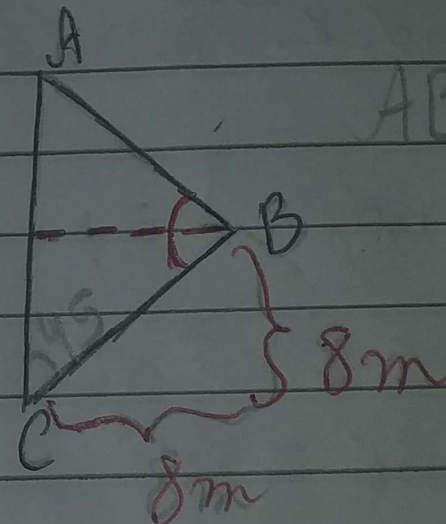


1-)

$$\alpha = 60^\circ$$

$$\angle ABC = 105^\circ$$

$$\operatorname{tg} \alpha = \frac{\text{cateto oposto}}{\text{cateto adjacente}}$$



$$\operatorname{tg} 60^\circ = \frac{x}{8}$$

$$105 - 45 = 60$$

$$x = 8\sqrt{3} \approx 13,86 \text{ m} \quad AB = 13,86 \text{ m}$$

$$AC = AB + BC \Rightarrow AC = 13,86 + 8$$

$$AC = 21,86$$

$$AC = 25,86$$

2.)

