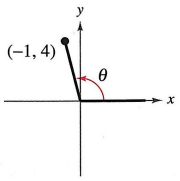
Pre-Calculus
Test 4

Mr. Klar

1. Fill out the unit circle (on next page).
2. Consider an angle θ which measures $\dfrac{-3\pi}{4}$ radians.
   (a) Sketch the angle in standard position.
   (b) Write a negative angle which is coterminal with θ.
   (c) Convert θ to degrees.
3. Find the exact values of the six trigonometric functions of the angle θ in the figure.



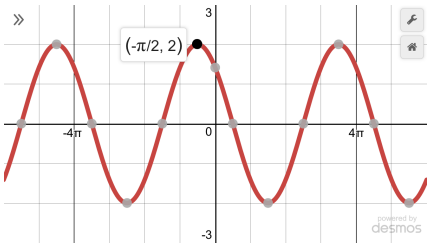
4. If $\sec\theta < 0$ and $\tan\theta < 0$, then what quadrant is the angle θ in? (Hint: Think in terms of sin and cos.)
5. Find θ if $\cos\theta = \frac{-\sqrt{3}}{2}$ and $0 \le \theta < 2\pi$. (Give two exact values.)
6. Evaluate $\tan(\arccos\frac{3}{5})$ without a calculator.

In problems 8-10, graph the function by hand. (Include two full periods.)

7. $f(x) = -3\sin\left(x + \dfrac{\pi}{4}\right)$
8. $g(x) = \dfrac{1}{3}\tan(2x)$
9. $h(x) = 2\sec(x)$

For problems 10-14, Desmos may be used.

10. Find a, b, and c for the function $f(x) = a\sin(bx + c)$ such that the graph of f matches the graph below.



Graph the function. If it is periodic, find its period.

11. $f(x) = sin2\pi x + 2\cos\pi x$
12. $g(t) = 6e^{-0.12t}cos(0.25t), \quad 0 \le t \le 32$
13. $h(x) = 2\arcsin\left(\frac{1}{2}x\right)$
14. $\phi(x) = \arctan\frac{x}{2}$