

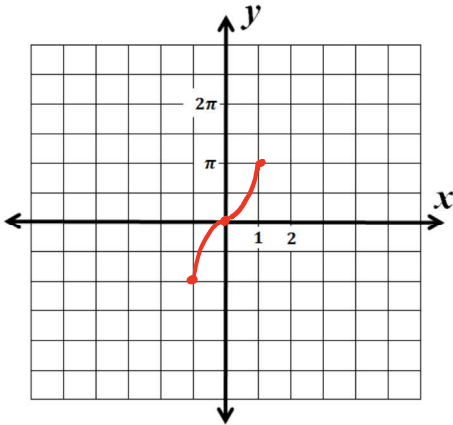
10.4 Practice – Inverse Trig Functions

Name: _____

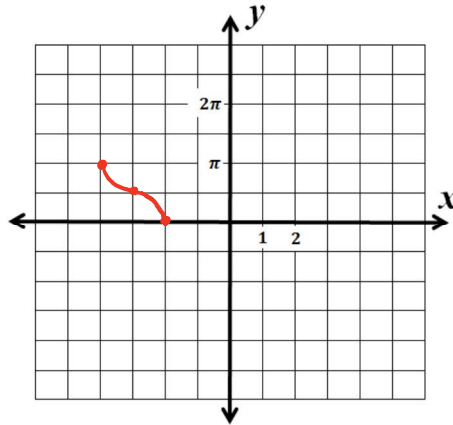
Pre-Calculus

For 1-9, graph the function.

