1 Inverses of the six basic trigonometric functions

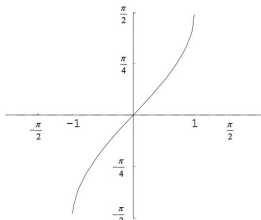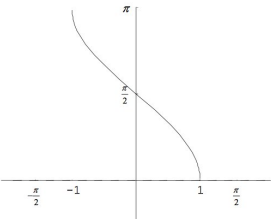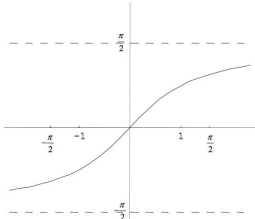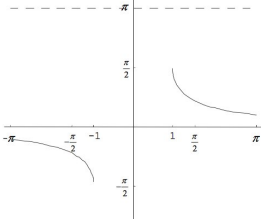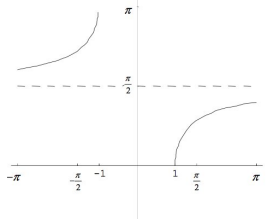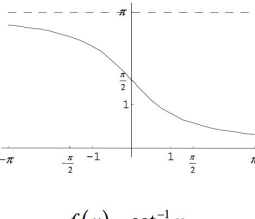1. Fill the blanks in the pictures with the domain and range of each function. You can use the space below to write important facts discussed in class about them.

Domain:	Domain:	Domain:
Range:	Range:	Range:
$f(x) = \sin^{-1} x$ $f(x) = \arcsin x$	$f(x) = \cos^{-1} x$ $f(x) = \arccos x$	$f(x) = \tan^{-1} x$ $f(x) = \arctan x$

Domain:	Domain:	Domain:
Range:	Range:	Range:
$f(x) = \csc^{-1} x$ $f(x) = \operatorname{arccsc} x$	$f(x) = \sec^{-1} x$ $f(x) = \operatorname{arcsec} x$	$f(x) = \cot^{-1} x$ $f(x) = \operatorname{arccot} x$

2 DERIVATIVES OF $\sin^{-1} x$, $\tan^{-1} x$ AND $\sec^{-1} x$

1. Write down the derivation of the formulas for the derivatives of $\sin^{-1} x$, $\tan^{-1} x$ and $\sec^{-1} x$ that we saw in class.

2. Taking the previous item for granted, can you compute the derivatives of $\cos^{-1} x$, $\cot^{-1} x$ and $\csc^{-1} x$ with almost no extra effort?