

Warm up


Find the trig values for the following without using a calculator.

1. $\cos \frac{4\pi}{3}$
2. $\sin 225^\circ$
3. $\tan 150^\circ$
4. $\csc \pi$
5. $\cot \frac{11\pi}{6}$
6. $\sec 300^\circ$

Find the value(s) of θ over $0 \leq \theta < 2\pi$.

7. $\tan \theta = -1$
8. $\sec \theta = 2$
9. $\sin \theta = -1$
10. $\csc \theta = \sqrt{2}$

Jan 22-6:11 AM

GO COUGARS! 

Homework Questions

p 294

22. $\sin \theta = 0$ $\frac{\pi}{2} \leq \theta \leq \frac{3\pi}{2}$
 23. $\cot \theta$ is undefined. $\frac{\pi}{2} \leq \theta \leq \frac{3\pi}{2}$
 24. $\tan \theta$ is undefined. $\frac{\pi}{2} \leq \theta \leq \frac{3\pi}{2}$

Handwritten notes: $\cot \theta = \frac{\cos \theta}{\sin \theta} = 0$ $\frac{\cos \theta}{\sin \theta} = 0$ $\frac{0}{\sin \theta} = 0$ $(0,0)$ $(1,0)$

In Exercises 27-44, find the reference angle θ' for the special angle θ . Then sketch θ and θ' in standard position.

27. $\theta = 120^\circ$ 38. $\theta = 225^\circ$
 28. $\theta = -135^\circ$ 40. $\theta = -330^\circ$
 41. $\theta = \frac{5\pi}{3}$ 42. $\theta = \frac{7\pi}{4}$
 43. $\theta = -\frac{7\pi}{6}$ 44. $\theta = -\frac{5\pi}{4}$

In Exercises 45-52, find the reference angle θ' and sketch θ and θ' in standard position.

45. $\theta = 208^\circ$ 46. $\theta = 322^\circ$
 47. $\theta = -282^\circ$ 48. $\theta = -165^\circ$
 49. $\theta = \frac{11\pi}{3}$ 50. $\theta = \frac{17\pi}{4}$
 51. $\theta = -1.3$ 52. $\theta = 4.5$

Handwritten notes: $\frac{3.14}{1.3} = \frac{1.3\pi}{1.3^2}$

In Exercises 53-64, evaluate the sine, cosine, and tangent of the angle without using a calculator.

53. 225° 54. 300°
 55. -75° 56. -495°
 57. $\frac{5\pi}{3}$ 58. $\frac{7\pi}{4}$
 59. $-\frac{2\pi}{3}$ 60. $-\frac{5\pi}{4}$
 61. $\frac{11\pi}{4}$ 62. $\frac{13\pi}{3}$
 63. $-\frac{17\pi}{6}$ 64. $-\frac{20\pi}{3}$

Handwritten notes: \sin 3rd, \cos 4th, \tan 3rd. θ III, \cos 4th, \tan 3rd. $-\frac{\sqrt{3}}{2}$, $-\frac{1}{2}$, $+\sqrt{3}$

In Exercises 65-70, find the indicated trigonometric value in the specified quadrant.

Function	Quadrant	Trigonometric Value
65. $\sin \theta = \frac{1}{2}$	IV	$\cos \theta$
66. $\cot \theta = -3$	II	$\sin \theta$
67. $\csc \theta = -2$	IV	$\cot \theta$
68. $\cos \theta = \frac{1}{2}$	I	$\sec \theta$
69. $\sec \theta = -\frac{1}{2}$	III	$\tan \theta$
70. $\tan \theta = -\frac{1}{2}$	IV	$\csc \theta$

Handwritten notes: $\cos \theta = -\frac{1}{2}$, $\tan \theta = \frac{\sqrt{3}}{2}$

In Exercises 71-76, use the given value and the trigonometric identities to find the remaining trigonometric functions of the angle.

71. $\sin \theta = \frac{2}{3}$, $\cos \theta < 0$ 72. $\cos \theta = -\frac{1}{2}$, $\sin \theta < 0$
 73. $\tan \theta = -4$, $\cos \theta < 0$ 74. $\cot \theta = -5$, $\sin \theta > 0$
 75. $\csc \theta = -\frac{1}{2}$, $\tan \theta < 0$ 76. $\sec \theta = -\frac{1}{2}$, $\cot \theta > 0$

In Exercises 77-88, use a calculator to evaluate the trigonometric function. Round your answer to four decimal places. (Do not use the calculator key for the correct angle mode.)

