

5.4 Quiz Extra Review: Chapter 5 Review p. 420 #51 – 73 odd **(CHOOSE ANY 5 PROBLEMS TO COMPLETE.)**

5.4 In Exercises 51–54, find the exact values of the sine, cosine, and tangent of the angle by using a sum or difference formula.

51. $285^\circ = 315^\circ - 30^\circ$ 52. $345^\circ = 300^\circ + 45^\circ$

53. $\frac{25\pi}{12} = \frac{11\pi}{6} + \frac{\pi}{4}$ 54. $\frac{19\pi}{12} = \frac{11\pi}{6} - \frac{\pi}{4}$

In Exercises 55–58, write the expression as the sine, cosine, or tangent of an angle.

55. $\sin 60^\circ \cos 45^\circ - \cos 60^\circ \sin 45^\circ$

56. $\cos 45^\circ \cos 120^\circ - \sin 45^\circ \sin 120^\circ$

57. $\frac{\tan 25^\circ + \tan 10^\circ}{1 - \tan 25^\circ \tan 10^\circ}$ 58. $\frac{\tan 68^\circ - \tan 115^\circ}{1 + \tan 68^\circ \tan 115^\circ}$

In Exercises 59–64, find the exact value of the trigonometric function given that $\sin u = \frac{3}{4}$ and $\cos v = -\frac{5}{13}$. (Both u and v are in Quadrant II.)

59. $\sin(u + v)$ 60. $\tan(u + v)$

61. $\cos(u - v)$ 62. $\sin(u - v)$

63. $\cos(u + v)$ 64. $\tan(u - v)$

In Exercises 65–70, verify the identity.

65. $\cos\left(x + \frac{\pi}{2}\right) = -\sin x$ 66. $\sin\left(x - \frac{3\pi}{2}\right) = \cos x$

67. $\cot\left(\frac{\pi}{2} - x\right) = \tan x$ 68. $\sin(\pi - x) = \sin x$

69. $\cos 3x = 4 \cos^3 x - 3 \cos x$

70. $\frac{\sin(\alpha + \beta)}{\cos \alpha \cos \beta} = \tan \alpha + \tan \beta$

In Exercises 71–74, find all solutions of the equation in the interval $[0, 2\pi)$.

71. $\sin\left(x + \frac{\pi}{4}\right) - \sin\left(x - \frac{\pi}{4}\right) = 1$

72. $\cos\left(x + \frac{\pi}{6}\right) - \cos\left(x - \frac{\pi}{6}\right) = 1$

73. $\sin\left(x + \frac{\pi}{2}\right) - \sin\left(x - \frac{\pi}{2}\right) = \sqrt{3}$

74. $\cos\left(x + \frac{3\pi}{4}\right) - \cos\left(x - \frac{3\pi}{4}\right) = 0$

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