

Finish up this problem from before...

$$(\log_3 x)^2 - \log_3 x = 3$$

$$\log_3 x \cdot \log_3 x - 2 \log_3 x = 3$$

$$3 \log_3 x (\log_3 x - 2) = 3$$

$$\cancel{x} (\log_3 x - 2) = \frac{27}{\cancel{x}}$$

$$\log_3 x - 2 = \frac{27}{x}$$

... on hold...

Any questions from the worksheet?

$$\textcircled{31} \frac{n+10}{\cancel{(21n^2+7n)}} \cdot \frac{\cancel{(21n^2+7n)}}{4} = \frac{n+10}{4}$$

$$\textcircled{18} \frac{36x}{28x^2+12x} = \frac{\cancel{9} \cancel{36} x}{\cancel{4} x (7x+3)} = \frac{9}{7x+3}$$

$$\textcircled{3} (48x^3 - 56x^2) (-42x + 49)$$

$$8x^2 (\underline{6x-7}) - 7 (\underline{6x-7})$$

$$(6x-7) (8x^2-7)$$

Parent Function	Graph	Domain	Range	Even/Odd	Transformations
$y = \sin x$		$(-\infty, \infty)$	$[-1, 1]$	odd	$y = A \cdot \begin{matrix} \sin \\ \cos \\ \tan \\ \csc \\ \sec \\ \cot \end{matrix} (B(x-c)) + D$ $ A = \text{amplitude}$ $B = \text{cycles from } 0 \text{ to } 2\pi$ $\text{period} = \frac{2\pi}{B}$ $C = \text{horizontal or phase shift}$ $D = \text{vertical shift (midline)}$ $B = \frac{2\pi}{\text{period}}$
$y = \cos x$		$(-\infty, \infty)$	$[-1, 1]$	even	
$y = \tan x$		$\{x \mid x \neq \frac{\pi}{2} + k\pi, k \in \mathbb{Z}\}$	$(-\infty, \infty)$	odd	
$y = \csc x$		$\{x \mid x \neq k\pi, k \in \mathbb{Z}\}$	$(-\infty, -1] \cup [1, \infty)$	odd	
$y = \sec x$		$\{x \mid x \neq k\pi, k \in \mathbb{Z}\}$	$(-\infty, -1] \cup [1, \infty)$	even	
$y = \cot x$		$(-\infty, \infty)$		odd	

\rightarrow domain: $\{x \mid x \neq \frac{\pi}{2} + k\pi, k \in \mathbb{Z}\}$
 \rightarrow domain: $\{x \mid x \neq k\pi, k \in \mathbb{Z}\}$

Inverse Trigonometric Functions

Inverse trig functions:

$$\begin{array}{l} \sin^{-1} \\ \cos^{-1} \\ \tan^{-1} \end{array}$$

- use when solving for angle
- "undo" trig function

EXAMPLES

1. Find the exact value of . . .

a. $\sin^{-1} \frac{\sqrt{3}}{2} = \frac{\pi}{3}, \frac{2\pi}{3}$

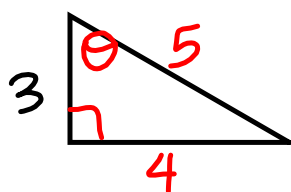
b. $\tan^{-1} -1 = \frac{3\pi}{4}, \frac{7\pi}{4}$

$\frac{\sin \theta}{\cos \theta}$
↓

c. $\cos^{-1} 0 = \frac{\pi}{2}, \frac{3\pi}{2}$

d. $\cancel{\sin^{-1}} \left(\cancel{\sin} \frac{3\pi}{4} \right) = \frac{3\pi}{4}$

2. Find all six trig functions of the angle θ if $\theta = \sin^{-1} \frac{4}{5}$.



$$\sin \theta = \frac{4}{5}$$

$$\cos \theta = \frac{3}{5}$$

$$\tan \theta = \frac{4}{3}$$

$$\sec \theta = \frac{5}{3}$$

$$\csc \theta = \frac{5}{4}$$

$$\cot \theta = \frac{3}{4}$$

$$\sin \theta = \frac{4}{5}$$

$$\cancel{\sin^{-1}(\sin \theta)} = \sin^{-1}\left(\frac{4}{5}\right)$$

$$\theta = \sin^{-1}\left(\frac{4}{5}\right)$$

3. Evaluate $\cos\left(\tan^{-1} \frac{6}{11}\right) \approx 0.877$

Inverse trig functions on the calculator:

Trigonometric identities you must know:

Odd and even trig functions:

Homework

1.6 pg.51-52 #1-17, 25-35 odds

For the rest of class, we will work
on the review for our Unit 1
Assessment.