

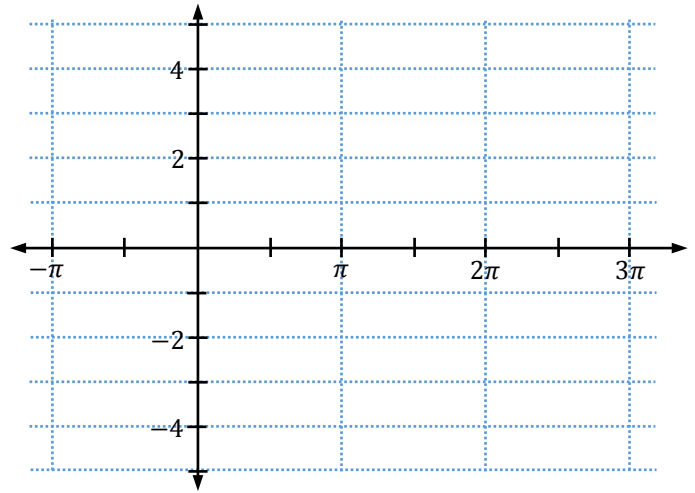
Math 3 Unit 8 Worksheet 9
Solutions of Functions with Sine and Cosine Graphs

Name: _____

Date: _____ Per: _____

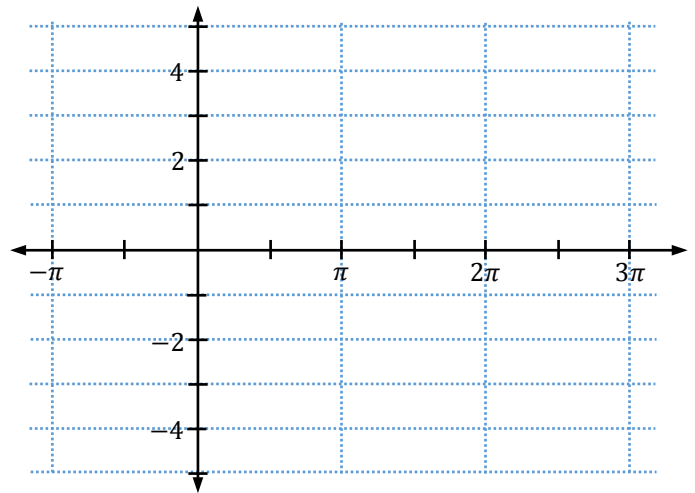
[1-6]: A) Sketch and label $f(x)$ & $g(x)$ on the same coordinate axes – use a different color for each. B) Mark the intersection where $f(x) = g(x)$. C) Follow that up with the algebraic solutions for $f(x) = g(x)$.

1. $f(x) = 4 \cos x$ & $g(x) = 2$



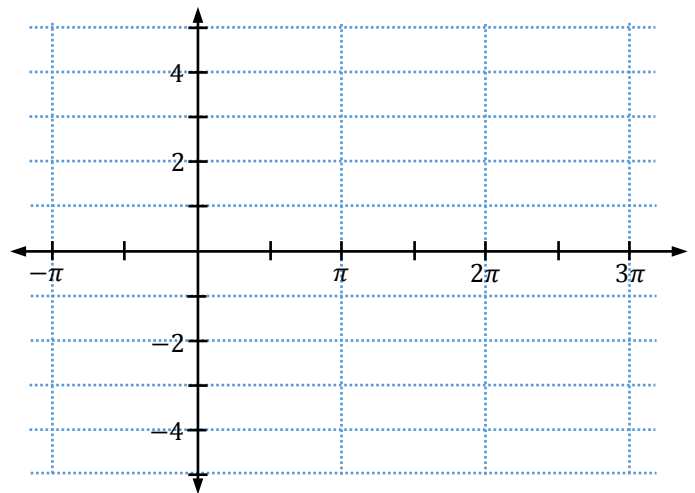
B. _____

2. $f(x) = -2 \sin x + 1$ & $g(x) = 2$



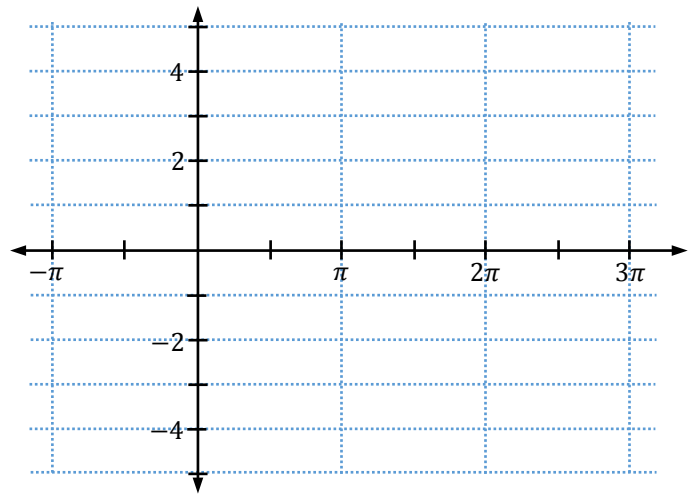
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3. $f(x) = 3 \sin x$ & $g(x) = -3$



