

Test 2 (Ch. 3 & 4) Pretest

1. Evaluate each.

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|-----------------------|-----------------------|-----------------------|-----------------------|
| a) $\sin(150^\circ)$ | b) $\cos(270^\circ)$ | c) $\csc(90^\circ)$ | d) $\cot(180^\circ)$ |
| e) $\tan(495^\circ)$ | f) $\sec(600^\circ)$ | g) $\cos(-240^\circ)$ | h) $\tan(-120^\circ)$ |
| i) $\sec(90^\circ)$ | j) $\tan(180^\circ)$ | k) $\cos(150^\circ)$ | l) $\sin(270^\circ)$ |
| m) $\sin(-315^\circ)$ | n) $\cot(-150^\circ)$ | o) $\sec(510^\circ)$ | p) $\csc(585^\circ)$ |

2. Evaluate each.

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|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| a) $\csc\left(\frac{2\pi}{3}\right)$ | b) $\tan\left(-\frac{4\pi}{3}\right)$ | c) $\cot\left(\frac{7\pi}{6}\right)$ | d) $\cos\left(\frac{5\pi}{3}\right)$ |
| e) $\csc(5\pi)$ | f) $\sin\left(\frac{7\pi}{2}\right)$ | g) $\cot\left(-\frac{7\pi}{4}\right)$ | h) $\sin\left(\frac{3\pi}{4}\right)$ |
| i) $\tan\left(\frac{7\pi}{6}\right)$ | j) $\sec\left(\frac{5\pi}{3}\right)$ | k) $\sin\left(\frac{2\pi}{3}\right)$ | l) $\cot\left(-\frac{4\pi}{3}\right)$ |
| m) $\sin\left(-\frac{7\pi}{6}\right)$ | n) $\cos\left(\frac{3\pi}{2}\right)$ | o) $\sec(5\pi)$ | p) $\tan\left(\frac{7\pi}{2}\right)$ |

3. Use a conversion multiplier to find the radian or degree equivalent.

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|---------------------|----------------------|-----------------------|-----------------------|
| a) 200° | b) 15° | c) 72° | d) 27° |
| e) $\frac{7\pi}{9}$ | f) $\frac{3\pi}{20}$ | g) $\frac{11\pi}{30}$ | h) $\frac{13\pi}{12}$ |

4. For each, based on the given information, find the value(s) of θ , $0^\circ \leq \theta < 360^\circ$.

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| a) $\sin\theta = -\frac{1}{2}$, θ in QIV | b) $\cos\theta = \frac{\sqrt{2}}{2}$, θ in QIV |
| c) $\tan\theta = -1$, θ in QII | d) $\csc\theta = -\frac{2\sqrt{3}}{3}$, θ in QIII |
| e) $\cot\theta = -\sqrt{3}$, θ in QIV | f) $\sec\theta = -2$, θ in QII |

5. Given the following information, find t . Note: The restrictions on t are not necessarily the same for each exercise.

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| a) $\tan(t) = 1, 0 \leq t \leq \pi$ | b) $\cos(t) = \frac{\sqrt{2}}{2}, \pi \leq t \leq 2\pi$ |
| c) $\cot(t) = \frac{\sqrt{3}}{3}, \frac{\pi}{2} \leq t \leq \frac{3\pi}{2}$ | d) $\sec(t) = 1, \pi \leq t \leq 2\pi$ |
| e) $\sin(t) = -\frac{\sqrt{3}}{2}, \frac{\pi}{2} \leq t \leq \frac{3\pi}{2}$ | f) $\csc(t) = -2, \frac{\pi}{2} \leq t \leq \frac{3\pi}{2}$ |

6. Graph **one full period** of each function. Mark each important value along the x - and y -axes.

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| a) $y = -1 + 2\cos\left(\frac{3}{4}x\right)$ | b) $y = 3\cos\left(\frac{6}{5}x + \frac{\pi}{4}\right)$ |
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7. Graph **two full periods** of each function. Mark each important value along the x - and y -axes.

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| a) $y = -2\cos\left(\frac{4}{5}x\right)$ | a) $y = -2\sin\left(\frac{2}{3}x\right)$ | b) $y = 3\csc\left(\frac{6}{5}x\right)$ |
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8. Graph **two full periods** of each function.

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| a) $y = -\tan(3x)$ | b) $y = \cot\left(\frac{1}{2}x\right)$ |
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9. Evaluate each.

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| a) $\tan^{-1}(-\sqrt{3})$ | b) $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ | c) $\tan^{-1}(-1)$ |
| d) $\sin^{-1}\left(\frac{1}{2}\right)$ | e) $\arccos\left(\frac{1}{2}\right)$ | f) $\arccos\left(-\frac{\sqrt{2}}{2}\right)$ |
| g) $\arctan\left(\frac{\sqrt{3}}{3}\right)$ | h) $\sin^{-1}(-1)$ | i) $\sin^{-1}(0)$ |
| j) $\cos^{-1}(0)$ | k) $\cos^{-1}(-1)$ | l) $\arctan(0)$ |

10. Given $f(t) = -3\cos(2t)$, find

a) $f\left(\frac{\pi}{2}\right)$ b) $f\left(\frac{2\pi}{3}\right)$ c) $f\left(\frac{5\pi}{8}\right)$ d) $f\left(\frac{11\pi}{12}\right)$

11. Given $f(t) = \csc\left(t + \frac{\pi}{2}\right)$ find

a) $f\left(\frac{\pi}{3}\right)$ b) $f\left(\frac{3\pi}{4}\right)$ c) $f\left(\frac{7\pi}{6}\right)$ d) $f\left(\frac{5\pi}{3}\right)$