Key

Inverse Trig Functions:

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

Inverse Function Properties

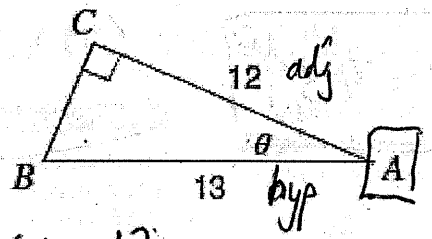
$\sin(\sin^{-1}(x)) = x$	$\sin^{-1}(\sin(x)) = x$
$\cos(\cos^{-1}(x)) = x$	$\cos^{-1}(\cos(x)) = x$
$\tan(\tan^{-1}(x)) = x$	$\tan^{-1}(\tan(x)) = x$

Recall the below Trig ratios:

SOH-CAH-TOA $\quad Sin\angle A = \frac{Opp}{Hyp} \quad Cos\angle A = \frac{Adj}{Hyp} \quad Tan\angle A = \frac{Opp}{Adj}$

Find the value of indicated angle

1.



$\cos(A) = \frac{12}{13}$

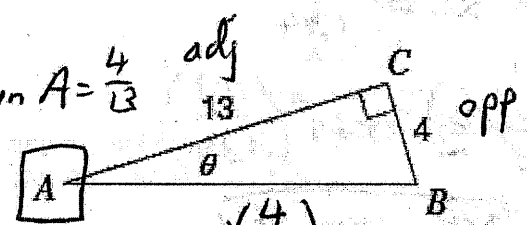
Inverse cosine of $\frac{12}{13}$

$\cos^{-1}[\cos(A)] = \cos^{-1}\left(\frac{12}{13}\right)$

$A = \cos^{-1}\left(\frac{12}{13}\right)$ $\quad \boxed{A = 22.6^\circ}$

2.

$\tan A = \frac{4}{13}$

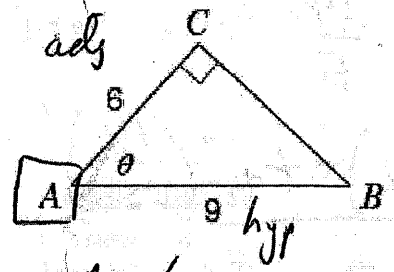


$\tan^{-1}(\tan A) = \tan^{-1}\left(\frac{4}{13}\right)$

$A = \tan^{-1}\left(\frac{4}{13}\right)$

$\boxed{A = 17.1^\circ}$

3.



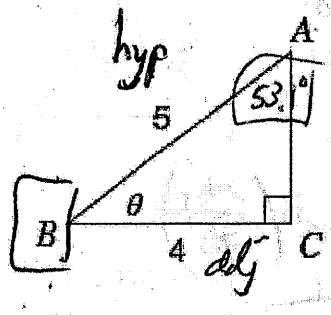
$\cos A = \frac{6}{9}$

$\cos^{-1}(\cos A) = \cos^{-1}\left(\frac{6}{9}\right)$

$\boxed{A = 48.2^\circ}$

4.

$\cos B = \frac{4}{5}$



$\cos^{-1}(\cos B) = \cos^{-1}\left(\frac{4}{5}\right)$

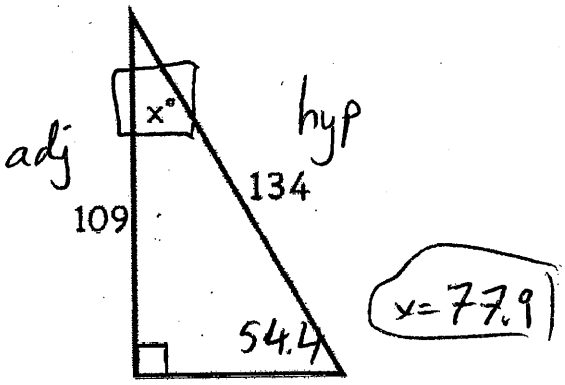
$\boxed{B = 36.9^\circ}$

$AC = 3$

SOH-CAH-TOA $\quad Sin\ \angle A = \frac{Opp}{Hyp} \quad Cos\ \angle A = \frac{Adj}{Hyp} \quad Tan\ \angle A = \frac{Opp}{Adj}$

Find the value of indicated angle

5.