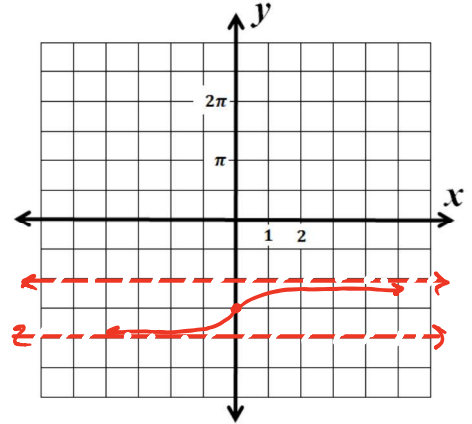
1) $y = 2 \sin^{-1} x$



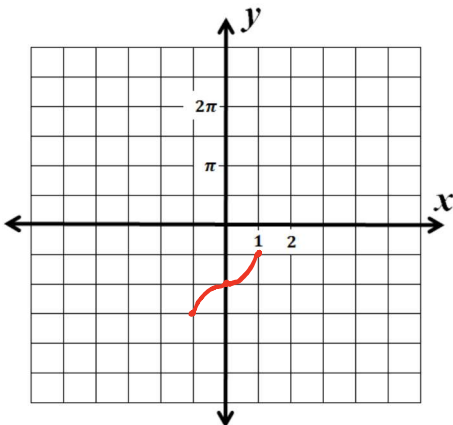
2) $y = \cos^{-1}(x + 3)$



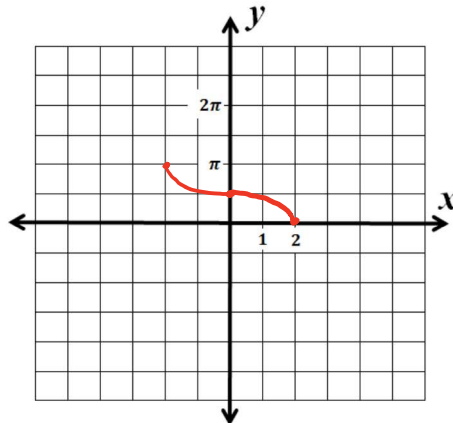
3) $y = \tan^{-1} x - \frac{3\pi}{2}$



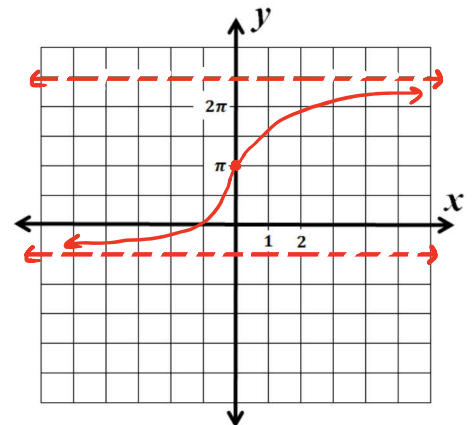
4) $y = \sin^{-1} x - \pi$



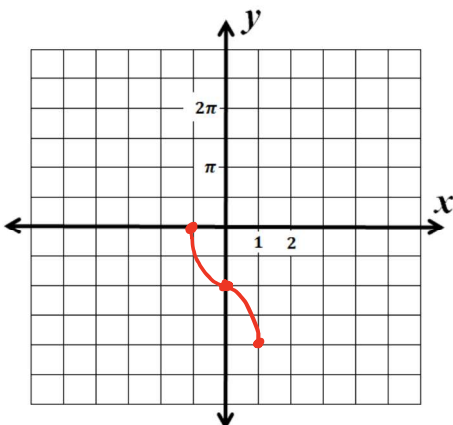
5) $y = \cos^{-1} \frac{x}{2}$



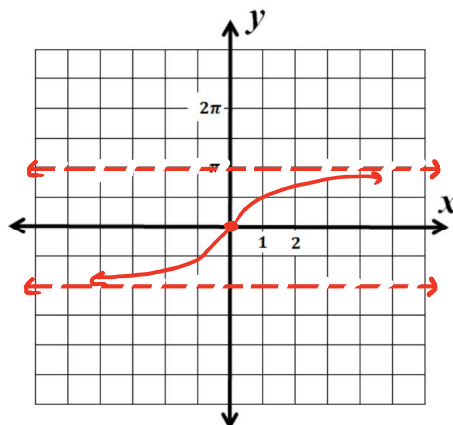
6) $y = 3 \tan^{-1} x + \pi$



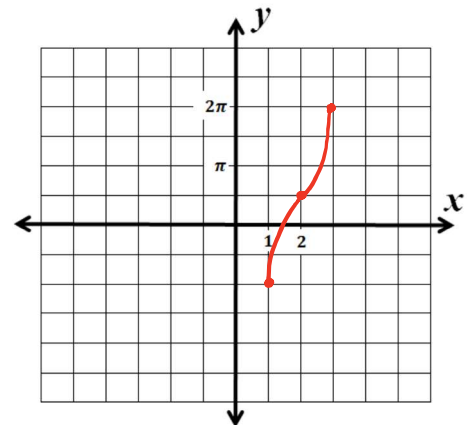
7) $y = 2 \cos^{-1} x - 2\pi$



8) $y = 2 \tan^{-1} x$



9) $y = 3 \sin^{-1}(x - 2) + \frac{\pi}{2}$



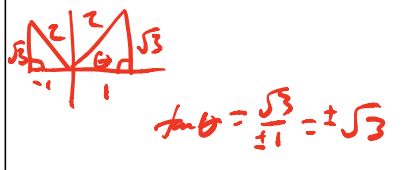
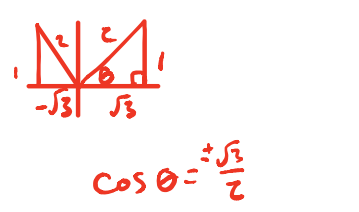
For 10-17, find the exact value of the expression. Do not use a calculator! (radians or degrees both work)

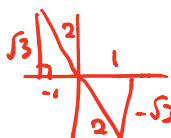
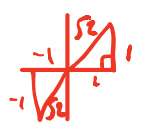
10) ~~$\sin(\arcsin(\frac{1}{2})) = \frac{1}{2}$~~

11) ~~$\cos(\arcsin(\frac{1}{2})) = \pm \frac{\sqrt{3}}{2}$~~

12) ~~$\cos(\arccos(\frac{\sqrt{3}}{2})) = \frac{\sqrt{3}}{2}$~~

13) ~~$\tan(\arcsin(\frac{\sqrt{3}}{2})) = \pm \sqrt{3}$~~

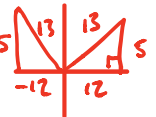
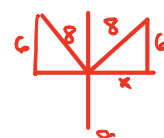




14) $\sec(\arctan(-\sqrt{3})) = \pm 2$  $\sec \theta = \frac{2}{\pm 1} = \pm 2$	15) $\sin(\operatorname{arccsc}(2)) = \frac{1}{2}$	16) $\cos(\operatorname{arcsec}(\frac{2\sqrt{3}}{3})) = \frac{\sqrt{3}}{2}$  $\cos \theta = \frac{3}{2\sqrt{3}} = \frac{3\sqrt{3}}{6} = \frac{\sqrt{3}}{2}$	17) $\csc(\arctan(1)) = \pm\sqrt{2}$ $\csc \theta = \frac{\sqrt{2}}{\pm 1} = \pm\sqrt{2}$
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For 18-25, find the approximate value of the expression by using a calculator. Round to three decimals. Only one answer is necessary. Assume degrees for inverse functions.

