


Values Quiz #2


GO COUGARS!




p 318 Homework Questions

In Exercises 1-4, determine the exact values of the six trigonometric functions of the angle θ .

3. (a)



(b)



In Exercises 5-10, the point is on the terminal side of an angle in standard position. Determine the exact values of the six trigonometric functions of the angle.

5. (7, 24)
 7. (-4, 10)
 9. (-3.5, 6.8)

In Exercises 11-14, state the quadrant in which θ lies.

11. $\sin \theta < 0$ and $\cos \theta < 0$
 13. $\sin \theta > 0$ and $\tan \theta < 0$

In Exercises 15-24, find the values of the six trigonometric functions of θ with the given constraint.

Function Value	Constraint
15. $\sin \theta = \frac{7}{25}$	θ lies in Quadrant II.
17. $\tan \theta = -\frac{15}{8}$	$\sin \theta < 0$
19. $\cot \theta = -3$	$\cos \theta > 0$
21. $\sec \theta = -2$	$\sin \theta > 0$
23. $\cot \theta$ is undefined.	$\pi/2 \leq \theta \leq 3\pi/2$


In Exercises 25-28, the terminal side of θ lies on the given line in the specified quadrant. Find the values of the six trigonometric functions of θ by finding a point on the line.

Line	Quadrant
25. $y = -x$	II
27. $2x - y = 0$	III

In Exercises 37-44, find the reference angle θ' , and sketch θ and θ' in standard position.

37. $\theta = 203^\circ$
 39. $\theta = -245^\circ$
 41. $\theta = \frac{2\pi}{3}$
 43. $\theta = 3.5$

GO COUGARS!



p 319 **Homework Questions**

In Exercises 29–36, evaluate the trigonometric function of the quadrant angle.

29. $\sin \pi$ 30. $\csc \frac{3\pi}{2}$
 31. $\sec \frac{3\pi}{2}$ 32. $\sec \pi$
 33. $\sin \frac{\pi}{2}$ 34. $\cot \pi$
 35. $\csc \pi$ 36. $\cot \frac{\pi}{2}$

In Exercises 45–58, evaluate the sine, cosine, and tangent of the angle without using a calculator.

45. 225°
 47. 750°
 49. -150°
 51. $\frac{4\pi}{3}$
 53. $-\frac{\pi}{6}$
 55. $\frac{11\pi}{4}$
 57. $-\frac{3\pi}{2}$

In Exercises 65–80, use a calculator to evaluate the trigonometric function. Round your answer to four decimal places. (Be sure the calculator is set in the correct angle mode.)

69. $\tan 304^\circ$
 71. $\sec 72^\circ$
 75. $\tan \frac{\pi}{9}$

In Exercises 81–86, find two solutions of the equation. Give your answers in degrees ($0^\circ \leq \theta < 360^\circ$) and in radians ($0 \leq \theta < 2\pi$). Do not use a calculator.

81. (a) $\sin \theta = \frac{1}{2}$ (b) $\sin \theta = -\frac{1}{2}$
 83. (a) $\csc \theta = \frac{2\sqrt{3}}{3}$ (b) $\cot \theta = -1$
 85. (a) $\tan \theta = 1$ (b) $\cot \theta = -\sqrt{3}$

