

Test 2 (Ch. 3 & 4) Pretest

1. Evaluate each.

a) $\sin(150^\circ)$

b) $\cos(270^\circ)$

c) $\csc(90^\circ)$

d) $\cot(180^\circ)$

e) $\tan(495^\circ)$

f) $\sec(600^\circ)$

g) $\cos(-240^\circ)$

h) $\tan(-120^\circ)$

i) $\sec(90^\circ)$

j) $\tan(180^\circ)$

k) $\cos(150^\circ)$

l) $\sin(270^\circ)$

m) $\sin(-315^\circ)$

n) $\cot(-150^\circ)$

o) $\sec(510^\circ)$

p) $\csc(585^\circ)$

2. Evaluate each.

a) $\csc\left(\frac{2\pi}{3}\right)$

b) $\tan\left(-\frac{4\pi}{3}\right)$

c) $\cot\left(\frac{7\pi}{6}\right)$

d) $\cos\left(\frac{5\pi}{3}\right)$

e) $\csc(5\pi)$

f) $\sin\left(\frac{7\pi}{2}\right)$

g) $\cot\left(-\frac{7\pi}{4}\right)$

h) $\sin\left(\frac{3\pi}{4}\right)$

i) $\tan\left(\frac{7\pi}{6}\right)$

j) $\sec\left(\frac{5\pi}{3}\right)$

k) $\sin\left(\frac{2\pi}{3}\right)$

l) $\cot\left(-\frac{4\pi}{3}\right)$

m) $\sin\left(-\frac{7\pi}{6}\right)$

n) $\cos\left(\frac{3\pi}{2}\right)$

o) $\sec(5\pi)$

p) $\tan\left(\frac{7\pi}{2}\right)$

3. Use a conversion multiplier to find the radian or degree equivalent.

a) 200°

b) 15°

c) 72°

d) 27°

e) $\frac{7\pi}{9}$

f) $\frac{3\pi}{20}$

g) $\frac{11\pi}{30}$

h) $\frac{13\pi}{12}$

4. For each, based on the given information, find the value(s) of θ , $0^\circ \leq \theta < 360^\circ$.

a) $\sin \theta = -\frac{1}{2}$, θ in QIV

b) $\cos \theta = \frac{\sqrt{2}}{2}$, θ in QIV

c) $\tan \theta = -1$, θ in QII

d) $\csc \theta = -\frac{2\sqrt{3}}{3}$, θ in QIII

e) $\cot \theta = -\sqrt{3}$, θ in QIV

f) $\sec \theta = -2$, θ in QII

