Precalculus
Homework
Graphs of trig functions; inverse trig

1. Find each of the following values. Express your answers precisely, not as decimals.

   (a) $\arcsin(\sin 4)$.

   (b) $\arcsin(\sin 0.5)$.

   (c) $\arcsin(\cos 120^\circ)$.

   (d) $\arccos(\cos(3))$.

   (e) $\arccos(\cos(-2))$.

   (f) $\arccos(\sin(-4))$.

   (g) $\arctan(\tan 5)$.

2. Express as the following as an algebraic expression of x. In other words, "get rid" of the trigonometric and inverse trigonometric expressions.

   (a) $\cos^2(\arctan x)$.

   (b) $-\sin^2(\operatorname{arccot} x)$.

   (c) $\dfrac{1}{\cos(\arcsin x)}$.

   (d) $-\dfrac{1}{\sin(\arccos x)}$.

3. Let $x \in (0, 1)$. Express the following using x and $\sqrt{1-x^2}$.

   (a) $\sin(\arcsin(x))$.

   (b) $\sin(2\arcsin(x))$.

   (c) $\sin(3\arcsin(x))$.

   (d) $\sin(\arccos(x))$.

   (e) $\sin(2\arccos(x))$.

   (f) $\sin(3\arccos(x))$.

   (g) $\cos(2\arcsin(x))$.

   (h) $\cos(3\arccos(x))$.