

Describe the relationship between the graphs of f and g . Consider amplitude, period, and shifts.

1. $f(x) = \sin x$
 $g(x) = \sin(x - \pi)$

2. $f(x) = \cos x$
 $g(x) = \cos(x + \pi)$

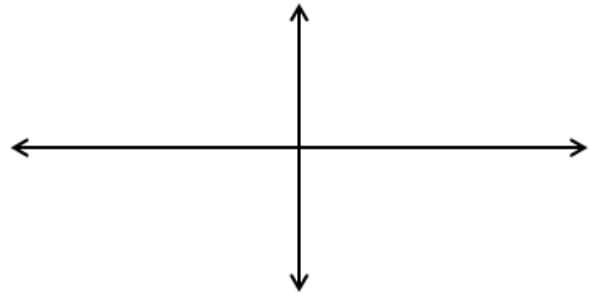
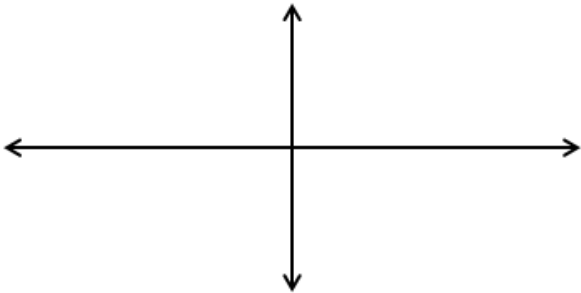
3. $f(x) = \sin 2x$
 $g(x) = 3 + \sin 2x$

4. $f(x) = \cos 4x$
 $g(x) = -2 + \cos 4x$

Sketch the graphs of f and g in the same coordinate plane. Include at least one full period.

5. $f(x) = \sin x$
 $g(x) = \sin \frac{x}{3}$

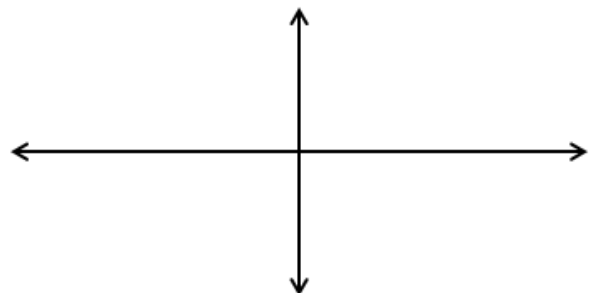
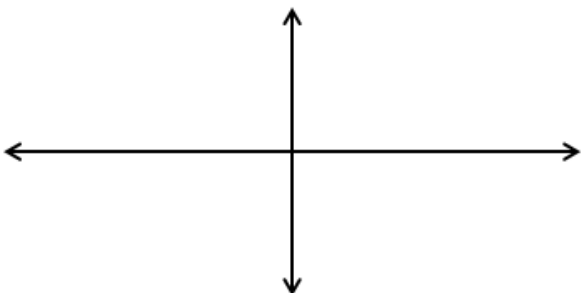
6. $f(x) = 2 \cos 2x$
 $g(x) = -\cos 4x$



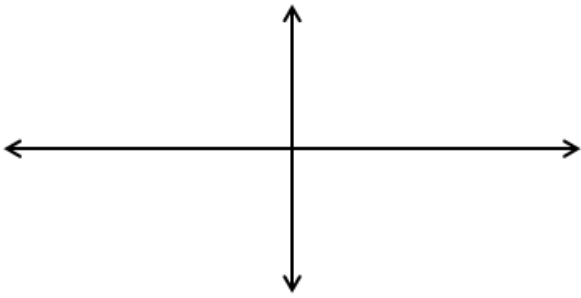
Sketch the graph of the function. Include two full periods.

7. $y = 5 \sin x$

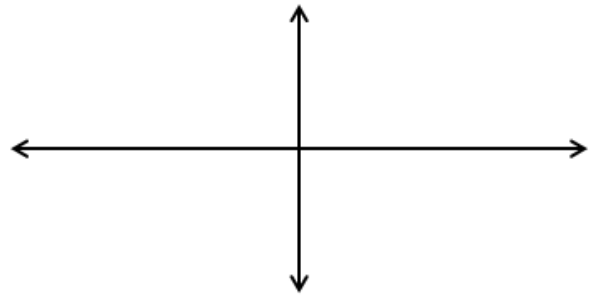
8. $y = \frac{3}{4} \cos x$



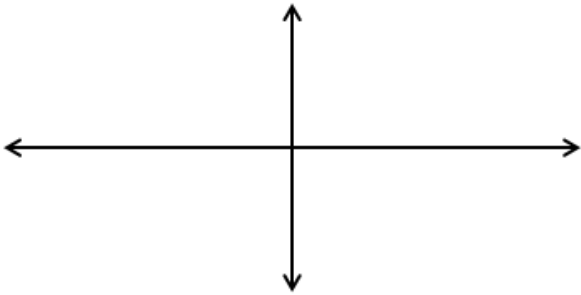
9. $y = \sin\left(x - \frac{\pi}{4}\right)$



