

Trig Review Homework

(non-calculator)

Evaluate each of the following (draw a quick reference triangle if necessary).

1) $\tan \frac{\pi}{4} = 1$

2) $\sec 0 = 1$

3) $\cot 60^\circ = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

4) $\sin \frac{\pi}{2} = 1$

5) $\cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$

6) $\csc \frac{\pi}{3} = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$

7) $\csc \pi = \text{undefined}$

8) $\tan 2\pi = 0$

9) $\sec \pi = -1$

10) $\sin \frac{3\pi}{2} = -1$

11) $\cot 90^\circ = 0$

12) $\cos \pi = -1$

13) $\cos \frac{4\pi}{3} = -\frac{1}{2}$

14) $\csc \frac{11\pi}{6} = -2$

15) $\tan 225^\circ = 1$

16) $\sec \frac{5\pi}{3} = 2$

17) $\sin \frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$

18) $\cot \frac{2\pi}{3} = -\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$

Solve each trig equation for x on the interval $[0, 2\pi)$.

19) $\csc x = \frac{2\sqrt{3}}{3}$

20) $\cos x = -\frac{\sqrt{2}}{2}$

21) $\sin x = 0$

22) $\cot x = -\sqrt{3}$

$\frac{\pi}{3}, \frac{2\pi}{3}$

$\frac{3\pi}{4}, \frac{5\pi}{4}$

$0, \pi$

$\frac{5\pi}{6}, \frac{11\pi}{6}$

Solve each trig equation for x on the interval $[0, 2\pi)$.

23) $\sin(2x) = \frac{1}{2}$

24) $\cos(3x) = 0$

25) $\tan(2x) = -1$

$\frac{\pi}{12}, \frac{5\pi}{12}, \frac{13\pi}{12}, \frac{17\pi}{12}$

$\frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{3\pi}{2}, \frac{11\pi}{6}$

$\frac{3\pi}{8}, \frac{7\pi}{8}, \frac{11\pi}{8}, \frac{15\pi}{8}$

26) Write each of the following as a single, simplified trig expression:

a) $\sin 75^\circ \cos 15^\circ + \sin 15^\circ \cos 75^\circ$

a) 1

b) $\sin 2x \cos x - \sin x \cos 2x$

b) $\sin x$

c) $\frac{\tan 52.5^\circ + \tan 7.5^\circ}{1 - \tan 52.5^\circ \tan 7.5^\circ}$

c) $\sqrt{3}$

d) $\cos 127.5^\circ \cos 7.5^\circ + \sin 127.5^\circ \sin 7.5^\circ$

d) $-\frac{1}{2}$

e) $2 \sin 105^\circ \cos 105^\circ$

e) $-\frac{1}{2}$

f) $1 - 2 \sin^2 C$

f) $\cos 2C$

g) $\cos^2 15^\circ - \sin^2 15^\circ$

g) $\frac{\sqrt{3}}{2}$

h) $2 \cos^2 112.5^\circ - 1$

h) $-\frac{\sqrt{2}}{2}$

i) $\sin\left(\frac{\pi}{12}\right) \cos\left(\frac{\pi}{12}\right)$

i) $\frac{1}{4}$

j) $\frac{2 \tan B}{1 - \tan^2 B}$

j) $\tan(2B)$