Precalculus A

4.3 Trigonometry Extended: The Circular Functions

Day 1

Hw: 4.3 Assignment #5

D. Paulson

Objectives:

SWBAT determine coterminal angle measures for any angle given in both degrees and radians.

SWBAT determine the quadrant location of any angle.

SWBAT determine the reference angle for any angle given in both degrees and radians.

SWBAT evaluate all six trigonometric functions given a point on a circle.

SWBAT determine the exact value of all points on the 16-point unit circle.

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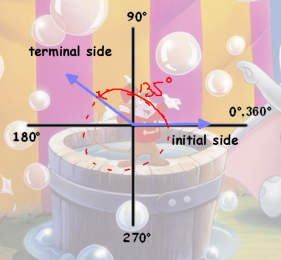
Coterminal Angles

Coterminal angles are angles that share a terminal side. Since they share a terminal side you can $\pm 360^\circ$ or $\pm 2\pi$ as much as you want.



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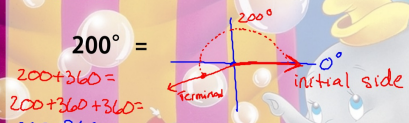
Examples

Find a positive and a negative coterminal angle for the following. Leave answers in the original format.

200° =



560° -160°
920° -520°

200+360=
200+360+360=
200-360=
200-360-360=

-240° =

120°, 480°
-600°, -960°

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Examples

Find a positive and a negative coterminal angle for the following. Leave answers in the original format.

$$\frac{-4\pi}{3} =$$

$-\frac{4\pi}{3}$

$-\frac{4\pi}{3} + \frac{2\pi}{1} = -\frac{4\pi}{3} + \frac{6\pi}{3} = \frac{2\pi}{3}$

$-\frac{4\pi}{3} - \frac{2\pi}{1} = -\frac{4\pi}{3} - \frac{6\pi}{3} = -\frac{10\pi}{3}$

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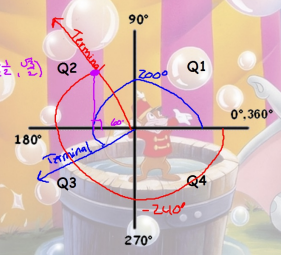
Location of an Angle

The location of an angle is very important in determining if the function will be positive or negative. A plane can be divided into four quadrants as shown below.



Determine the location of the following angles.

200 ° = Q3

-240 ° = Q2

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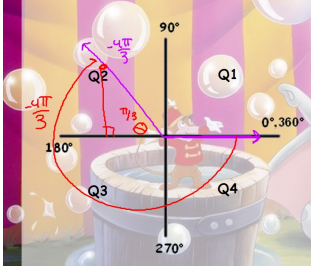
Location of an Angle

The location of an angle is very important in determining if the function will be positive or negative. A plane can be divided into four quadrants as shown below.



Determine the location of the following angles.

$$\frac{-4\pi}{3} = Q2$$

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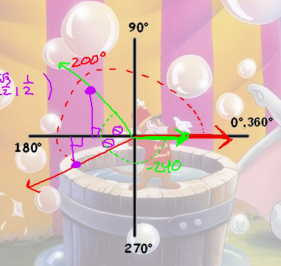
Reference Angles

Reference angles are angles formed between the terminal ray of an angle and the closest x-axis. Always the x-axis never the y-axis.



Determine the reference angle for the following:

200 ° = 20°

-240 ° = 60°

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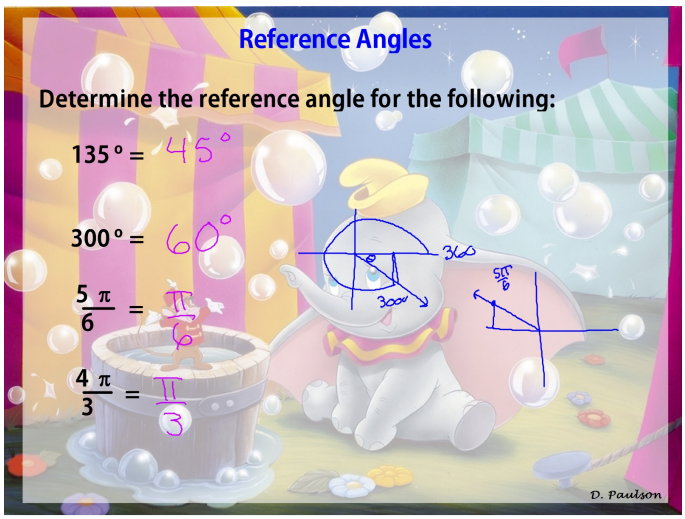
Reference Angles
Determine the reference angle for the following:
135° = 45°
300° = 60°
5π/6 = π/6
4π/3 = π/3
360
300
5π/6
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