Practice #10 Alg 2 Coterminal Angles Friday, March 27, 2020

1. Give both a positive and a negative coterminal angle for each. Give answer in degrees.

a) $\theta = 840°$ b) $\theta = -1105°$ c) $\theta = 1450°$

2. Give both a positive and a negative coterminal angle for each. Give answer in radians, in terms of π, and as a simplified fraction.

a) $\theta = \frac{11\pi}{3}$ b) $\theta = \frac{-35\pi}{6}$ c) $\theta = \frac{85\pi}{11}$

3. Find an angle such that $0° \leq \theta \leq 360°$ that is coterminal with the given angle.

a) $\theta = 1217°$ b) $\theta = -953°$

4. Find an angle such that $0 \leq \theta \leq 2\pi$ that is coterminal with the given angle. Give answer in terms of π and as a simplified fraction.

a) $\theta = \frac{-11\pi}{6}$ b) $\theta = \frac{26\pi}{9}$

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THERE IS AN INFINITE # OF ANSWERS FOR 1 & 2. SOME COMMON ANSWERS ARE GIVEN

ANSWERS

1. Give both a positive and a negative coterminal angle for each. Give answer in degrees.

a) $\theta = 840°$

POS: $840 + 360 = 1200°$

NEG: $840 - 720 = 120$, $120 - 360 = -240°$

b) $\theta = -1105°$

POS: $-1105 + 1080 = -25$, $-25 + 360 = 335°$

NEG: $-1105 - 360 = -1465°$

c) $\theta = 1450°$

POS: $1450 + 360 = 1810°$

NEG: $1450 - 1080 = 370$, $370 - 720 = -350°$

2. Give both a positive and a negative coterminal angle for each. Give answer in radians, in terms of π, and as a simplified fraction.

a) $\theta = \frac{11\pi}{3}$ $2\pi = \frac{6\pi}{3}$

POS: $\frac{11\pi}{3} + \frac{6\pi}{3} = \frac{17\pi}{3}$

NEG $\frac{11\pi}{3} - \frac{6\pi}{3} = \frac{5\pi}{3}$, $\frac{5\pi}{3} - \frac{6\pi}{3} = \frac{-\pi}{3}$

b) $\theta = \frac{-35\pi}{6}$ $2\pi = \frac{12\pi}{6}$

POS: $\frac{-35\pi}{6} + \frac{12\pi}{6} = \frac{-23\pi}{6}$, $\frac{-23\pi}{6} + \frac{12\pi}{6} = \frac{-11\pi}{6}$, $\frac{-11\pi}{6} + \frac{12\pi}{6} = \frac{\pi}{6}$

NEG $\frac{-35\pi}{6} - \frac{12\pi}{6} = \frac{-47\pi}{6}$

c) $\theta = \frac{85\pi}{11}$ $2\pi = \frac{22\pi}{11}$

POS: $\frac{85\pi}{11} + \frac{22\pi}{11} = \frac{107\pi}{11}$

4 $\frac{22\pi}{11}$'s $= \frac{88\pi}{11}$

NEG: $\frac{85\pi}{11} - \frac{88\pi}{11} = \frac{-3\pi}{11}$

3. Find an angle such that $0° \le \theta \le 360°$ that is coterminal with the given angle.

a) $\theta = 1217°$

$1217° - 1080° = 137°$

b) $\theta = -953°$

$-953° + 1080° = 127°$

4. Find an angle such that $0 \le \theta \le 2\pi$ that is coterminal with the given angle. Give answer in terms of π and as a simplified fraction.

a) $\theta = \frac{-11\pi}{6}$ $2\pi = \frac{12\pi}{6}$

$\frac{-11\pi}{6} + \frac{12\pi}{6} = \frac{\pi}{6}$

b) $\theta = \frac{26\pi}{9}$ $2\pi = \frac{18\pi}{9}$

$\frac{26\pi}{9} - \frac{18\pi}{9} = \frac{8\pi}{9}$