

Simplify each. Avoid the unit circle as much as possible. (Make connection between the identities)

41. $12 \sin 45^\circ \cos 45^\circ$

42. $20 \sin 60^\circ \cos 240^\circ$

43. $\cos 45^\circ \sin 210^\circ - \sin 30^\circ \cos 135^\circ$

44. $\cos 180^\circ \cos 45^\circ - \sin 180^\circ \sin 45^\circ$

45. $\tan 30^\circ \cot 30^\circ + \tan 60^\circ \cot 60^\circ$

46. $\sec 60^\circ \tan 135^\circ - \cot 60^\circ \sin 60^\circ$

47. $\cos^2 60^\circ + \sin^2 60^\circ$

48. $\cos^2 150^\circ + \sin^2 150^\circ$

49. $\cot^2 330^\circ - \csc^2 330^\circ$

50. $\tan^2 240^\circ - \sec^2 240^\circ$

51. $\cos^2 45^\circ - \sin^2 135^\circ$

52. $\sin^2 150^\circ + \cos^2 30^\circ$

53. $\frac{\sec 30^\circ}{\cos 30^\circ}$

54. $\frac{\sin 120^\circ}{\cos 120^\circ}$

55. $\sin^2 30^\circ + \cos^2 30^\circ + \tan^2 30^\circ - \sec^2 30^\circ$

56. $\sin^2 30^\circ + \cos^2 150^\circ + \tan^2 60^\circ$

57. $\sin \frac{\pi}{2} + 6 \cos \frac{\pi}{3}$

58. $\sin \frac{\pi}{3} + 6 \cos \frac{\pi}{4}$

59. $\csc \frac{\pi}{2} \sin \frac{\pi}{2}$

60. $4 \sin \frac{4\pi}{3} \cos \frac{4\pi}{3}$

61. $4 \sin \frac{\pi}{3} \cos \frac{\pi}{3}$

62. $\sin \frac{\pi}{6} \csc \frac{\pi}{6}$

63. $\sin \frac{2\pi}{3} \cos \frac{5\pi}{6} - \cos \frac{2\pi}{3} \sin \frac{5\pi}{6}$

64. $\sin \frac{2\pi}{3} \cos \frac{\pi}{6} + \cos \frac{2\pi}{3} \sin \frac{\pi}{6}$

65. $\sec \frac{\pi}{4} \sin \frac{\pi}{4} - \tan \frac{3\pi}{4} \csc \frac{\pi}{3}$

66. $\sec \frac{\pi}{3} \cos \frac{\pi}{3} + \tan \frac{\pi}{3} \cot \frac{\pi}{3}$

67. $\cos^2 \pi + \sin^2 \pi$

68. $\cos^2 \frac{2\pi}{3} + \sin^2 \frac{2\pi}{3}$

69. $\tan^2 \frac{\pi}{6} - \csc^2 \frac{\pi}{6}$

70. $\csc^2 \pi - \tan^2 \pi$

71. $\cos^2 \frac{3\pi}{4} - \sin^2 \frac{\pi}{3}$

72. $\sin^2 \frac{7\pi}{6} + \cos^2 \frac{\pi}{4}$

73. $\frac{\cos \frac{5\pi}{3}}{\sin \frac{5\pi}{3}}$

74. $\frac{\cos \frac{\pi}{4}}{\sec \frac{\pi}{4}}$