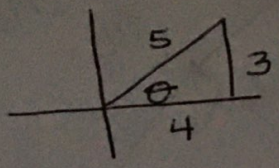
# double/half

1.) draw △ QI



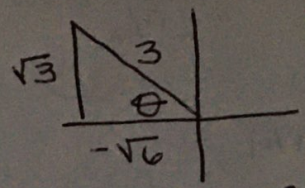

a.) $\sin 2\theta = \frac{24}{25}$

b.) $\cos 2\theta = 7/25$

c.) $\sin \theta/2 = \sqrt{10}/10$

d) $\cos \theta/2 = 3\sqrt{10}/10$

2.) draw △ QII




a.) $\sin 2\theta = -\frac{2\sqrt{2}}{3}$

b.) $\cos 2\theta = 1/3$

c.) $\sin \theta/2 = \sqrt{\frac{3+\sqrt{6}}{6}}$

d) $\cos \theta/2 = \sqrt{\frac{3-\sqrt{6}}{6}}$

3.) $\frac{\sqrt{2-\sqrt{2}}}{2}$

4) $1-\sqrt{2}$

5.) $-\frac{\sqrt{2+\sqrt{3}}}{2}$

6.) $-\frac{\sqrt{2-\sqrt{3}}}{2}$

7.) $1+\sqrt{2}$

8) $-\frac{\sqrt{6}+\sqrt{2}}{4}$

9) $\cos^4\theta - \sin^4\theta = \cos(2\theta)$

$(\cos^2\theta + \sin^2\theta)(\cos^2\theta - \sin^2\theta) = \downarrow$

$1(\cos^2\theta - \sin^2\theta) = \downarrow$

$\cos 2\theta = \cos 2\theta$

10) $\tan \theta/2 = \csc\theta - \cot\theta$

$\downarrow = \frac{1}{\sin\theta} - \frac{\cos\theta}{\sin\theta}$

$\downarrow = \frac{1-\cos\theta}{\sin\theta}$

$\downarrow$

$\tan \theta/2 = \tan \theta/2$