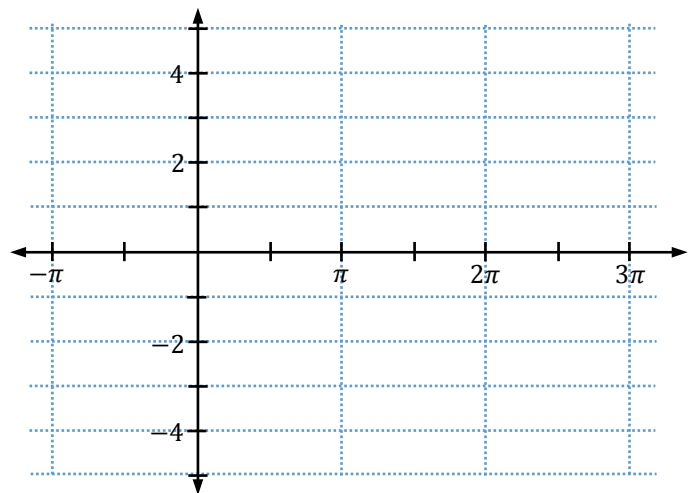
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4. $f(x) = 2 \cos x - 3$ & $g(x) = -4$



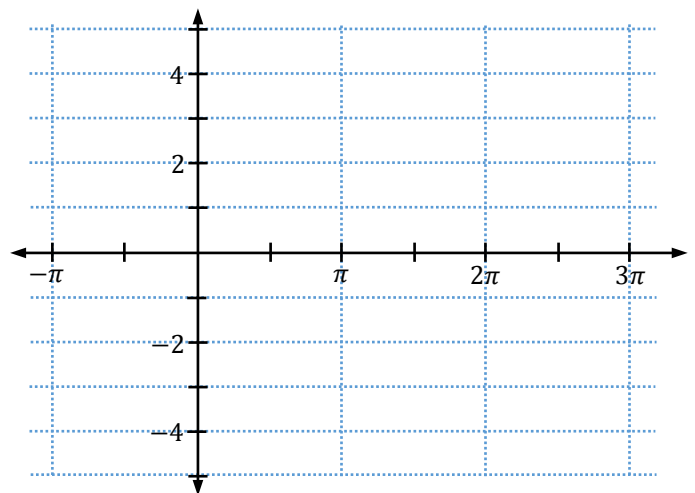
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5. $f(x) = \sin x$ & $g(x) = -\cos x$



B. _____

6. $f(x) = -3 \cos x + 2$ & $g(x) = 5$



B. _____

[7-18]: Solve each of the following equations for θ such that $0 \leq \theta < 2\pi$.

7. $\cos \theta = -\frac{1}{2}$

8. $\sin \theta = 0$

9. $\tan \theta = -\frac{\sqrt{3}}{3}$

10. $15 \tan \theta + 5\sqrt{3} = 0$

11. $4 \sin^2 \theta - 3 = 0$

12. $4\sqrt{3} \cos \theta + 6 = 0$

13. $3 \tan \theta + 3 = 0$

14. $24 \cos^2 \theta - 6 = 0$

15. $3 \sin \theta (\sin \theta - 1) = 0$

[7-18] continued: Solve each of the following equations for θ such that $0 \leq \theta < 2\pi$.

16. $(\tan \theta - \sqrt{3})(\tan \theta - 1) = 0$

17. $(2 \cos \theta + \sqrt{3})(2 \cos \theta - 1) = 0$

18. $7 \tan^2 \theta - 21 = 0$

[19-21]: Continue solving for θ such that $0 \leq \theta \leq 2\pi$. *Hint:* Begin by factoring each of the expressions on the left-side of equation.

19. $4 \sin \theta \cos \theta + 2 \cos \theta = 0$

20. $2 \sin^2 \theta + \sin \theta - 1 = 0$

21. $2 \cos^2 \theta + 3 \cos \theta + 1 = 0$