Intermediate Trigonometry

Practice Questions

Convert the following from degrees to radians.
1. $30^\circ$
2. $-45^\circ$
3. $120^\circ$
4. $90^\circ$
5. $-225^\circ$
6. $450^\circ$
7. $36^\circ$
8. $102^\circ$
9. $208^\circ$
10. $299^\circ$

Without using a calculator, find all solutions to the following equations for $0 \leq x \leq 2\pi$.
31. $\sin x = 0$
32. $\cos x = -1$
33. $\tan x = -1$
34. $\sin x = \frac{1}{2}$
35. $\csc x = 1$
36. $\cos x = -\frac{1}{\sqrt{2}}$
37. $\sec x = 2$
38. $\cot x = -\sqrt{3}$
39. $\csc x = -\frac{2}{\sqrt{3}}$
40. $\tan x = 0$

Without using a calculator, find all possible solutions to the following equations.
41. $\cos x = 2$
42. $\sin x = -\sqrt{3}$
43. $\tan x = \sqrt{3}$
44. $\cot x = -1$
45. $\csc x = \sqrt{2}$
46. $\sec x = -\frac{2}{\sqrt{3}}$
47. $\sin x = -1$
48. $\cos x = 0$
49. $\sec x = 1$
50. $\csc x = -1$

Without using a calculator, find all possible solutions to the following equations:

Without using a calculator, where possible find the exact values of sine, cosine and tangent for the following angles.

Without using a calculator, find all possible solutions to the following equations.

Without using a calculator, find the exact value of the required trig ratio.

51. $0 < x < \frac{\pi}{2}$ and $\sin x = \frac{3}{5}$; find $\tan x$.
52. $\pi < x < \frac{3\pi}{2}$ and $\cos x = -\frac{3}{5}$; find $\csc x$.
53. $\frac{\pi}{2} < x < \pi$ and $\tan x = -\frac{2}{7}$; find $\sin x$.
54. $\frac{3\pi}{2} < x < 2\pi$ and $\sec x = \frac{9}{4}$; find $\tan x$.
55. $-\frac{\pi}{2} < x < 0$ and $\csc x = -\frac{7}{5}$; find $\cos x$.
56. $\sin x = \frac{3}{5}$ and $\cos x < 0$; find $\cot x$.
57. $\cos x = -\frac{1}{2}$ and $\tan x < 0$; find $\sin x$.
58. $\sin x = -\frac{2}{5}$ and $\tan x > 0$; find $\sec x$.
59. $\tan x = \frac{1}{3}$ and $\cos x < 0$; find $\csc x$.
60. $\sec x = 3$ and $\csc x > 0$; find $\tan x$.

Convert the following from radians to degrees.
11. $\frac{\pi}{4}$ rad
12. $-\frac{9\pi}{4}$ rad
13. $\frac{\pi}{3}$ rad
14. $\frac{3\pi}{4}$ rad
15. $\frac{7\pi}{4}$ rad
16. $-\frac{11\pi}{3}$ rad
17. $\frac{5\pi}{6}$ rad
18. 1 rad
19. $-4.35$ rad
20. 2.3 rad

Without using a calculator, find all possible solutions to the following equations.

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