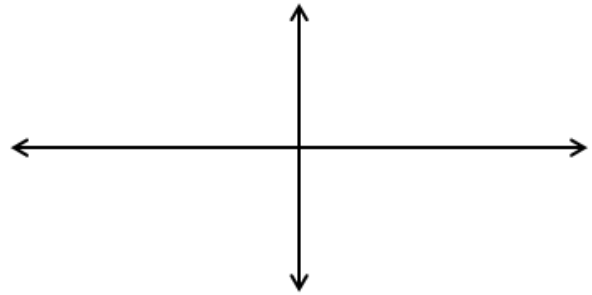
10. $y = 3 \cos\left(x + \frac{\pi}{2}\right)$



11. $y = 1 - \sin\frac{2\pi x}{3}$



12. $y = 2 \cos x - 3$



Identify the amplitude and period of the function.

13. $y = -4 + 5 \cos\frac{\pi t}{12}$

14. $y = 2 - 2 \sin\frac{2\pi x}{3}$

15. $y = \frac{2}{3} \cos\left(\frac{x}{2} - \frac{\pi}{4}\right)$

16. $y = 5 \sin(\pi - 2x) + 10$

Describe the relationship between the graphs of f and g . Consider amplitude, period, and shifts.

1. $f(x) = \sin x$
 $g(x) = \sin(x - \pi)$

Amp & period are same

$g(x)$ shifted $\rightarrow \pi$ units

2. $f(x) = \cos x$
 $g(x) = \cos(x + \pi)$

Amp & period are same

$g(x)$ shifted $\leftarrow \pi$ units

3. $f(x) = \sin 2x$
 $g(x) = 3 + \sin 2x$

Amp & Period are same

$g(x)$ shifted $\uparrow 3$ units

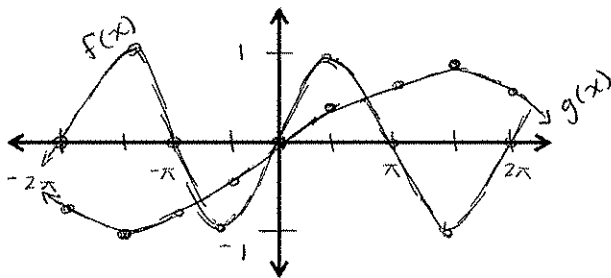
4. $f(x) = \cos 4x$
 $g(x) = -2 + \cos 4x$

Amp & Per are same.

$g(x)$ shifted $\downarrow 2$ units

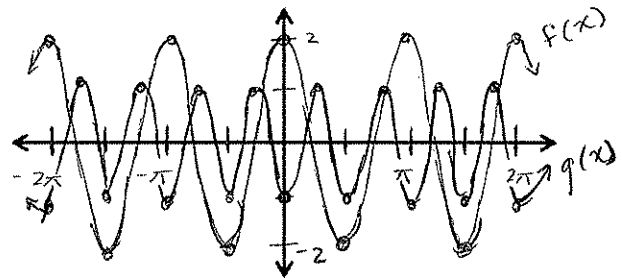
Sketch the graphs of f and g in the same coordinate plane. Include at least one full period.