ABD

$$\tan \alpha = \frac{CD}{CA} = \frac{21}{28} = 0,75$$

$$2\alpha = 36,87 \cdot 2$$

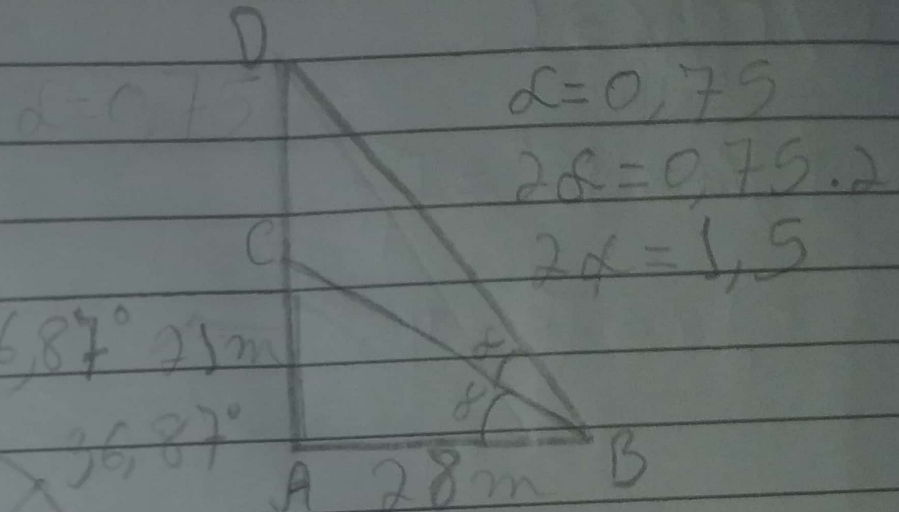
$$2\alpha = 73,74^\circ$$

$$\tan 2\alpha = 3,43$$

$$\tan 2\alpha = \frac{CD}{28}$$

$$3,43 \cdot 28 = \frac{CD}{28}$$

$$CD = 96,04 \Rightarrow AD = 96$$



$$ABD \Rightarrow \tan \alpha = \frac{21}{28}$$

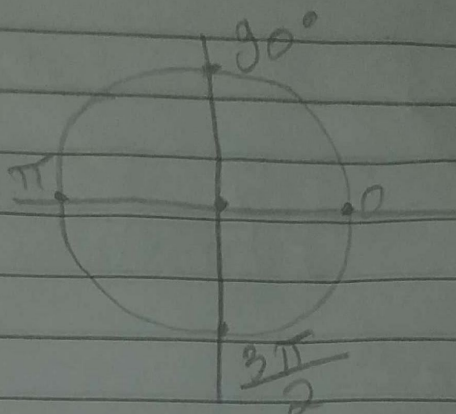


3°)  $0 < \alpha < \frac{3\pi}{2}$

a)  $\sin \alpha = 1$

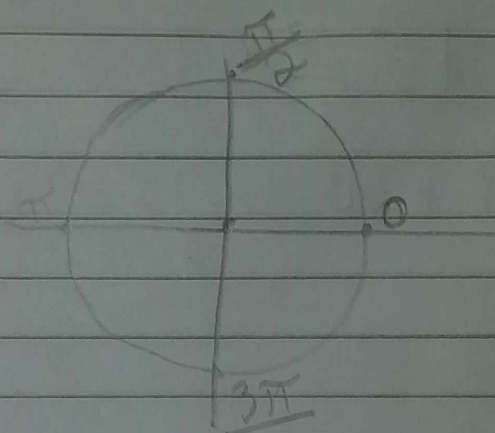
$\sin \alpha = \sin 90^\circ$

$\sin \alpha = 90^\circ$



b)  $\cos \alpha = \frac{1}{2}$

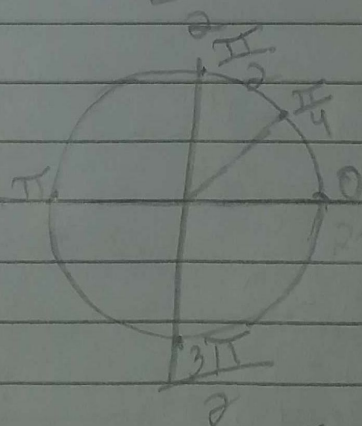
$\cos \alpha = 60^\circ$



c)  $\tan \alpha = 1$

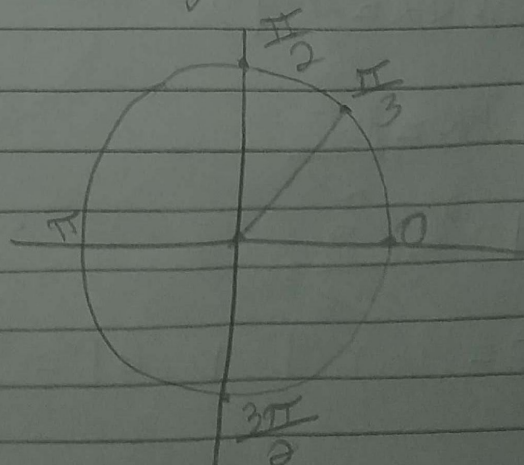
$\alpha = 45^\circ = \frac{\pi}{4}$

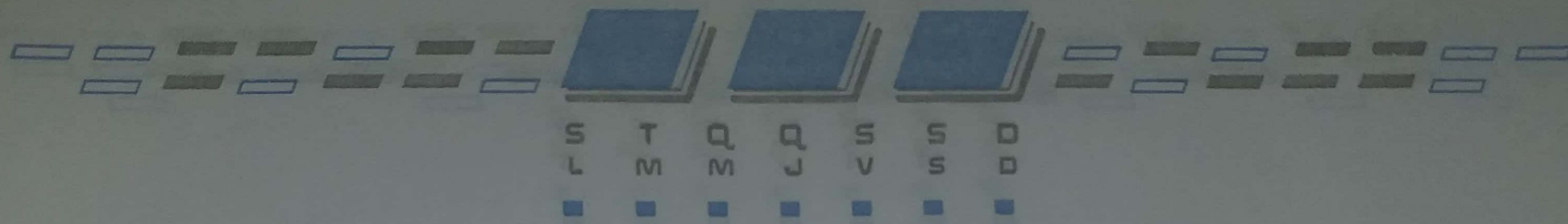
$\tan \alpha = \frac{\pi}{4} = 45^\circ$



d)  $\tan \alpha = \sqrt{3}$

$\tan \alpha = 60^\circ = \frac{\pi}{3}$





$$4^{\circ}) \quad \operatorname{tg} \frac{5\pi}{3} - \sec \frac{\pi}{4} + \operatorname{cosec} \frac{\pi}{4}$$

$$\operatorname{tg} \frac{5\pi}{3} = 300^{\circ} = -\sqrt{3} = -1,73$$

$$\sec \frac{\pi}{4} = 45^{\circ} = \frac{1}{\frac{1}{\sqrt{2}}} = 1 \cdot \frac{2}{\sqrt{2}} = \frac{2}{\sqrt{2}} = \frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2} = 1,41$$

$$\operatorname{cosec} \frac{\pi}{4} = 45^{\circ} = \frac{1}{\sec 45^{\circ}} = \frac{1}{\sqrt{2}} = 0,70$$

$$-1,73 - 1,41 + 0,70 = -2,44$$

5.e)

... 121^{\circ}



5.)

$$a) x = \text{sen } 20^\circ - \text{sen } 160^\circ + \cos 44^\circ + \cos 136^\circ$$

$$\text{sen}(x) = \text{sen}(180^\circ - x), \quad \cos(x) = -\cos(180^\circ - x)$$

$$x = \text{sen } 20^\circ - \text{sen}(180^\circ - 160^\circ) + \cos 44^\circ + \cos(180^\circ - 136^\circ)$$

$$x = \text{sen } 20^\circ - \text{sen } 20^\circ + \cos 44^\circ - \cos 44^\circ$$

$$x = 0 + 0 = 0$$

$$b) x = \text{sen } 10^\circ \cdot \cos 50^\circ + \cos 130^\circ \cdot \text{sen } 170^\circ$$

$$\text{sen } 170^\circ = \text{sen } 10^\circ, \quad \cos 130^\circ = -\cos 50^\circ$$

$$x = \text{sen } 10^\circ \cdot \cos 50^\circ + (-\cos 50^\circ) \cdot \text{sen } 10^\circ$$

$$x = \text{sen } 10^\circ \cdot \cos 50^\circ - \cos 50^\circ \cdot \text{sen } 10^\circ$$

$$x = 0$$