MAT 170 Test 3 Review Answers

There is a reasonable assumption that most of these answers are correct. If you find any incorrect answers, please contact your instructor as soon as possible.

Trigonometric Functions (*Section 4.2*)

1. a) $\cos(t) = -\frac{\sqrt{13}}{7}$ $\tan(t) = -\frac{6}{\sqrt{13}} = -\frac{6\sqrt{13}}{13}$ $\sec(t) = -\frac{7}{\sqrt{13}} = -\frac{7\sqrt{13}}{13}$

$\csc(t) = \frac{7}{6}$ $\cot(t) = -\frac{\sqrt{13}}{6}$

b) $\sin(t) = -\frac{4}{5}$ $\tan(t) = \frac{4}{3}$ $\cot(t) = \frac{3}{4}$ $\csc(t) = -\frac{5}{4}$ $\sec(t) = -\frac{5}{3}$

Applications (*Section 4.3*)

2. 69.7 feet 3. 24727.3 m

Reference Angle (*Section 4.3*)

4. a) 30° b) 70° c) $\frac{\pi}{4}$ d) $\frac{\pi}{3}$

Graphs of Trigonometric Functions (*Section 4.5 - 4.6*)

5. a) amplitude = 2, period = π, phase shift = $\frac{\pi}{4}$ to the left

b) amplitude = 4, period = $\frac{2\pi}{3}$, phase shift = $\frac{\pi}{3}$ to the left

6. $-5\sin\left(\frac{\pi}{3}x\right)$ or $5\sin\left(\frac{\pi}{3}(x-3)\right)$ or $5\sin\left(\frac{\pi}{3}(x+3)\right)$ or $5\cos\left(\frac{\pi}{3}(x-4.5)\right)$

7. a) $\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$ b) 3.125 8. a) $(-\infty,-2]\cup[2,\infty)$ b) $(-\infty,-3]\cup[3,\infty)$

Inverse Trigonometric Functions (*Section 4.7*)

Find the exact value of each of the following:

9. $-60°$ or $-\frac{\pi}{3}$ 10. $\frac{3\sqrt{13}}{13}$ 11. $\frac{\sqrt{1-x^2}}{x}$ 12. $\frac{\pi}{3}$ or 60° 13. 135° or $\frac{3\pi}{4}$

14. –30° or $-\frac{\pi}{6}$ 15. $\frac{\sqrt{9-x^2}}{3}$ 16. $\frac{3x}{\sqrt{1-9x^2}}$

Verifying Trigonometric Identities (*Section 5.1*)

Answers may vary. Check with your instructor.

Sum and Difference Formulas (*Section 5.2*)

24. ½ 25. $-\frac{1}{4}\sqrt{2}(\sqrt{3}+1)$ 26. $\frac{\sqrt{3}}{3}$ 27. Answers may vary. Check with your instructor.

23. (***Section 4.2***) Label the unit circle, i.e. label all the special angles, and the x and y coordinates for the angles.