18) $\sin^{-1}(\frac{1}{2}) = 30^\circ$	19) $\csc(20^\circ) = 2.924$ $\frac{1}{\sin(20^\circ)}$	20) $\operatorname{arcsec}(2) = 60^\circ$ $\arccos(\frac{1}{2})$	21) $\sec(0.473) = 1.123$ $\frac{1}{\cos(0.473)}$ RAD!
22) $\cot(\frac{9}{2}) = 0.216$ $\frac{1}{\tan(\frac{9}{2})}$ RAD!	23) $\cot^{-1}(\frac{9}{2}) = 12.529^\circ$ $\tan^{-1}(\frac{2}{9})$	24) $\operatorname{arccsc}(1.11) = 64.271^\circ$ $\sin^{-1}(\frac{1}{1.11})$	25) $\sec^{-1}(6) = 80.406^\circ$ $\cos^{-1}(\frac{1}{6})$

For 26-29, use a reference triangle to find the exact value of the expression.

26) $\tan(\sin^{-1}(\frac{5}{13})) = \pm \frac{5}{12}$  $\tan \theta = \frac{5}{\pm 12}$	27) $\sec(\operatorname{arccsc}(\frac{8}{6})) = \pm \frac{4\sqrt{7}}{7}$  $x^2 + 4^2 = r^2$ $x^2 + (4^2) = (8)^2$ $x^2 + 16 = 64$ $x^2 = 48$ $x = \pm\sqrt{48}$ $x = \pm 2\sqrt{3}$ $\sec \theta = \frac{r}{\pm 2\sqrt{3}} = \frac{10}{\pm 2\sqrt{3}} = \pm \frac{5\sqrt{3}}{3}$	28) $\csc(\cot^{-1}(\frac{3}{2})) = \pm \frac{\sqrt{13}}{2}$  $x^2 + 4^2 = r^2$ $(-3)^2 + (-4)^2 = r^2$ $9 + 16 = r^2$ $25 = r^2$ $\pm\sqrt{25} = r$ $\pm 5 = r$ $\csc \theta = \frac{r}{\pm 2} = \frac{\pm 5}{\pm 2} = \pm \frac{5}{2}$	29) $\sec(\sin^{-1}(\frac{5}{7})) = \pm \frac{7\sqrt{6}}{12}$  $x^2 + 5^2 = r^2$ $x^2 + (5^2) = (7)^2$ $x^2 + 25 = 49$ $x^2 = 24$ $x = \pm\sqrt{24}$ $x = \pm 2\sqrt{6}$ $\sec \theta = \frac{r}{\pm 2\sqrt{6}} = \frac{7}{\pm 2\sqrt{6}} = \pm \frac{7\sqrt{6}}{2 \cdot 6} = \pm \frac{7\sqrt{6}}{12}$
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Skillz Review: Factor Out a Monomial (Undistribute)

$6x^2 - 15x$ $= 3x(2x - 5)$	$\cos^2 x - \cos x$ $\cos x(\cos x - 1)$	$2 \sin^3 x + 12 \sin^2 x - 6 \sin x$ $2 \sin x(\sin^2 x + 6 \sin x - 3)$
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Skillz Review: Factor out a Binomial (unFOIL)

$3x^2 - x - 10$ $= \frac{(3x - 6)(3x + 5)}{3}$ $= \frac{\cancel{3}(x - 2)(3x + 5)}{\cancel{3}}$ $= (x - 2)(3x + 5)$	$3 \sin^2 x - \sin x - 10$ $= (\sin x - 2)(3 \sin x + 5)$	$\cos^2 x + 8 \cos x + 7$ $= (\cos x + 7)(\cos x + 1)$
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