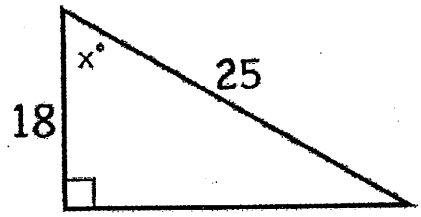


$\cos x = \frac{109}{134}$

$\cos^{-1}(\cos x) = \cos^{-1}\left(\frac{109}{134}\right)$

$x = 35.6°$

6.

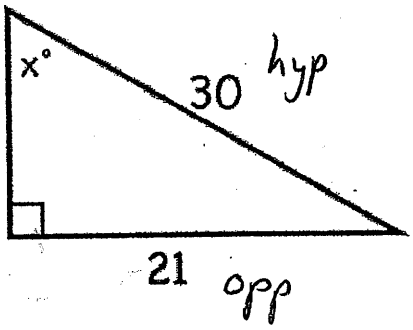


$\cos x = \frac{18}{25}$

$\cos^{-1}(\cos x) = \cos^{-1}\left(\frac{18}{25}\right)$

$x = 43.9°$

7.

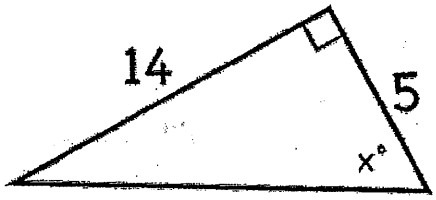


$\sin x = \frac{21}{30}$

$\sin^{-1}(\sin x) = \sin^{-1}\left(\frac{21}{30}\right)$

$x = 44.4°$

8.



$\tan x = \frac{14}{5}$

$\tan^{-1}(\tan x) = \tan^{-1}\left(\frac{14}{5}\right)$

$x = 70.3°$

Geometry

Name Key ID: 1

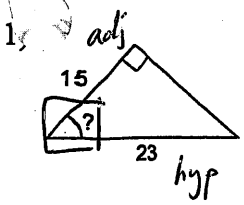
Assignment

$S^{O}_{H}\ C^{A}_{H}\ T^{O}_{A}\ (\theta)$ *Use Inverse Trig ($\sin^{-1}, \cos^{-1}, \tan^{-1}$)

Date _____ Period ____

Find the measure of the indicated angle to the nearest degree.

1)

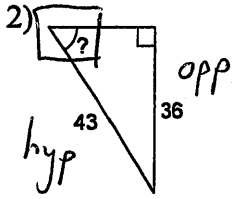


$\cos\theta = \frac{15}{23}$

$\theta = \cos^{-1}\left(\frac{15}{23}\right)$

$\boxed{\theta = 49.294^\circ}$

2)

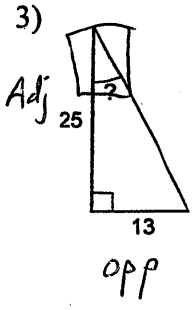


$\sin\theta = \frac{36}{43}$

$\theta = \sin^{-1}\left(\frac{36}{43}\right)$

$\boxed{\theta = 56.847^\circ}$

3)

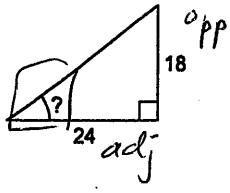


$\tan\theta = \frac{13}{25}$

$\theta = \tan^{-1}\left(\frac{13}{25}\right)$

$\boxed{\theta = 27.474^\circ}$

4)

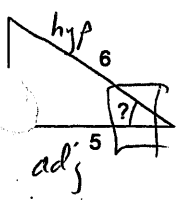


$\tan\theta = \frac{18}{24}$

$\theta = \tan^{-1}\left(\frac{18}{24}\right)$

$\boxed{\theta = 36.869^\circ}$

5)

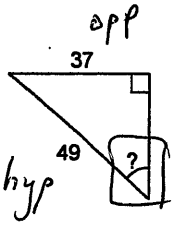


$\cos\theta = \frac{5}{6}$

$\theta = \cos^{-1}(5/6)$

$\boxed{\theta = 33.557^\circ}$

6)

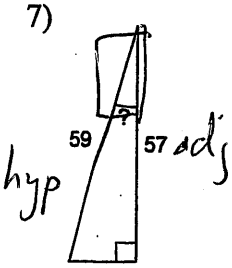


$\sin\theta = \frac{37}{49}$

$\theta = \sin^{-1}(37/49)$

$\boxed{\theta = 49.034^\circ}$

7)

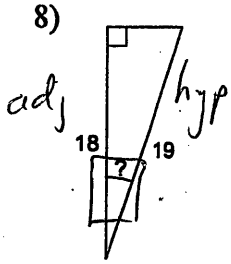


$\cos\theta = \frac{57}{59}$

$\theta = \cos^{-1}\left(\frac{57}{59}\right)$

$\boxed{\theta = 14.961^\circ}$

8)

