

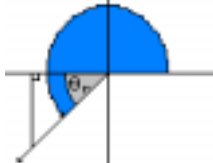
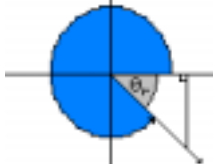


Related Angles
Jefferson Davis Learning Center
Sandra Peterson

If the given angle, θ , is in...	Then the related angle, θ_r , is found by...	Graphical Representation of how θ_r is found
<p style="text-align: center;">Quadrant I ($0^\circ < \theta < 90^\circ$)</p>	<p style="text-align: center;">$\theta_r = \theta$</p>	
<p style="text-align: center;">Quadrant II ($90^\circ < \theta < 180^\circ$)</p>	<p style="text-align: center;">$\theta_r = 180^\circ - \theta$</p>	
<p style="text-align: center;">Quadrant III ($180^\circ < \theta < 270^\circ$)</p>	<p style="text-align: center;">$\theta_r = \theta - 180^\circ$</p>	
<p style="text-align: center;">Quadrant IV ($270^\circ < \theta < 360^\circ$)</p>	<p style="text-align: center;">$\theta_r = 360^\circ - \theta$</p>	

Find the related angle, θ_r , for each of the following given angles.

1. $\theta = 30^\circ$ 2. $\theta = 225^\circ$ 3. $\theta = 135^\circ$ 4. $\theta = 315^\circ$ 5. $\theta = 60^\circ$ 6. $\theta = 120^\circ$
7. $\theta = 150^\circ$ 8. $\theta = 210^\circ$ 9. $\theta = 300^\circ$ 10. $\theta = 240^\circ$ 11. $\theta = 45^\circ$ 12. $\theta = 330^\circ$
13. $\theta = 142^\circ$ 14. $\theta = 85^\circ$ 15. $\theta = 202^\circ$ 16. $\theta = 341^\circ$ 17. $\theta = 312^\circ$ 18. $\theta = 195^\circ$
19. $\theta = 228^\circ$ 20. $\theta = 15^\circ$ 21. $\theta = 117^\circ$ 22. $\theta = 298^\circ$ 23. $\theta = 167^\circ$ 24. $\theta = 32^\circ$
25. $\theta = 1575^\circ$ 26. $\theta = 1050^\circ$ 27. $\theta = 1470^\circ$ 28. $\theta = 495^\circ$ 29. $\theta = -300^\circ$ 30. $\theta = -45^\circ$
31. $\theta = -225^\circ$ 32. $\theta = -135^\circ$ 33. $\theta = -960^\circ$ 34. $\theta = -840^\circ$ 35. $\theta = -750^\circ$ 36. $\theta = -585^\circ$

Answers:

1. $\theta_r = 30^\circ$ 2. $\theta_r = 45^\circ$ 3. $\theta_r = 45^\circ$ 4. $\theta_r = 45^\circ$ 5. $\theta_r = 60^\circ$ 6. $\theta_r = 60^\circ$
7. $\theta_r = 30^\circ$ 8. $\theta_r = 30^\circ$ 9. $\theta_r = 60^\circ$ 10. $\theta_r = 60^\circ$ 11. $\theta_r = 45^\circ$ 12. $\theta_r = 30^\circ$
13. $\theta_r = 38^\circ$ 14. $\theta_r = 85^\circ$ 15. $\theta_r = 22^\circ$ 16. $\theta_r = 19^\circ$ 17. $\theta_r = 48^\circ$ 18. $\theta_r = 15^\circ$
19. $\theta_r = 48^\circ$ 20. $\theta_r = 15^\circ$ 21. $\theta_r = 63^\circ$ 22. $\theta_r = 62^\circ$ 23. $\theta_r = 13^\circ$ 24. $\theta_r = 32^\circ$
25. $\theta_r = 45^\circ$ 26. $\theta_r = 30^\circ$ 27. $\theta_r = 30^\circ$ 28. $\theta_r = 45^\circ$ 29. $\theta_r = 60^\circ$ 30. $\theta_r = 45^\circ$
31. $\theta_r = 45^\circ$ 32. $\theta_r = 45^\circ$ 33. $\theta_r = 60^\circ$ 34. $\theta_r = 60^\circ$ 35. $\theta_r = 30^\circ$ 36. $\theta_r = 45^\circ$

Please visit the Math Center for further assistance.