Trigonometric functions, like all other one-to-one functions continuous on an interval, have an inverse function (section 3.2). This means they and their inverses have derivative functions, constrained to a definite domain and range. In this section we will look the six basic trigonometric functions and their inverses, their domains and ranges, and then the derivatives of those.

# Functions, Inverses, Domains and Ranges

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Function | | | Inverse | | |
| Notation | Domain () | Range () | Notation | Domain () | Range () |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

# Functions, Inverses, and their Derivatives

|  |  |
| --- | --- |
| Function | Inverse |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

# What Did You Learn?

* What is the domain and range of the sine? cosine? tangent? their inverses?
* How are the domains and ranges of the six basic trigonometric functions and their inverses related?
* What similarities exist between the co-functions of inverse trigonometric functions?