

Answers to practice exam.

1. a.  $240^\circ$ , b.  $4\pi/3$ , c.  $\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$ , d.  $\pi/3$ , e.  $-2, \frac{1}{\sqrt{3}}$

2.  $a = 5\sqrt{3}m$ ,  $c = 10\sqrt{3}m$

3.  $\cos x$ ,  $\sec x$ ;  $\sin 2x$ ,  $\tan x$ ;  $\pi$ ,  $3$  upside down,  $\pi/4$  right, up 2

4.  $\frac{1}{\sqrt{5}}$ ; 18;  $5/13$

5.  $\pi/3, 5\pi/3, 5\pi/6, 7\pi/6$ ;  $\pi/6, 5\pi/6, 7\pi/6, 11\pi/6$

6.  $\frac{5\sin 135^\circ}{\sin 30^\circ} = 5\sqrt{2}$  ft.

7.  $2\sqrt{2}(\cos 315^\circ + i\sin 315^\circ), 2(\cos 30^\circ + i\sin 30^\circ)$ ;  
 $4\sqrt{2}(\cos 345^\circ + i\sin 345^\circ), 64(\cos 180^\circ + i\sin 180^\circ) = -64 + 0i$

8.  $\langle 2, 14 \rangle$ ,  $10\sqrt{2} \tan^{-1}(7)$

9. a. 2, b.  $\frac{1}{\sqrt{3}}$ ; c.  $\pi/3$ ; d.  $5\pi/6$ ; e.  $\frac{\sqrt{5}}{2}$ ; f.  $\frac{2\sqrt{2}}{3}$ ; g.  $-\pi/3$

10.  $\frac{2}{\tan 10^\circ}$  miles

11.  $\cos^{-1}\left(\frac{5}{\sqrt{13}\sqrt{17}}\right)$

12.

a.  $(3\sqrt{2}, 3\sqrt{2}), (-2\sqrt{3}, -2)$

b.  $(3\sqrt{2}, \frac{3\pi}{4}), (2, \frac{5\pi}{3})$

c.  $(3, \pi/3), (-3, 4\pi/3), (3, -5\pi/3), (-3, -2\pi/3)$

d. See graph:

