**Find the amplitude and the period and sketch the graph of the equation.**

1. (a) y = 4 sin x (b) y = sin 4x

 

 (c) y = $\frac{1}{4}$ sin x (d) y = sin $\frac{1}{4}$ x

 

 (e) y = -4 sin x (f) y = sin (-4x)

 

 (g) y = 3 sin $\frac{1}{2}$ x (h) y = $\frac{1}{3}$ sin 2x

 

**Find the amplitude and the period and sketch the graph of the equation.**

2. (a) y = 3 cos x (b) y = cos 3x

 

(c) y = $\frac{1}{3}$ cos x (d) y = cos $\frac{1}{3}$x

 

(e) y = 3 cos $\frac{1}{2}$x (f) y = $\frac{1}{3}$ cos 2x

 

(g) y = -3 cos x (h) y = cos (-3x)

 

**Find the amplitude, the period, and the phase shift and sketch the graph of the equation.**

3. y = sin $(x- \frac{π}{2})$ 4. y = 3 sin $(x+ \frac{π}{6})$

 

5. y = cos $(x+ \frac{π}{2})$ 6. y = 4 cos $(x- \frac{π}{4})$

 

7. y = sin (2x - π) + 1 8. y = - cos (3x + π) - 2

 

9. y = -2 sin (3x - π) 10. y = sin $(\frac{1}{2}x- \frac{π}{3})$

 

11. y = 6 sin πx 12. y = 2 cos $\frac{π}{2}x$

 

13. y = $\frac{1}{2}\sin(2πx)$ 14. y = 5 sin (3x - $\frac{π}{2}$)

 

15. y = 3 cos $(\frac{1}{2}x- \frac{π}{4})$ 16. y = -5 cos $(\frac{1}{3}x+ \frac{π}{6})$

 

17. y = 3 cos (πx + 4π) 18. y = -$\sqrt{2}$ sin $(\frac{π}{2}x- \frac{π}{4})$

 