Bellwork Alg 2B Thursday, February 8, 2018

Find a positive and a negative coterminal angle for each given angle. Give your answer in radians.

1. $\theta = \frac{34\pi}{9}$

Pos: Neg:

2. $\theta = -\frac{73\pi}{15}$

Pos: Neg:

Determine if each pair of angles are coterminal or not.

3. $\frac{43\pi}{11}$ and $\frac{109\pi}{11}$

4. $-\frac{27\pi}{31}$ and $\frac{213\pi}{31}$

Find the measure of an angle between $0°$ and $360°$ that is coterminal to the given angle.

5. $\theta = 4316°$

6. $-7310°$

7. What is the value of y in the solution of this system of equations?

$8x - 4y = 7$

$5y - 4x = 10$

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ANSWERS

Find a positive and a negative coterminal angle for each given angle. Give your answer in radians.

1. $\theta = \frac{34\pi}{9}$ $\pm 2\pi \rightarrow \pm \frac{18\pi}{9}$

Pos: $\frac{16\pi}{9}$, $\frac{52\pi}{9}$, $\frac{70\pi}{9}$, ⋮

Neg: $-\frac{2\pi}{9}$, $-\frac{20\pi}{9}$, $-\frac{38\pi}{9}$, ⋯

2. $\theta = -\frac{73\pi}{15}$ $\pm 2\pi \rightarrow \pm \frac{30\pi}{15}$

Pos: $\frac{17\pi}{15}$, $\frac{47\pi}{15}$, $\frac{77\pi}{15}$, ⋮

Neg: $-\frac{13\pi}{15}$, $-\frac{43\pi}{15}$, $-\frac{103\pi}{15}$, $-\frac{133\pi}{15}$.

Determine if each pair of angles are coterminal or not.

3. $\frac{43\pi}{11}$ and $\frac{109\pi}{11}$

$\frac{109\pi}{11} - \frac{43\pi}{11} = \frac{66\pi}{11} = 6\pi$

Yes they are coterminal because they are separated by a multiple of 2π

4. $-\frac{27\pi}{31}$ and $\frac{213\pi}{31}$

$\frac{213\pi}{31} - -\frac{27\pi}{31} = \frac{240\pi}{31} \approx 7.7\pi$

No they are not coterminal because they aren't separated by a multiple of 2π

Find the measure of an angle between $0°$ and $360°$ that is coterminal to the given angle.

5. $\theta = 4316°$

356°

6. $-7310°$

250°

7. What is the value of y in the solution of this system of equations?

$8x - 4y = 7$

$5y - 4x = 10$

→ Sol is (3.125, 4.5)

$y = 4.5$