PreCalculus Name _____

Sum & Difference Identities – Mixed WS

Use the sum and difference identities to find the exact values of each function.

10. (a) $\sin 15^\circ$ (b) $\cos 15^\circ$ (c) $\tan 15^\circ$

16. (a) $\sin\frac{17\pi}{12}$ (b) $\cos\frac{17\pi}{12}$ (c) $\tan\frac{17\pi}{12}$

Use the sum and difference identities to rewrite each expression as the sine, cosine, or tangent of an angle.

19. $\cos 40^\circ\cos 15^\circ - \sin 40^\circ\sin 15^\circ$

20. $\sin 110^\circ\cos 80^\circ + \cos 110^\circ\sin 80^\circ$

21. $\sin 340^\circ\cos 50^\circ - \cos 340^\circ\sin 50^\circ$

22. $\cos 20^\circ\cos 30^\circ + \sin 20^\circ\sin 30^\circ$

23. $\dfrac{\tan 325^\circ - \tan 86^\circ}{1+\tan 325^\circ\tan 86^\circ}$

24. $\dfrac{\tan 140^\circ - \tan 60^\circ}{1+\tan 140^\circ\tan 60^\circ}$

27. $\cos\frac{\pi}{7}\cos\frac{\pi}{5} - \sin\frac{\pi}{7}\sin\frac{\pi}{5}$

28. $\sin\frac{2\pi}{9}\cos\frac{\pi}{10} + \cos\frac{2\pi}{9}\sin\frac{\pi}{10}$

Find the exact value of each trigonometric function given that

$\sin u = \frac{7}{25}, \quad \frac{\pi}{2} < u < \pi$ and $\cos v = \frac{4}{5}, \quad \frac{3\pi}{2} < v < 2\pi$

39. cos (u + v)

40. sin(u + v)

41. sin(v – u)

42. cos (u – v)

43. tan(u + v)

44. tan(u – v)

Adapted from: Precalculus: A Graphing Approach (Purple textbook) – p.486