5. Given the following information, find t . Note: The restrictions on t are not necessarily the same for each exercise.

a) $\tan(t) = 1$, $0 \leq t \leq \pi$

b) $\cos(t) = \frac{\sqrt{2}}{2}$, $\pi \leq t \leq 2\pi$

c) $\cot(t) = \frac{\sqrt{3}}{3}$, $\frac{\pi}{2} \leq t \leq \frac{3\pi}{2}$

d) $\sec(t) = 1$, $\pi \leq t \leq 2\pi$

e) $\sin(t) = -\frac{\sqrt{3}}{2}$, $\frac{\pi}{2} \leq t \leq \frac{3\pi}{2}$

f) $\csc(t) = -2$, $\frac{\pi}{2} \leq t \leq \frac{3\pi}{2}$

6. Graph **one full period** of each function. Mark each important value along the x - and y -axes.

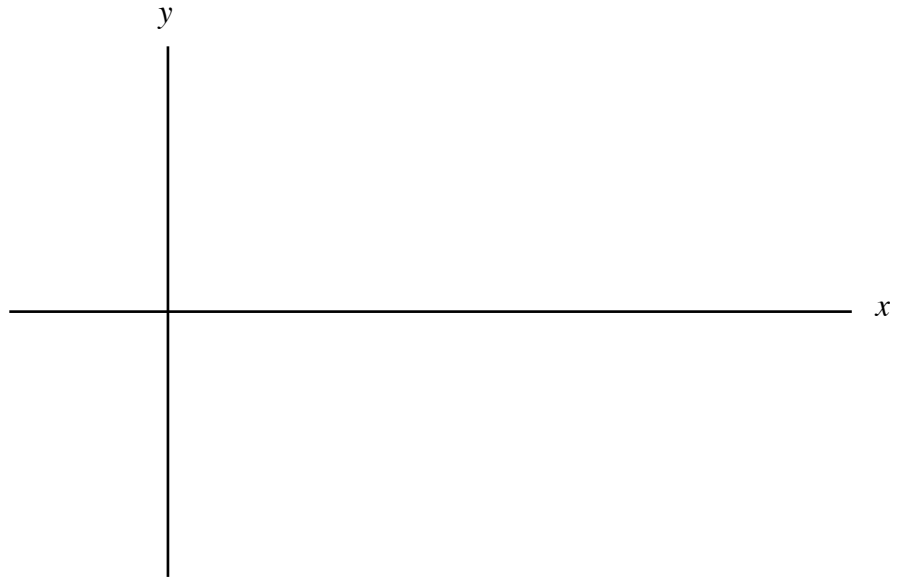
a) $f(x) = -1 + 2\cos\left(\frac{3}{4}x\right)$

i) Amplitude =

ii) Reflected?

iii) Frequency =

iv) Period =



v) Vertical shift:

b) $f(x) = 3\cos\left(\frac{6}{5}x + \frac{\pi}{4}\right)$

i) Guideline graph $g(x) =$

ii) Horizontal shift:

Ampl: = Reflected?

Freq = Period =

iii) Use this chart to identify the shifted x -values and draw the graph.

Feature	Original x	Shifted x



7. Graph **two full periods** of each function. Mark each important value along the x - and y -axes.

a) $(x) = -2\cos\left(\frac{4}{5}x\right)$

a) Ampl:

b) Refl:

c) Freq:

d) Per:



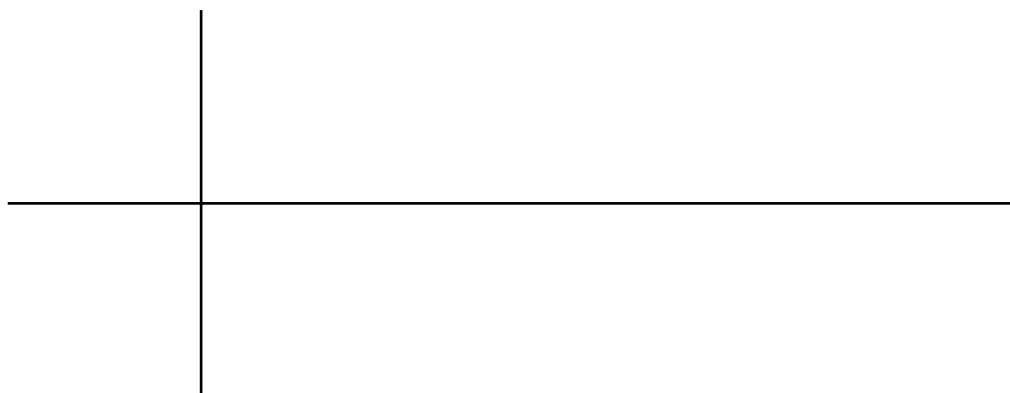
b) $(x) = -2\sin\left(\frac{2}{3}x\right)$

a) Ampl:

b) Refl:

c) Freq:

d) Per:



c) $f(x) = 3\csc\left(\frac{6}{5}x\right)$

For the guideline graph:

$g(x) =$

a) Ampl:

b) Refl:

c) Freq:

d) Per:



8. Graph **two full branches** of each function.

a) $f(x) = -\tan(3x)$

For the guideline graph:

