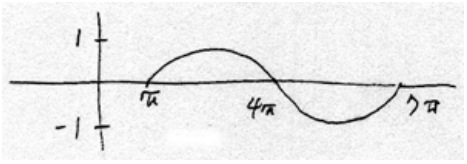
Math 141-142
Spring 2000
Trigonometry Final Exam Answers

1. $-\frac{4}{3}$
2. $-\frac{3}{4}$
3. $\frac{4}{5}$
4. $68°, 112°$
5. $\frac{-4\sqrt{2}}{9}$
6. $\frac{3\pi}{4}, \frac{5\pi}{4}$
7. $51°$
8. $-\frac{\sqrt{3}}{2}$
9. 8π
10. $-\frac{33}{65}$
11. 23
12. d
13. $-\frac{2}{\sqrt{5}}$
14. 702 feet
15. amplitude=1, period=6π, phase shift=π
    graph:



16.

$$\frac{\sin x}{1+\cos x} + \frac{1+\cos x}{\sin x} = \frac{\sin^2 x + (1+\cos x)^2}{(1+\cos x)(\sin x)} = \frac{\sin^2 x + 1 + 2\cos x + \cos^2 x}{(1+\cos x)(\sin x)}$$
$$= \frac{2+2\cos x}{(1+\cos x)(\sin x)} = \frac{2(1+\cos x)}{(1+\cos x)(\sin x)} = \frac{2}{\sin x} = 2\csc x$$

17. $90°, 210°, 330°$