

1. Write all angles which will solve these problems.

a.  $\cos \theta = \frac{\sqrt{3}}{2}$ ,  $0^\circ < \theta < 360^\circ$

b.  $\sin \theta = -\frac{\sqrt{2}}{2}$ ,  $0 < \theta < 2\pi$

c.  $\cot \theta = \text{undefined}$ ,  $0^\circ \leq \theta \leq 720^\circ$

d.  $2\sin \theta - 1 = 0$ ,  $-2\pi \leq \theta \leq 2\pi$

e.  $\cos^2 \theta + \frac{1}{2}\cos \theta = 0$ ,  $0^\circ \leq \theta < 360^\circ$

2. Simplify the following (*if necessary express answers as radicals in simplest form*)

a.  $\frac{3}{1 - 2\sin 3\pi/4}$

b.  $\frac{\sin^2 225^\circ}{8\sin 120^\circ}$

c.  $\cos^2 210^\circ + \sin^2(-30^\circ) - \sin 90^\circ + \tan 480^\circ$

d.  $\frac{2\cos 3\pi + \sin 11\pi/4}{\cos^2 \pi/6}$

3. The point  $(-2, 6)$  lies on the terminal arm of an angle  $\theta$ . Calculate the six trigonometric ratios of  $\theta$ , *expressed as radicals in simplest form*.

4. If  $\sec \theta = -\frac{\sqrt{11}}{3}$  and  $\tan \theta > 0$ , determine the value of the 5 remaining trig ratios expressed as radicals in simplest form.

5. Find one positive and one negative angle that is *co-terminal* to the following:

a.  $\frac{2\pi}{9}$

b.  $-900^\circ$

c.  $300^\circ$