

Section 6.1c – Practice Problems

Find the exact value of each expression if $\theta = 30^\circ$

1. $\sin \theta$

$$\sin 30 = \frac{1}{2}$$

2. $\cos \theta$

$$\cos 30 = \frac{\sqrt{3}}{2}$$

3. $\tan \theta$

$$\tan 30 = \frac{1}{\sqrt{3}}$$

4. $\sin 2\theta$

$$\begin{aligned} \sin 2(30) \\ \sin 60 = \frac{\sqrt{3}}{2} \end{aligned}$$

5. $\cos 2\theta$

$$\begin{aligned} \cos 2(30) \\ \cos 60 = \frac{1}{2} \end{aligned}$$

6. $\tan 2\theta$

$$\begin{aligned} \tan 2(30) \\ \tan 60 = \sqrt{3} \end{aligned}$$

Find the exact value of each expression if $\theta = 45^\circ$

7. $\sin \theta$

$$\sin 45 = \frac{1}{\sqrt{2}}$$

8. $\cos \theta$

$$\cos 45 = \frac{1}{\sqrt{2}}$$

9. $\tan \theta$

$$\tan 45 = 1$$

10. $2\sin \theta$

$$2\sin 45 = 2 \cdot \frac{1}{\sqrt{2}} = \sqrt{2}$$

11. $2\cos \theta$

$$\begin{aligned} 2\cos 45 \\ 2 \cdot \frac{1}{\sqrt{2}} = \sqrt{2} \end{aligned}$$

12. $2\tan \theta$

$$\begin{aligned} 2 \cdot \tan 45 \\ 2 \cdot 1 = 2 \end{aligned}$$

Find the exact value of each expression if $\theta = 60^\circ$

13. $\sin \theta$

$$\sin 60 = \frac{\sqrt{3}}{2}$$

14. $\cos \theta$

$$\cos 60 = \frac{1}{2}$$

15. $\tan \theta$

$$\tan 60 = \sqrt{3}$$

16. $\sin \frac{\theta}{2}$

$$\sin \frac{60}{2} = \sin 30 = \frac{1}{2}$$

17. $\cos \frac{\theta}{2}$

$$\cos \frac{60}{2} = \cos 30 = \frac{\sqrt{3}}{2}$$

18. $\tan \frac{\theta}{2}$

$$\tan \frac{60}{2} = \tan 30 = \frac{1}{\sqrt{3}}$$