5. $f(x) = \sin x$
 $g(x) = \sin \frac{x}{3}$



$g(x)$: Amp = 1
 per = $\frac{2\pi}{1/3} = 6\pi$

6. $f(x) = 2 \cos 2x$
 $g(x) = -\cos 4x$

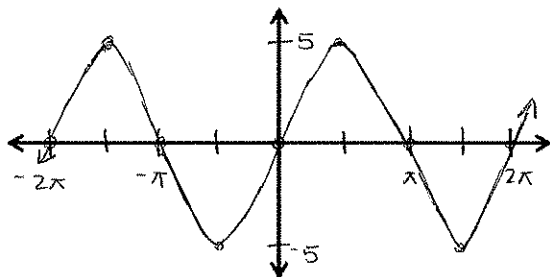


$f(x)$: Amp = 2
 per = $\frac{2\pi}{2} = \pi$

$g(x)$: Amp = 1
 Per = $\frac{2\pi}{4} = \frac{\pi}{2}$
 Reflect over x-axis

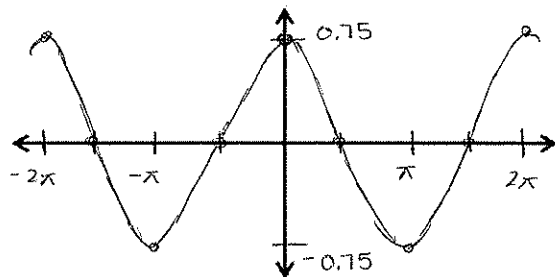
Sketch the graph of the function. Include two full periods.

7. $y = 5 \sin x$



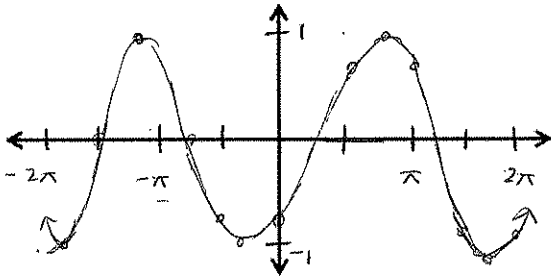
Amp = 5
 Per = 2π

8. $y = \frac{3}{4} \cos x$



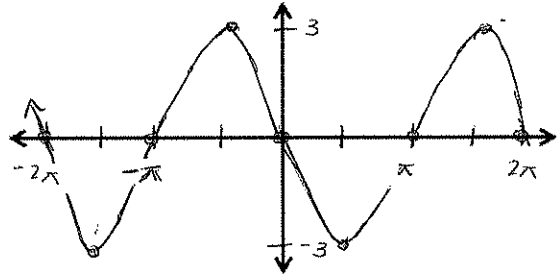
Amp = $\frac{3}{4}$
 Per = 2π

9. $y = \sin\left(x - \frac{\pi}{4}\right)$



Shifted $\rightarrow \frac{\pi}{4}$

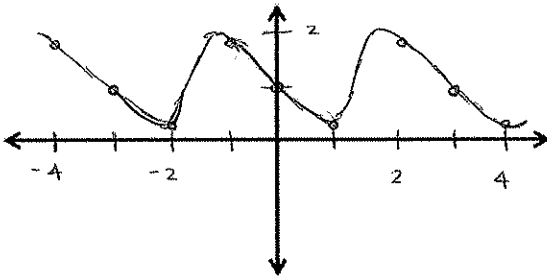
10. $y = 3 \cos\left(x + \frac{\pi}{2}\right)$



Amp = 3

Shifted $\leftarrow \frac{\pi}{2}$

11. $y = 1 - \sin\frac{2\pi x}{3}$

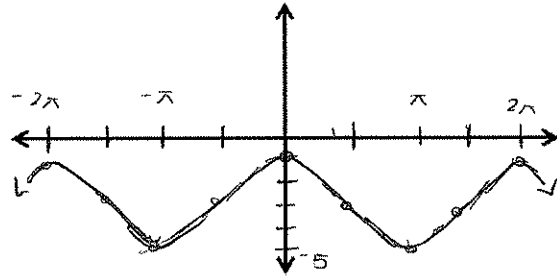


Per = $\frac{2\pi}{\frac{2\pi}{3}} = 3$

Shifted $\uparrow 1$

Reflect over x-axis

12. $y = 2 \cos x - 3$



Per = 2π

Amp = 2

Shifted $\downarrow 3$

Identify the amplitude and period of the function.

13. $y = -4 + 5 \cos\frac{\pi t}{12}$

Amp = 5

Per = $\frac{2\pi}{\frac{\pi}{12}} = 24$

14. $y = 2 - 2 \sin\frac{2\pi x}{3}$

Amp = 2

Per = $\frac{2\pi}{\frac{2\pi}{3}} = 3$

15. $y = \frac{2}{3} \cos\left(\frac{x}{2} - \frac{\pi}{4}\right)$

Amp = $\frac{2}{3}$

Per = $\frac{2\pi}{\frac{1}{2}} = 4\pi$

16. $y = 5 \sin(\pi - 2x) + 10$

Amp = 5

Per = $\frac{2\pi}{2} = \pi$