

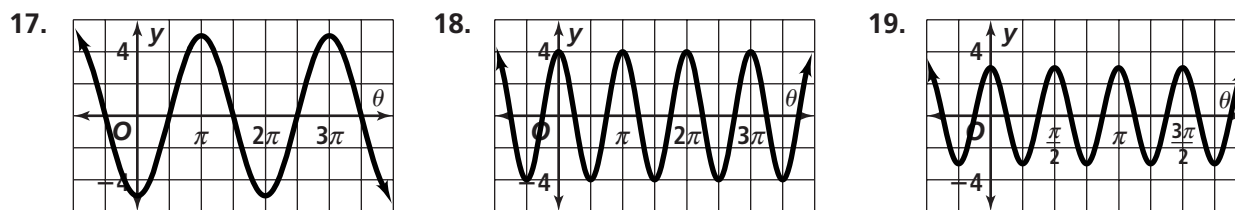
Practice 13-5

The Cosine Function

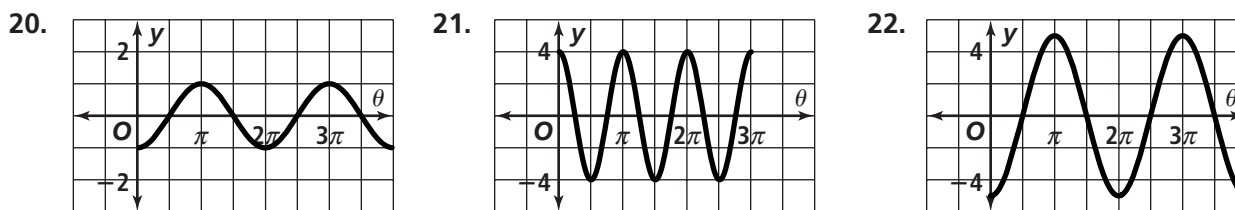
Sketch the graph of each function in the interval from 0 to 2π .

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| 1. $y = \cos \theta$ | 2. $y = 2 \cos \pi\theta$ | 3. $y = 5 \cos \theta$ |
| 4. $y = -\cos \theta$ | 5. $y = -5 \cos \theta$ | 6. $y = \cos 2\pi\theta$ |
| 7. $y = -2 \cos 2\theta$ | 8. $y = 3 \cos 4\theta$ | 9. $y = \cos \frac{\theta}{2}$ |
| 10. $y = 3 \cos 8\theta$ | 11. $y = -4 \cos \pi\theta$ | 12. $y = 0.5 \cos \pi\theta$ |
| 13. $y = -\cos 2\theta$ | 14. $y = -3 \cos \frac{\pi}{2}\theta$ | 15. $y = 4 \cos \pi\theta$ |
16. Suppose 12 in. waves occur every 5 s. Write an equation using a cosine function that models the height of a water particle as it moves from crest to crest.

Write the equation of a cosine function for each graph.



Find the period and amplitude of each cosine function. Identify where the maximum value, minimum value, and zeros occur in the interval from 0 to 2π .



Solve each equation in the interval from 0 to 2π . Round to the nearest hundredth.

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| 23. $2 \cos 3\theta = 1.5$ | 24. $\cot \frac{t}{3} = 1$ | 25. $1.5 \cos \pi\theta = -1.5$ |
| 26. $3 \cos \frac{\pi}{5}\theta = 2$ | 27. $3 \cos t = 2$ | 28. $0.5 \cos \frac{\theta}{2} = 0.5$ |
| 29. $4 \cos \frac{\pi}{4}\theta = -2$ | 30. $3 \cos \frac{\theta}{4} = 1.5$ | 31. $3 \cos \theta = -3$ |

Write a cosine function for each description. Assume that $a > 0$.

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| 32. amplitude = 2π , period = 1 | 33. amplitude = $\frac{1}{2}$, period = π |
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