Chapter 10 Review B worksheet Name _____ Assignment # ____

You must do your work on a separate piece of paper.

Find the exact value of the expression.

1. $\cos 105°$

2. $\sin 195°$

3. $\tan 165°$

4. $\tan\frac{\pi}{12}$

5. $\sin\frac{7\pi}{12}$

6. $\cos\frac{11\pi}{12}$

Evaluate the expression given $\cos u = \frac{4}{5}; 0 \le u < \frac{\pi}{2}$; and $\tan v = \frac{8}{15};\ \pi < v < \frac{3\pi}{2}$

7. $\sin\left(u+v\right)$

8. $\cos\left(u+v\right)$

9. $\tan\left(u+v\right)$

10. $\sin\left(u-v\right)$

11. $\cos\left(u-v\right)$

12. $\tan\left(u-v\right)$

Simplify the expression.

13. $\sin\left(x-2\pi\right)$

14. $\tan\left(x-\frac{3\pi}{4}\right)$

15. $\cos\frac{\pi}{4}\cos\frac{\pi}{3}-\sin\frac{\pi}{4}\sin\frac{\pi}{3}$

16. $\sin 20° \cos 50° + \cos 20° \sin 50°$

17. $\frac{\tan 78^o - \tan 42^o}{1+\tan 78^o \tan 42^o}$

18. $\frac{\tan\frac{5\pi}{3}+\tan\frac{\pi}{4}}{1-\tan\frac{5\pi}{3}\tan\frac{\pi}{4}}$

Verify the identity.

19. $\cos\left(u+v\right)+\cos\left(u-v\right)=2\cos u\cos v$

20. $\sin\left(u+v\right)-\sin\left(u-v\right)=2\cos u\sin v$

Simplify as far as possible.

21. $\left(\sin x+\cos x\right)^2$

22) $\frac{\sin 2x}{\sin x}$

23) $4\sin\frac{x}{2}\cos\frac{x}{2}$

24. $\cos^4 x-\sin^4 x$

25. $\frac{1}{2}\sin 3x\cos 3x$

26) $\frac{\cos 2x}{\cos^2 x}$

Solve the equation for $0 \le x < 2\pi$

27. cos 2x = cos x

28. sin 2x sin x = cos x

29. cos 2x = - sinx

30. $\sin 2x + \sqrt{2}\sin x = 0$

31. $\cos 2x - \cos x = 2$

32. $\tan(x - 10°) = 1 \; ; \; 0 \le x < 360°$

Use a double-angle or half angle identity to find the exact value of each expression.

$\sin\theta = \frac{8}{17}$ and $90^\circ < \theta < 180^\circ$.

33. $\cos 2\theta$

34. $\sin 2\theta$

35. $\tan 2\theta$

36. $\sin\left(\frac{\theta}{2}\right)$

37. $\cos\left(\frac{\theta}{2}\right)$

38. $\tan\left(\frac{\theta}{2}\right)$

Answers:

1. $\frac{\sqrt{2}-\sqrt{6}}{4}$

2. $\frac{\sqrt{2}-\sqrt{6}}{4}$

3. $-2+\sqrt{3}$

4. $2-\sqrt{3}$

5. $\frac{\sqrt{2}+\sqrt{6}}{4}$

6. $\frac{-\sqrt{2}-\sqrt{6}}{4}$

7. -77/85

8. -36/85

9. 77/36

10. -13/85

11. -84/85

12. 13/84

13. sin x

14. $\frac{\tan x + 1}{1 - \tan x}$

15. $\cos\frac{7\pi}{12}$

16. $\sin 70°$

17. $\tan 36°$

18. $\tan\frac{23\pi}{12}$

21. 1 + sin2x

22. 2 cos x

23. 2 sin x

24. cos 2x

25. $\frac{1}{4}\sin(6x)$

26. $2 - \sec^2 x$

27. $0; \frac{2\pi}{3}; \frac{4\pi}{3}$

28. $\frac{\pi}{4}; \frac{\pi}{2}; \frac{3\pi}{4}; \frac{5\pi}{4}; \frac{3\pi}{2}; \frac{7\pi}{4}$

29. $\frac{\pi}{2}; \frac{7\pi}{6}; \frac{11\pi}{6}$

30. $0; \frac{3\pi}{4}; \pi; \frac{5\pi}{4}$

31. π

32. $55°; 235°$

33. 161/289

34. -240/289

35. -240/161

36. $\frac{4\sqrt{17}}{17}$

37. $\frac{\sqrt{17}}{17}$

38. 4