

Reference Angles

For each angle given, find the measure of the reference angle, then draw the angle in standard position. Mark the reference angle on your sketch.

1. 137°

2. 198°

3. 259°

4. 147°

5. 342°

6. 21°

7. 54°

8. 283°

9. -160°

10. -220°

11. -295°

12. -86°

13. 98.6°

14. 57.3°

15. -154.1°

16. -273.2°

17. 5481°

18. 7321°

19. -2746°

20. -3614°

21. $154^\circ 37'$

22. $268^\circ 29'$

23. $213^\circ 16'$

24. $121^\circ 43'$

25. $291^\circ 44'$

26. $352^\circ 16'$

27. $1066^\circ 31'$

28. $2001^\circ 34'$

29. $7321^\circ 46'$

30. $9007^\circ 10'$

31. $242^\circ 19' 27''$

32. $146^\circ 57' 12''$

33. $112^\circ 48' 13''$

34. $345^\circ 11' 59''$

35. Find a positive and negative coterminal angle for #8

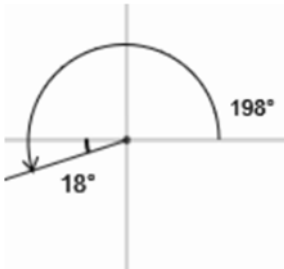
36. Find a positive and negative coterminal angle for #24

Answers

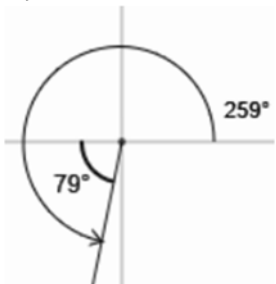
1. 43°



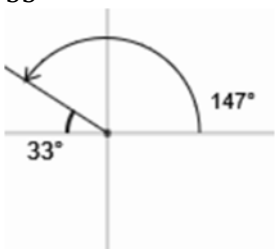
2. 18°



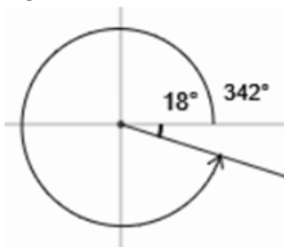
3. 79°



4. 33°



5. 18°



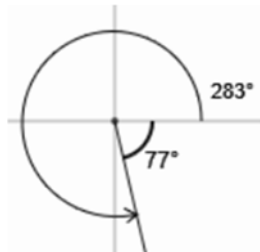
6. 21°



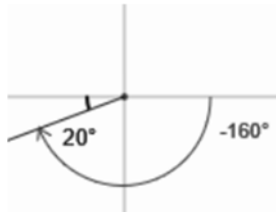
7. 54°



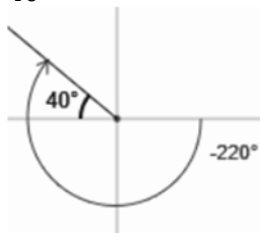
8. 77°



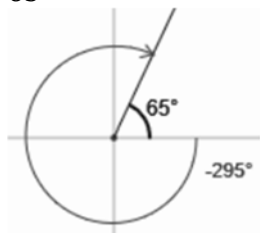
9. 20°



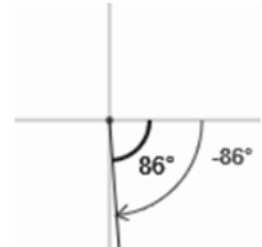
10. 40°



11. 65°



12. 86°



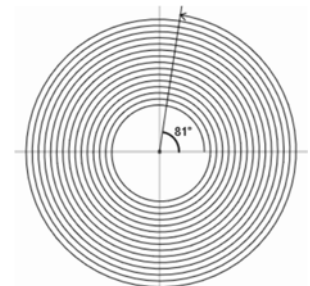
13. 81.4°

14. 57.3°

15. 25.9°

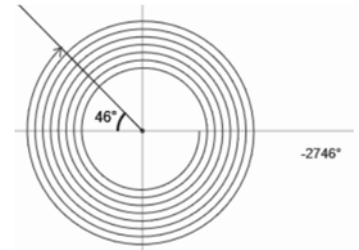
16. 86.8°

17. 81°



18. 59°

19. 46°



20. 14°

21. $25^\circ 23'$

22. $88^\circ 29'$

23. $33^\circ 16'$

24. $58^\circ 17'$

25. $68^\circ 16'$

26. $7^\circ 44'$

27. $13^\circ 29'$

28. $21^\circ 34'$

29. $58^\circ 14'$

30. $7^\circ 10'$

31. $62^\circ 19' 27''$

32. $33^\circ 2' 48''$

33. $67^\circ 11' 47''$

34. $14^\circ 48' 1''$

35. 643° & -77

36. $481^\circ 43'$ & $-238^\circ 17'$