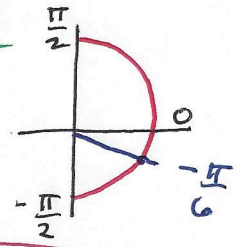
Final Exam Pretest
Select Answers

Math 36 Final Exam Pretest Select Answers

7. $\sin^{-1}\left(-\frac{1}{2}\right)$ Restriction interval for $\sin^{-1}(t)$ is $-\frac{\pi}{2} \le t \le \frac{\pi}{2}$

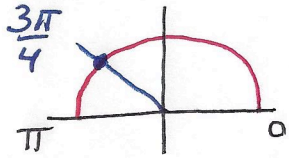
$\sin^{-1}\left(-\frac{1}{2}\right) = \boxed{-\frac{\pi}{6}}$, but that is not an option. So,



a) $\frac{7\pi}{6}$ b) $\frac{5\pi}{6}$ c) $\frac{2\pi}{3}$ d) $-\frac{\pi}{3}$ e) None of these

8. $\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)$ Restriction for $\cos^{-1}(t)$ is $0 \le t \le \pi$

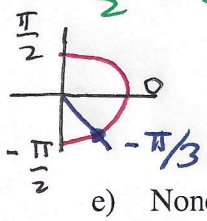
$\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right) = \boxed{\frac{3\pi}{4}}$ (only)



a) $-\frac{\pi}{4}$ b) $\frac{\pi}{4}$ c) $\frac{3\pi}{4}$ d) $\frac{5\pi}{4}$ e) None of these

9. $\tan^{-1}(-\sqrt{3})$ Restriction for $\tan^{-1}(t)$ is $-\frac{\pi}{2} < t < \frac{\pi}{2}$

$\tan^{-1}(-\sqrt{3}) = \boxed{-\frac{\pi}{3}}$ (only)



a) $-\frac{\pi}{3}$ b) $\frac{2\pi}{3}$ c) $-\frac{\pi}{6}$ d) $\frac{5\pi}{6}$ e) None of these

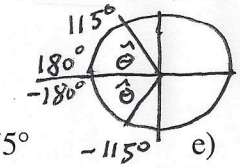
15. Identify the quadrant in which θ terminates given that $\sec\theta < 0$ and $\cos\theta > 0$.

Because $\sec\theta$ and $\cos\theta$ are reciprocal functions, whenever one is positive, so is the other. So, it is not possible for $\sec\theta$ to be negative and $\cos\theta$ to be positive.

a) Quad I b) Quad II c) Quad III d) Quad IV e) None of these

16. Given $\theta = -115°$, find the value of $\hat{\theta}$ (theta hat). $\hat{\theta}$ for $-115°$ is the same for $+115°$.

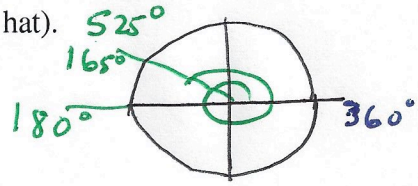
$\hat{\theta}$ is the difference between $-115°$ and $-180°$
or the difference between $+115°$ and $180°$



$$\begin{array}{r} 180° \\ -115° \\ \hline 65° \end{array}$$

a) 245° b) 65° c) 25° d) 75° e) None of these

17. Given $\theta = 525°$, find the value of $\hat{\theta}$ (theta hat).



$$\begin{array}{r} 525° \\ -360° \\ \hline 165° \end{array} \qquad \begin{array}{r} 180° \\ -165° \\ \hline 15° \end{array}$$

a) 65° b) 25° c) 15° d) 165° e) None of these

18. Given θ is in Quadrant II and $\cot\theta = \frac{-1}{3}$, find the value of $\cos\theta$.

① $\cot\theta = \frac{x}{y} = \frac{-1}{3}$

we need to find r to find $\cos\theta$

② $r^2 = x^2 + y^2$

$r^2 = (-1)^2 + (3)^2$

$r^2 = 1 + 9$

$r^2 = 10$

$r = \sqrt{10}$

③ $\cos\theta = \frac{x}{r}$

$\cos\theta = \frac{-1}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}}$

$\cos\theta = \boxed{\frac{-\sqrt{10}}{10}}$

a) $-3\sqrt{10}$ b) $-\frac{3\sqrt{10}}{10}$ c) $-\sqrt{10}$ d) $-\frac{\sqrt{10}}{10}$ e) None of these

19. Given θ is in Quadrant IV and $\cos\theta = \frac{1}{4}$, find the value of $\cot\theta$.

① $\cos\theta = \frac{x}{r} = \frac{1}{4}$

$x = 1,\ r = 4$

we need to find y to find $\cot\theta$

② $x^2 + y^2 = r^2$

$(1)^2 + y^2 = (4)^2$

$1 + y^2 = 16$

$y^2 = 15$

$y = \pm\sqrt{15}$

in Q IV, y is negative, so $y = -\sqrt{15}$

③ $\cot\theta = \frac{x}{y} = \frac{1}{-\sqrt{15}}$

$= \boxed{\frac{-\sqrt{15}}{15}}$

a) $-\frac{\sqrt{15}}{15}$ b) $-4\sqrt{15}$ c) $-\frac{4\sqrt{15}}{15}$ d) $-\sqrt{15}$ e) None of these