

ADE DLC Calculus for Everyone  
Inverse Trig Derivatives---1

**What is the derivative of  
arcsin(u)?**

$$\frac{d}{dx} [\arcsin(u)] = \frac{u'}{\sqrt{1-u^2}}$$

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Inverse Trig Derivatives---2

**What is the derivative of  
arccos(x)?**

$$\frac{d}{dx} [\arccos(u)] = \frac{-u'}{\sqrt{1-u^2}}$$

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Inverse Trig Derivatives---3

**What is the derivative of  
arctan(u)?**

$$\frac{d}{dx} [\arctan(u)] = \frac{u'}{1+u^2}$$

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Inverse Trig Derivatives---4

**What is the derivative of  
arccot(x)?**

$$\frac{d}{dx} [\text{arc cot}(u)] = \frac{-u'}{1+u^2}$$

Inverse Trig Derivatives---4

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Inverse Trig Derivatives----5

**What is the derivative of  
arcsec(u)?**

$$\frac{d}{dx} [\text{arc sec}(u)] = \frac{u'}{|u|\sqrt{u^2-1}}$$

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Inverse Trig Derivatives----5

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Inverse Trig Derivatives---6

**What is the derivative of  
arcsec(x)?**

$$\frac{d}{dx} [\text{arc sec}(u)] = \frac{u'}{|u|\sqrt{u^2 - 1}}$$

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Inverse Trig Derivatives---6

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Inverse Trig Derivatives---7

**What is the derivative of  
arccsc(x)?**

$$\frac{d}{dx} [\text{arc csc}(u)] = \frac{-u'}{|u|\sqrt{u^2 - 1}}$$

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Inverse Trig Derivatives---8

$$\frac{d}{dx} [\arcsin(2x)] =$$

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Inverse Trig Derivatives---8

$$\frac{d}{dx} [\arcsin(2x)] = \frac{2}{\sqrt{1 - (2x)^2}} = \frac{2}{\sqrt{1 - 4x^2}}$$

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Inverse Trig Derivatives---9

$$\frac{d}{dx} [\arctan(3x)] =$$

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Inverse Trig Derivatives---9

$$\frac{d}{dx} [\arctan(3x)] = \frac{3}{1 + (3x)^2} = \frac{3}{1 + 9x^2}$$

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Inverse Trig Derivatives---10

$$\frac{d}{dx} [\text{arc sec}(e^{2x})] =$$

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Inverse Trig Derivatives---10

$$\frac{d}{dx} [\text{arc sec}(e^{2x})] = \frac{2e^{2x}}{e^{2x}\sqrt{(e^{2x})^2 - 1}} = \frac{2}{\sqrt{e^{4x} - 1}}$$

## Instructions for Flash cards

### Option 1:

Fold the paper vertically down the middle

Using a 3-hole punch, put holes down the left side

Staple the paper on the left

Put the paper in a 3-ring binder

Flip the paper back and forth as you practice the formulas

### Option 2

Cut the “cards” horizontally.

Staple each one on the left side.

Use as flash cards

( Could paste the cards on index cards)