

PreCalculus  
Reference Angles & Coterminal Angles

Name \_\_\_\_\_

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Find each reference angle, if it exists.

1)  $\frac{31\pi}{9}$

2)  $-527^\circ$

3)  $\frac{13\pi}{12}$

4)  $623^\circ$

5)  $-\frac{19\pi}{15}$

6)  $\frac{25\pi}{8}$

7)  $-250^\circ$

8)  $\frac{32\pi}{7}$

9)  $-\frac{2\pi}{5}$

10)  $450^\circ$

11)  $\frac{22\pi}{3}$

12)  $-\frac{12\pi}{5}$