77. $\sin 10^\circ$ 78. $\cos 230^\circ$
 79. $\tan 105^\circ$ 80. $\csc 120^\circ$
 81. $\cot(-10^\circ)$ 82. $\cos(-220^\circ)$
 83. $\sec(-20^\circ)$ 84. $\csc 0.33$
 85. $\tan \frac{2\pi}{3}$ 86. $\tan \frac{11\pi}{6}$
 87. $\csc\left(-\frac{5\pi}{6}\right)$ 88. $\cos\left(\frac{11\pi}{12}\right)$

Handwritten notes: $\sin\left(\frac{2\pi}{3}\right)$

In Exercises 89-94, find two solutions of the equation. Give your answers in degrees $0^\circ \leq \theta < 360^\circ$ and radians $0 \leq \theta < 2\pi$. Do not use a calculator.

89. (a) $\sin \theta = 1$ (b) $\sin \theta = -1$
 90. (a) $\sin \theta = \frac{1}{2}$ (b) $\sin \theta = -\frac{1}{2}$
 91. (a) $\cos \theta = \frac{\sqrt{2}}{2}$ (b) $\cos \theta = -\frac{1}{2}$
 92. (a) $\cos \theta = -\sqrt{2}$ (b) $\cos \theta = 2$
 93. (a) $\sec \theta = -\frac{\sqrt{2}}{2}$ (b) $\sec \theta = -1$
 94. (a) $\cot \theta = -\sqrt{3}$ (b) $\cot \theta = -2$

Feb 2-9:51 PM

4.4 Day 3 Trig Functions of Any Angle

- Finding Theta for **Common** & Uncommon Values
- in degrees
- in radians

↑
Per 7

Jan 5-8:18 AM

Find θ over $0^\circ \leq \theta < 360^\circ$

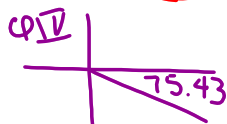
$\cos \theta = 0.2516$

Q I Q II

$\cos^{-1}(0.2516) = RA$

$RA = 75.43$

Q I **75.43**



$360 - 75.43$

284.55



$\tan \theta = 1.5842$

Q I Q III

$\tan^{-1}(1.5842)$

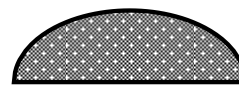
$RA = 57.74$

Q I Q III



$180 + 57.74$

237.74



$\csc \theta = -1.2018$

Q III Q IV

$\sin^{-1} \frac{1}{1.2018}$

$RA = 56.31^\circ$



$180 + 56.31$

236.31

$360 - 56.31$

303.69

Jan 5-3:41 PM

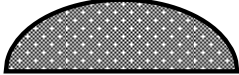
Find θ over $0 \leq \theta < 2\pi$

$\tan \theta = -2.5714$

$\tan^{-1}(2.5714) = 1.2$

~~1.2~~ $\pi - 1.2$ $2\pi - 1.2$

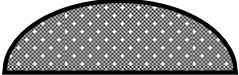
1.94 5.08



$\cos \theta = 0.4617$

$\cos^{-1}(0.4617) = 1.09$

1.09 5.19



$\csc \theta = 1.4812$


$\sin^{-1}\left(\frac{1}{1.4812}\right) = .74$

.74 $\pi - .74$

.74, 2.4

Jan 9-1:57 PM

HOMEWORK



p 294 37, 43, 52, 62, 74, 89-93 odd
66-75 by 3's
WB p 101 1-9 odd (top part only)
WB p 102 all

Aug 29-6:38 AM

Co-Function - the trigonometric function of the complement of an angle

Let's think about our common values



Jan 21-1:41 PM

If $\sin 27^\circ = 0.4534$ and $\cos 27^\circ = 0.8910$ find $\sin 63^\circ =$
 $\cos 27^\circ =$

If $\tan 42^\circ = 0.9004$ and $\cot \theta = 0.9004$ find θ

If $\csc \frac{2\pi}{5} = 1.0514$ and $\sec \theta = 1.0514$ find θ

Jan 21-1:58 PM