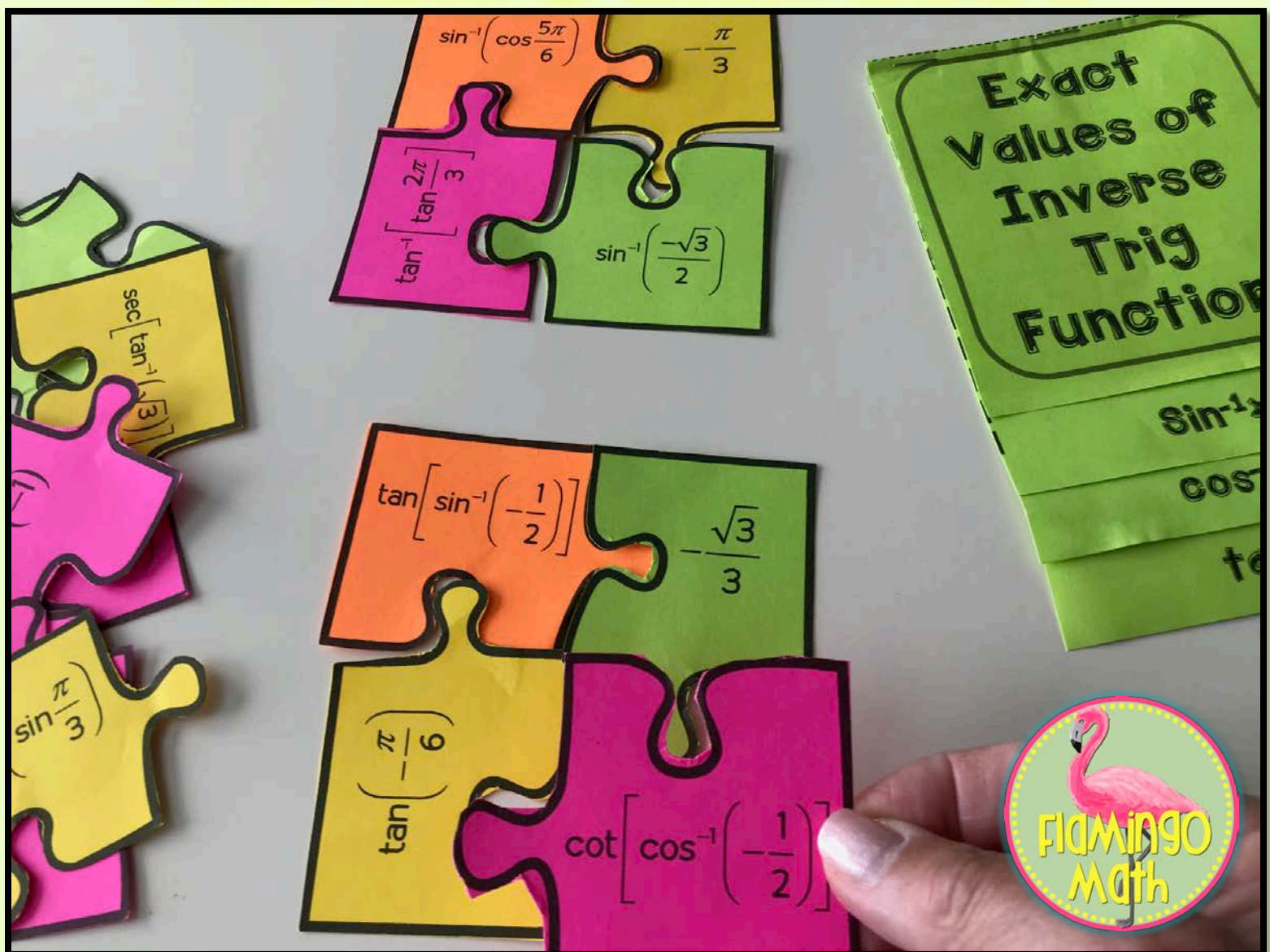


Inverse Trigonometric Functions

FOLDABLE & TASK CARDS



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INVERSE TRIGONOMETRIC FUNCTIONS

Here is an activity which will help your PreCalculus students with practice finding exact values of inverse trigonometric functions. The activity is designed as a puzzle sort and match. Students are given 24 puzzle pieces to match in sets of 4. Each set has an answer card and three expressions with the same value. An answer key is included. There is also a notebook style Foldable®, inspired by the work of Dinah Zike and used with permission, as a graphic organizer prior to the activity.

Teaching Suggestions:

- Use the activity in groups
- Use the activity as a review exercise prior to assessing students.

Please visit my store for more engaging activities.

Exact Values of Inverse Trig Functions

Directions for Printing:

FOLDABLE

Step 1:

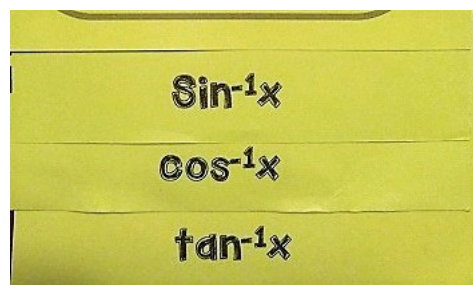
Print pages front to back 1 & 2, 3 & 4. The the writing will face in opposite directions. This is an option on many printers as “ flip along the short side”.

