

$$6) a) \frac{4}{1 - 3\cos 45^\circ}$$

$$\frac{4}{1 - 3\left(\frac{\sqrt{2}}{2}\right)}$$

$$\frac{2 \cdot 4}{2 \cdot 1 - 3\sqrt{2} \cdot 2} \rightarrow \frac{8}{2 - 3\sqrt{2}}$$

$$\frac{4}{\frac{2}{2} - \frac{3\sqrt{2}}{2}}$$

$$\frac{4}{\frac{2 - 3\sqrt{2}}{2}}$$

$$\frac{4}{1} \times \frac{2}{2 - 3\sqrt{2}}$$

$$\frac{(8)(2 + 3\sqrt{2})}{(2 - 3\sqrt{2})(2 + 3\sqrt{2})}$$

$$\frac{16 + 24\sqrt{2}}{4 - 9(2)}$$

$$\frac{16 + 24\sqrt{2}}{-14}$$

$$\frac{8 + 12\sqrt{2}}{-7} \rightarrow -\frac{8 + 12\sqrt{2}}{7}$$

$$\textcircled{8} e) \quad 2\sin^2\theta + 5\sin\theta - 3 = 0$$

$$-360 \leq \theta \leq 360$$

$$(2\sin^2\theta - 1\sin\theta)(6\sin\theta - 3) = 0$$

$$\underline{-1} \times \underline{6} = -6$$

$$\sin\theta(2\sin\theta - 1) + 3(2\sin\theta - 1) = 0$$

$$\underline{-1} + \underline{6} = 5$$

$$(2\sin\theta - 1)(\sin\theta + 3) = 0$$

$$2\sin\theta - 1 = 0$$

$$\sin\theta + 3 = 0$$

$$\sin\theta = \frac{1}{2}$$

$$\sin\theta = -3$$

ref = 30°

Not Possible

Q1

Q2

$$\theta = 30^\circ$$

$$\theta = 150^\circ$$

$$\theta = -330^\circ$$

$$\theta = -210^\circ$$

$$\textcircled{6} \omega \frac{\sin^{\circ} 225^{\circ}}{4 \cos 120^{\circ} + \sqrt{5}}$$

$$\frac{\left(\frac{-1}{\sqrt{2}}\right)^2}{4\left(\frac{-1}{2}\right) + \sqrt{5}}$$

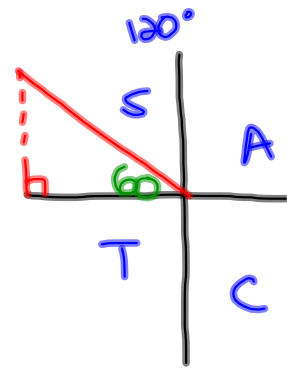
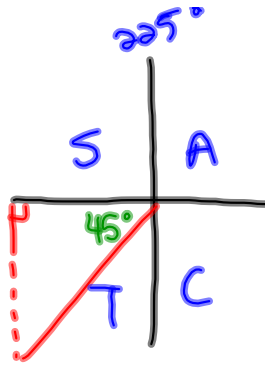
$$\frac{\frac{1}{2} \times 2}{2 \times -2 + \sqrt{5} \times 2}$$

$$\frac{1}{(-4 + 2\sqrt{5})(-4 - 2\sqrt{5})}$$

$$\frac{-4 - 2\sqrt{5}}{16 - 20}$$

$$\frac{-4 - 2\sqrt{5}}{-4}$$

$$\frac{2 + \sqrt{5}}{2}$$



Ex. 7.7

⑧ d) $1 - \sin\theta = 2\sin^2\theta \quad -360 \leq \theta \leq 360$

$$0 = 2\sin^2\theta + \sin\theta - 1$$

$$0 = (2\sin^2\theta + 2\sin\theta)(\sin\theta - 1)$$

$$0 = 2\sin\theta(\sin\theta + 1) - 1(\sin\theta + 1)$$

$$0 = (2\sin\theta - 1)(\sin\theta + 1)$$

$$2\sin\theta - 1 = 0$$

$$2\sin\theta = 1$$

$$\sin\theta = \frac{1}{2}$$

$$\text{ref} = 30$$

$$\sin\theta + 1 = 0$$

$$\sin\theta = -1$$

$$\theta = 270^\circ$$

$$\theta = -90^\circ$$

Q1

Q2

$$\theta = 30^\circ$$

$$\theta = 150^\circ$$

$$\theta = -330^\circ$$

$$\theta = -210^\circ$$

$$6) \quad d) \quad \frac{\cos 225^\circ}{\sin 240^\circ + \cos 60^\circ}$$

$$\frac{\left(\frac{-\sqrt{2}}{2}\right)}{\left(\frac{-\sqrt{3}}{2}\right) + \left(\frac{1}{2}\right)}$$

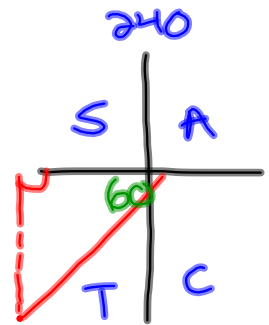
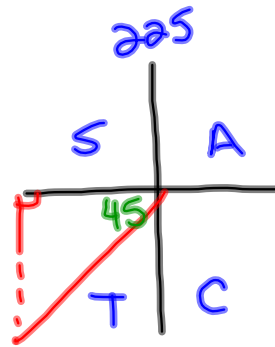
$$\frac{-\frac{\sqrt{2}}{2}}{\frac{-\sqrt{3}+1}{2}}$$

$$-\frac{\sqrt{2}}{\cancel{2}'} \times \frac{\cancel{2}'}{-\sqrt{3}+1}$$

$$\frac{(-\sqrt{2})}{(-\sqrt{3}+1)} \cdot \frac{(-\sqrt{3}-1)}{(-\sqrt{3}-1)}$$

$$\frac{\sqrt{6} + \sqrt{2}}{3-1}$$

$$\boxed{\frac{\sqrt{6} + \sqrt{2}}{2}}$$



$$\textcircled{5} \text{ d), } 2\cos^2\theta + 7\cos\theta + 3 = 0 \quad -360 \leq \theta \leq 360$$

$$(2\cos^2\theta + 6\cos\theta)(\cos\theta + 3) = 0$$

$$\underline{6} \times \underline{-1} = \underline{6}$$

$$\underline{6} + \underline{-1} = \underline{7}$$

$$2\cos\theta(\cos\theta + 3) + 1(\cos\theta + 3) = 0$$

$$(2\cos\theta + 1)(\cos\theta + 3) = 0$$

$$2\cos\theta + 1 = 0 \quad | \quad \cos\theta + 3 = 0$$

$$2\cos\theta = -1$$

$$\cos\theta = -3$$

$$\cos\theta = \frac{-1}{2}$$

Not Possible

$$\text{ref} = 60$$

Q2

Q3

$$\theta = 120^\circ$$

$$\theta = 240^\circ$$

$$\theta = -240^\circ \quad \theta = -120^\circ$$