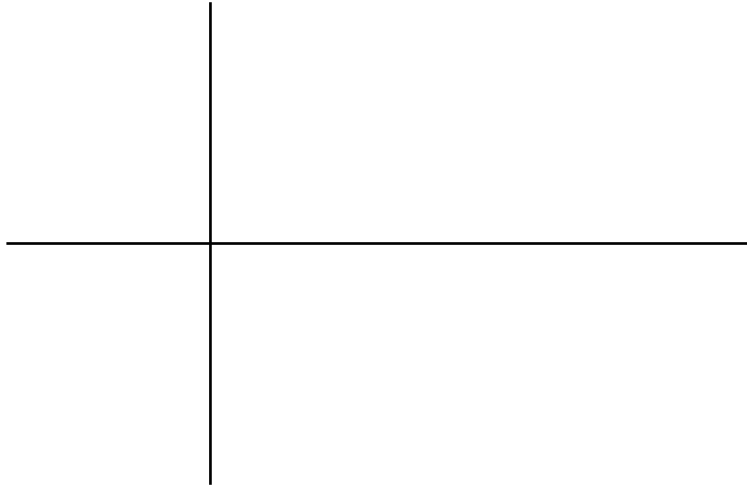
$g(x) =$

a) Reflected?

b) Freq:

c) Per:

d) What is the period of $f(x)$?



b) $f(x) = \cot\left(\frac{1}{2}x\right)$

For the guideline graph:

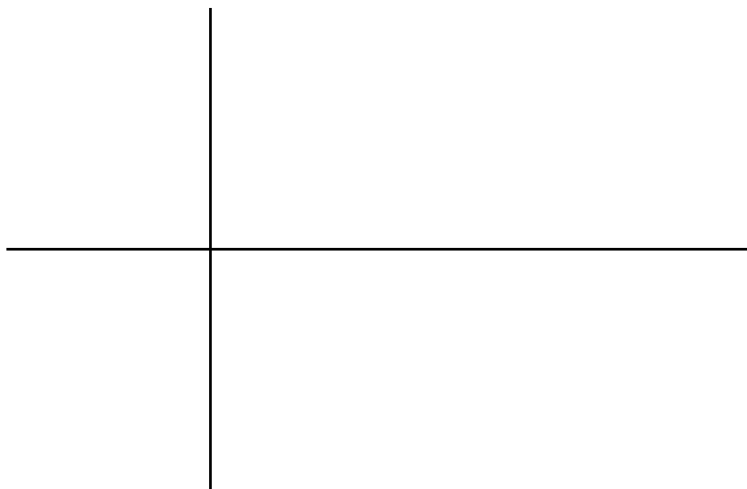
$g(x) =$

a) Reflected?

b) Freq:

c) Per:

d) What is the period of $f(x)$?



9. Evaluate each. (Write each answer in radians.)

a) $\tan^{-1}(-\sqrt{3})$

b) $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

c) $\tan^{-1}(-1)$

d) $\sin^{-1}\left(\frac{1}{2}\right)$

e) $\arccos\left(\frac{1}{2}\right)$

f) $\arccos\left(-\frac{\sqrt{2}}{2}\right)$

g) $\arctan\left(\frac{\sqrt{3}}{3}\right)$

h) $\sin^{-1}(-1)$

i) $\sin^{-1}(0)$

j) $\cos^{-1}(0)$

k) $\cos^{-1}(-1)$

l) $\arctan(0)$

10. Given $f(t) = -3\cos(2t)$, find

a) $f\left(\frac{\pi}{2}\right)$

b) $f\left(\frac{2\pi}{3}\right)$

c) $f\left(\frac{5\pi}{8}\right)$

d) $f\left(\frac{11\pi}{12}\right)$

11. Given $f(t) = \csc\left(t + \frac{\pi}{2}\right)$ find

a) $f\left(\frac{\pi}{3}\right)$

b) $f\left(\frac{3\pi}{4}\right)$

c) $f\left(\frac{7\pi}{6}\right)$

d) $f\left(\frac{5\pi}{3}\right)$