Step 2:

Cut the sheets in half along the 11” side. Each sheet will make two foldables.

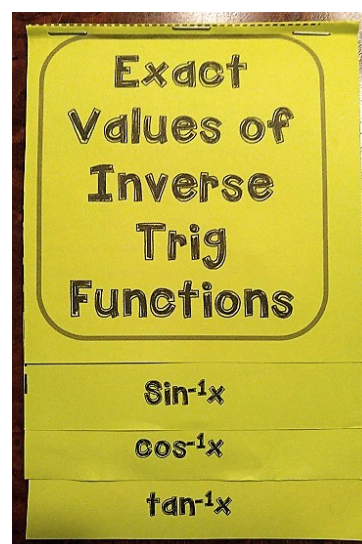
Step 3:

Line up the 2 pages so the tab labels are staggered as shown at right.



Step 4:

Fold over the top portion of both pages and secure with a few staples at the top. The final product should look like this:



PUZZLE CARD SORT

Print each sheet of cards on a different color of card stock. Cut all the cards apart to make one set. Laminate the cards for long lasting use.





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Exact Values of Inverse Trig Functions

The Sine Function will be one-to-one if we restrict the domain from _____.
If you know the sine value, the inverse sine function determines the _____.
The sine function is _____ it has _____ Symmetry.

Sine-Inverse Sine Identities

$$\sin^{-1}(\sin x) = x \quad \text{for } \underline{\hspace{2cm}}$$

$$\sin(\sin^{-1} x) = x \quad \text{for } \underline{\hspace{2cm}}$$

Another notation is $\arcsin x$

EX #3: Evaluate

A. $\tan^{-1}(-\sqrt{3})$

B. $\tan^{-1}(1)$

C. $\tan^{-1}(0)$

D. $\tan^{-1}(\tan 2)$

E. $\tan\left[\sin^{-1}\left(\frac{1}{3}\right)\right]$

$\tan^{-1}x$

The Cosine Function will be one-to-one if we restrict the domain from _____.
When you know the cosine value, the inverse cosine function determines the angle. The cosine function is symmetric with respect to the _____. It is an _____ function.

Cosine-Inverse Cosine Identities

$$\cos^{-1}(\cos x) = x \quad \text{for } \underline{\hspace{2cm}}$$

$$\cos(\cos^{-1} x) = x \quad \text{for } \underline{\hspace{2cm}}$$

Another notation is $\arccos x$

EX #2: Evaluate

A. $\cos^{-1}(-1)$

B. $\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$

C. $\cos^{-1}(0)$

D. $\cos^{-1}(\cos 1)$

E. $\cos(\cos^{-1} 3.25)$

$\cos^{-1}x$

The Tangent Function will be one-to-one if we restrict the domain from _____.
Like the sine function, the tangent function has _____ symmetry.
It is an _____ function. Evaluating inverse tangent problems mean we are restricted to Quadrants _____.

Tangent-Inverse Tangent Identities

$$\tan^{-1}(\tan x) = x \quad \text{for } \underline{\hspace{2cm}}$$

$$\tan(\tan^{-1} x) = x \quad \text{for } \underline{\hspace{2cm}}$$

Another notation is $\arctan x$

EX #1: Evaluate

A. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$

B. $\sin^{-1}\left(-\frac{1}{2}\right)$

C. $\sin^{-1}(5)$

D. $\sin^{-1}\left(\sin \frac{5\pi}{6}\right)$

E. $\sin(\sin^{-1} 0.85)$

$\sin^{-1}x$

$\sin^{-1}\left(\cos \frac{5\pi}{6}\right)$	$-\frac{\pi}{3}$
$\tan^{-1}\left[\tan \frac{2\pi}{3}\right]$	$\sin^{-1}\left(\frac{-\sqrt{3}}{2}\right)$

$\tan\left[\sin^{-1}\left(\frac{1}{2}\right)\right]$	$\frac{\sqrt{3}}{3}$
$\tan\left(-\frac{\pi}{6}\right)$	$\cot\left[\cos^{-1}\left(-\frac{1}{2}\right)\right]$

$\sec\left[\tan^{-1}(\sqrt{3})\right]$	2
$\sec\left(\frac{\pi}{3}\right)$	$\csc\left[\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right]$

$\tan^{-1}\left(\tan \frac{3\pi}{4}\right)$	$-\frac{\pi}{4}$
$\tan^{-1}(-1)$	$\sin^{-1}\left(\cos \frac{5\pi}{4}\right)$

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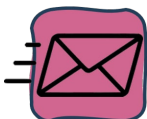
Meet the author:



My goal is to help you bring balance into your teacher life by providing relevant content, engaging activities, and comprehensive assessments for your high-stakes math course.

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