Test 3 review problems

1) Find $\sin\left(\frac{11\pi}{12}\right)$

2) Find $\cos\left(\frac{37\pi}{12}\right)$

3) Find $\sec\left(\frac{3\pi}{12}\right)$

4) Find $\sin(22^o)\cos(23^o) - \sin(23^o)\cos(22^o)$

5) Find $\sin(x+y)$ if $\sin(x) = \frac{7}{12}$, $\cos(y) = \frac{8}{12}$, with x in quadrant I while y is in quadrant IV.

6) Simplify $\sin(2x)\sin(3x) + \cos(2x)\cos(3x)$

7) Find $\cos\left(\frac{7\pi}{8}\right)$

8) Find $\csc\left(\frac{7\pi}{8}\right)$

9) Find $\frac{\tan(60^o)}{1-\tan^2(60^o)}$

10) Verify $\tan^2\left(\frac{x}{2}\right) = \frac{1-\cos(x)}{1+\cos(x)}$

11) Find $\cos(105^o) \cdot \cos(75^o)$

12) Find $\sin(285^o) - \sin(15^o)$

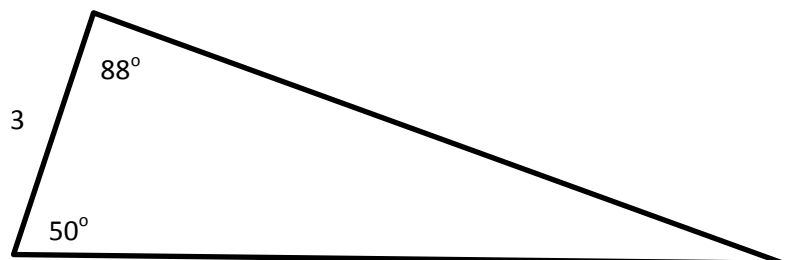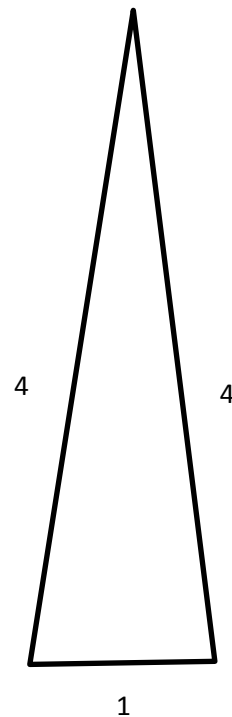13) Write $\sin(2x)\sin(3x)$ in terms of cosine.

14) Graph $y = 4\sin(x) + 4\cos(x)$

15) Graph $y = \sqrt{6}\sin(x) - \sqrt{2}\cos(x)$

16) Graph $y = 2\sin^{-1}\left(\frac{x}{2}\right)$

17) Graph $y = -\cos^{-1}(x-2)$

18) Graph $y = \tan^{-1}(2x+3) + \pi$

19) Solve $\sin(x) = 0.5$

20) Solve $\cos(2x) = 0.5$

21) Solve $3 + \tan\left(\frac{1}{2}x\right) = 0.5$

22) Solve $\sin^2(3x - 2) = 3$

23) Solve $\cos^2(2x) - \frac{1}{6}\cos(2x) = 0$

24) Solve $\tan^2(6x + 2) + 3\tan(6x + 2) - 40$

25) Graph the point $(r, \theta) = \left(3, \frac{\pi}{2}\right)$

26) Graph the points $(2, 20^o), (-2, 20^o), (2, 120^o), (3, 120^o)$

27) Graph the function $r = \frac{1}{2}\theta$.

28) Graph the function $r = 6$.

29) Graph the function $y = 3\sin(2\theta)$

30) Graph the function $y = 2\sin(3\theta)$

31) Solve all the triangles on this document.