answers

1. a) $\sin(-83^\circ)$ d) $\cos 97^\circ$

b) $\tan \frac{5\pi}{18}$ e) $\tan 12^\circ$

c) $\sin \frac{17\pi}{20}$ f) $\cos\left(-\frac{24\pi}{55}\right)$

2. a) $\tan 228^\circ$ d) $\cos 154^\circ$

b) $\cos \frac{3\pi}{11}$ e) $\sin 318^\circ$

c) $\cos \frac{38\pi}{25}$ f) $\tan \frac{6\pi}{41}$

3. a) Answers may vary. For example, one counterexample is $\cos 2(0) = \cos 0 = 1$;
 $\frac{2\cos 0}{1 - \cos^2 0} = \frac{2(1)}{1 - 1^2} = \frac{2(1)}{1 - 1} = \frac{2}{0} = \text{undefined.}$

b) Answers may vary. For example, one counterexample is

$$\sin^3 \frac{\pi}{6} + \cos^3 \frac{\pi}{6} = \left(\frac{1}{2}\right)^3 + \left(\frac{\sqrt{3}}{2}\right)^3$$

$$= \frac{1}{8} + \frac{3\sqrt{3}}{8} = \frac{1 + 3\sqrt{3}}{8}.$$

c) Answers may vary. For example, one counterexample is $\cot \frac{\pi}{6} = \sqrt{3}$;

$$\frac{\sec \frac{\pi}{6}}{\csc \frac{\pi}{6}} = \frac{\frac{2\sqrt{3}}{3}}{2} = \frac{2\sqrt{3}}{6} = \frac{\sqrt{3}}{3}.$$

d) Answers may vary. For example, one counterexample is

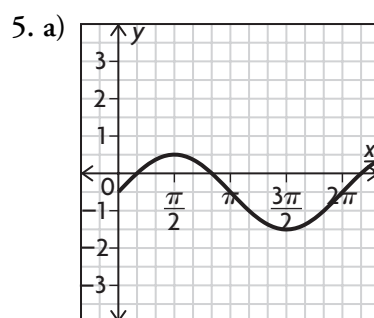
$$\cot\left(\frac{3\pi}{2} - \frac{\pi}{2}\right) = \cot \frac{2\pi}{2} = \cot \pi = \text{undefined};$$

$$\cot \frac{3\pi}{2} - \cot \frac{\pi}{2} = 0 - 0 = 0.$$

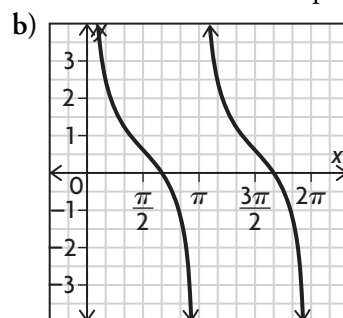
4. a) $x = \frac{3\pi}{4}$ or $\frac{7\pi}{4}$ d) $x = \frac{\pi}{3}$ or $\frac{4\pi}{3}$

b) $x = \frac{7\pi}{6}$ or $\frac{11\pi}{6}$ e) $x = \frac{3\pi}{4}$ or $\frac{7\pi}{4}$

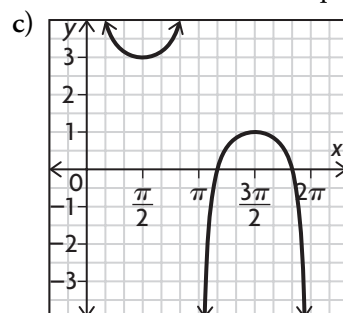
c) $x = \frac{2\pi}{3}$ or $\frac{4\pi}{3}$ f) $x = \frac{2\pi}{3}$ or $\frac{4\pi}{3}$



The solutions to the equation are $x = \frac{\pi}{6}$ or $\frac{5\pi}{6}$.



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6. a) $x = 0.11, 3.03, 3.39, \text{ or } 6.03$

b) $x = 2.35, 3.14, \text{ or } 3.94$

7. a) $x = 0.69, 2.45, 3.69, \text{ or } 5.73$

b) $x = 0.13, 2.46, 3.27, \text{ or } 5.61$