PRE-CALCULUS: by Finney, Demana, Watts and Kennedy

## Chapter 4: Trigonometric Functions 4.2: Trigonometric Functions of Acute Angles




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Evaluate using a calculator. Make sure your calculator is in the correct mode. Give answers to 3 decimal places and then draw the triangle that represents the situation.
A) $\sin 53^{\circ}$
B) $\cos \frac{2 \pi}{5}$
C) $\tan 154^{\circ}$
D) $\cot \frac{\pi}{9}$
E) $\csc 220$
F) $\sec \frac{8 \pi}{5}$

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| Solve the triangle ABC for all of its unknown parts. Assume C is the <br> right angle. <br> $\beta=62 \quad \mathrm{a}=7$ |
| :--- | :--- |
|  |
| Example 6: From a point 340 feet away from the base of the Peachtree |
| Center Plaza in Atlanta, Georgia, the angle of elevation to the top of the |
| building is $65^{\circ}$. Find the height of the building. |

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Chapter 4: Trigonometric Functions
What you'll Learn About

- Trig functions of any angle/Trig functions of real numbers
- Periodic Functions/The Unit Circle functions for $\theta$
A) $(5,4)$
B) $(-3,4)$
C) $(-2,-5)$
D) $(-4,-1)$
E) $(0,-3)$
F) $(3,0)$

Determine the sign (+ or -) of the given value without the use of a calculator.
A) $\sin 53^{\circ}$
B) $\cos \frac{2 \pi}{5}$
C) $\tan 154^{\circ}$
D) $\cot \frac{\pi}{9}$
E) $\csc 220^{\circ}$
F) $\sec \frac{8 \pi}{5}$
$\mathbf{8 \| P a g e}$

|  | Evaluate without using a calculator <br> A) Find $\sin \theta$ and $\tan \theta$ if $\cos \theta=\frac{3}{4}$ and $\cot \theta<0$ |
| :--- | :--- |
| B) Find $\sec \theta$ and $\csc \theta$ if $\cot \theta=\frac{-6}{5}$ and $\sin \theta>0$ |  |

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|  | $30-60-90$ Triangle |
| :---: | :---: |
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Unit Circle, Fill in the blank


| A) $\sin 120^{\circ}$ | B) $\cos \frac{2 \pi}{3}$ |
| :--- | :--- | :--- |
|  | D) $\cot \frac{-13 \pi}{6}$ |
| C) $\tan \frac{13 \pi}{4}$ |  |
|  |  |
| E) $\csc \frac{7 \pi}{4}$ | F) $\sec \frac{23 \pi}{6}$ |

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\(\left.\begin{array}{|l|ll|}\hline Find sine, cosine, and tangent for the given angle. <br>

A) 90^{\circ} \& B)-\frac{\pi}{2}\end{array}\right]\)| D) $\frac{-7 \pi}{2}$ |
| :--- |
| C) $6 \pi$ |

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Chapter 4: Trigonometric Fucntions 4.7: Inverse Trigonometric Functions

What you'll Learn About

- Inverse Trigonometric Functions and their Graphs

The graph of $y=\sin x$


The graph of $y=\sin ^{-1} x=\arcsin x$

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Solving Trigonometric Equations

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 Chapter 4: Trigonometric Functions

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\(\left.\begin{array}{|l|ll|}\hline A) \mathrm{y}=\cos (2 \mathrm{x}) \& B) y=\cos \frac{x}{2} \& C) y=\cos \left(\frac{-3 x}{4}\right) <br>

how the period of the function and use the language of transformations to describe\end{array}\right\}\)| Araph 1 period of the function without using your calculator. |
| :--- |
| A) $y=3 \sin \frac{x}{2}$ |

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Determine the vertical shift and phase shift of the function and then sketch the graph
A) $y=\cos \left(x+\frac{\pi}{6}\right)-1$
B) $y=\sin \left(x-\frac{\pi}{3}\right)+2$

$$
A m p=A=\frac{M a x-\text { Min }}{2}
$$

Vertical $=(\mathrm{C})=\frac{\text { Max }+ \text { Min }}{2}$
period $=p$
HorizontalStretch/Shrink

$$
\mathrm{B}=\frac{2 \pi}{\mathrm{p}}
$$

How to choose an
appropriate model based on the behavior at some given time, T .
$y=A \cos B(t-T)+C$
if at time T the function attains a maximum value
$y=-A \cos B(t-T)+C$ if at time T the function attains a minimum value
$\mathrm{y}=\mathrm{A} \sin \mathrm{B}(\mathrm{t}-\mathrm{T})+\mathrm{C}$ if at time T the function halfway between a
minimum and a maximum C) $y=5 \sin 4 \pi x+6$
A) $y=3 \sin \left(x-\frac{\pi}{4}\right)+2$
$y=-A \sin B(t-T)+C$
if at time T the function
halfway between a
maximum and a minimum
value
State the Amplitude and period of the sinusoid, and relative to the basic function, the phase shift and vertical translation.
B) $y=-2 \cos \left(3 x-\frac{\pi}{4}\right)-4$

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 4.5: Graphs of Tan/Cot/Sec/CscChapter 4: Trigonometric Functions

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$\left.\begin{array}{|l|l|l|}\hline \text { A) } \mathrm{y}=\sec (4 \mathrm{x}) \\ \text { Describe the graph of the function in terms of a basic trigonometric function. Locate } \\ \text { the vertical asymptotes and graph } 2 \text { periods of the function. } \\ y=2 \sec \frac{4 x}{3}\end{array}\right\}$

| Describe the graph of the function in terms of a basic trigonometric function. Locate <br> the vertical asymptotes and graph 2 periods of the function. <br> A) $\quad y=\csc \left(\frac{x}{3}\right)$ |  |  |
| :--- | :--- | :--- |
| B) $y=4 \csc 2 \pi x$ |  |  |
|  | D. $y=-\csc (\mathrm{x})+1$ |  |
|  |  |  |

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