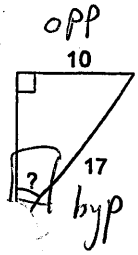


$\cos\theta = \frac{18}{19}$

$\theta = \cos^{-1}\left(\frac{18}{19}\right)$

$\boxed{\theta = 18.671^\circ}$

9)

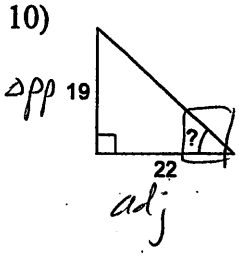


$\sin\theta = \frac{10}{17}$

$\theta = \sin^{-1}\left(\frac{10}{17}\right)$

$\boxed{\theta = 36.032^\circ}$

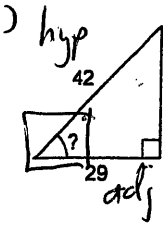
10)



$\tan\theta = \frac{19}{22}$

$\theta = \tan^{-1}(19/22)$

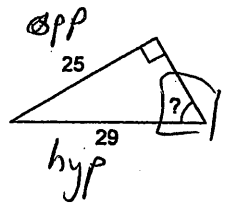
$\boxed{\theta = 40.815^\circ}$

11) 

$\cos\theta = \frac{29}{42}$

$\theta = \cos^{-1}\left(\frac{29}{42}\right)$

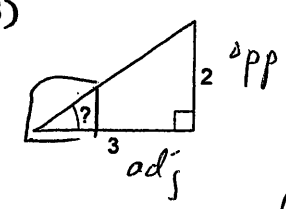
$\theta = 46.332^\circ$

12) 

$\sin\theta = \frac{25}{29}$

$\theta = \sin^{-1}\left(\frac{25}{29}\right)$

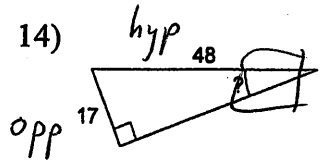
$\theta = 59.549^\circ$

13) 

$\tan\theta = 2/3$

$\theta = \tan^{-1}(2/3)$

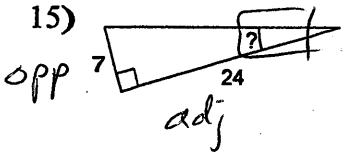
$\theta = 33.690^\circ$

14) 

$\sin\theta = \frac{17}{48}$

$\theta = \sin^{-1}(17/48)$

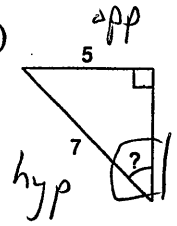
$\theta = 20.742^\circ$

15) 

$\tan\theta = \frac{7}{24}$

$\theta = \tan^{-1}(7/24)$

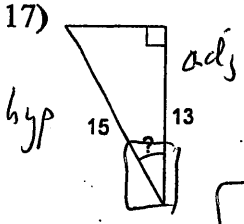
$\theta = 16.260^\circ$

16) 

$\sin\theta = \frac{5}{7}$

$\theta = \sin^{-1}(5/7)$

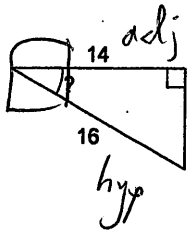
$\theta = 45.585^\circ$

17) 

$\cos\theta = \frac{13}{15}$

$\theta = \cos^{-1}\left(\frac{13}{15}\right)$

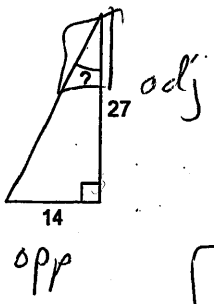
$\theta = 29.926^\circ$

18) 

$\cos\theta = \frac{14}{16}$

$\theta = \cos^{-1}(14/16)$

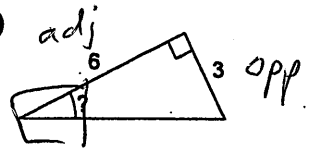
$\theta = 28.955^\circ$

19) 

$\tan\theta = \frac{14}{27}$

$\theta = \tan^{-1}\left(\frac{14}{27}\right)$

$\theta = 27.408^\circ$

20) 

$\tan\theta = \frac{3}{6}$

$\theta = \tan^{-1}(3/6)$

$\theta = 26.565^\circ$