Feb 2-9:51 PM

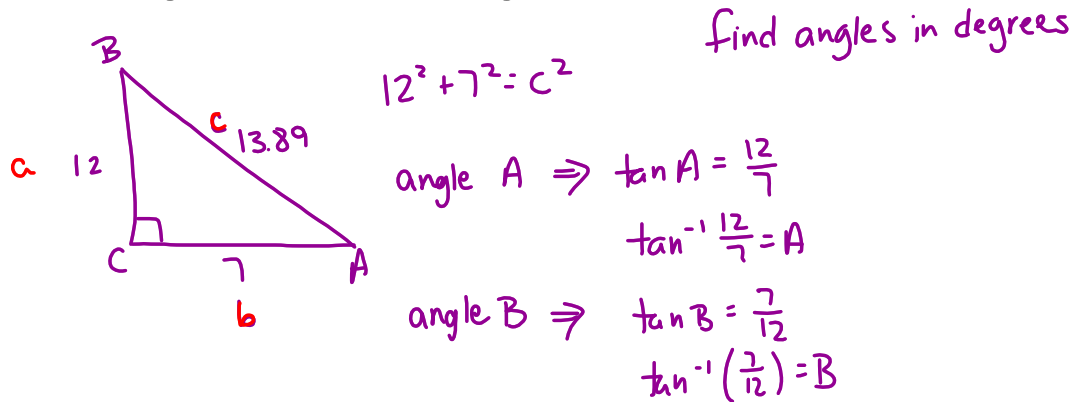
4.8 Day 1 Applications & Models

Solving right triangles

Bearings

Jan 10-1:17 PM

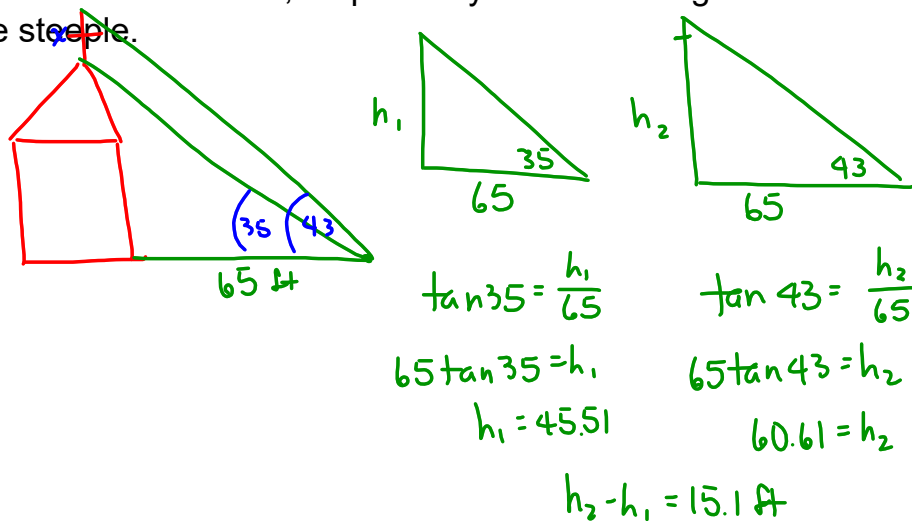
To solve a right triangle means to find all the missing sides and angles



Jan 13-11:33 AM

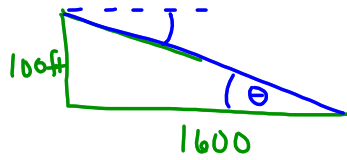
From a point 65ft in front of a church, the angles of elevation to the base of the steeple and the top of the steeple are 35° and 43° , respectively. Find the height of the steeple.

Examples are in WB p44-46



Jan 13-11:37 AM

From the time a small airplane is 100ft high and 1600 ground ft from its landing runway, the plane descends in a straight line to the runway. Determine the plane's angle of descent.



$$\tan \theta = \frac{100}{1600}$$

$$\tan^{-1}\left(\frac{1}{16}\right) = \theta$$

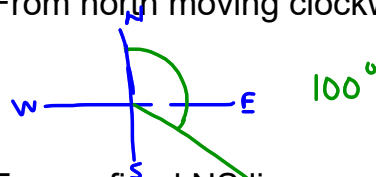
$$\theta = 3.58^\circ$$

Jan 13-11:37 AM

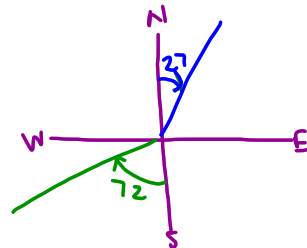
Bearings

2 ways:

1) From north moving clockwise



2) From a fixed NS line



N 27 E

S 72 W

Jan 13-11:39 AM

A sailboat leaves a pier and heads due west at 8 knots. After 15 minutes the sailboat tacks, changing course to N 16° W at 10 knots. Find the sailboat's bearing and distance from the pier after 12 minutes on this course.

$8 \times .25 = 2$
 $10 \times .2 = 2$

$\sin 74 = \frac{y}{2}$
 $2 \sin 74 = y$
 1.92

$\cos 74 = \frac{x}{2}$
 $2 \cos 74 = x$
 $x = .55$

$1.92^2 + 2.55^2 = d^2$
 $3.2 = d$

$\tan ? = \frac{1.92}{2.55}$
 $? = 37^\circ$
N 53° W or 270 + 37 = 307°

Jan 13-11:43 AM

While visiting Sand Dunes National Park, Ian approximated the angle of elevation to the top of a sand dune to be 20°. After walking 800 feet closer, he guessed that the angle of elevation had increased by 15°. Approximately how tall is the dune he was observing?

$\tan 20 = \frac{h}{x+800}$ $\tan 35 = \frac{h}{x}$
 $\tan 20(x+800) = h$ $x \tan 35 = h$

$x \tan 20 + 800 \tan 20 = x \tan 35$
 $x \tan 20 - x \tan 35 = -800 \tan 20$
 $x(\tan 20 - \tan 35) = -800 \tan 20$
 $x = \frac{-800 \tan 20}{\tan 20 - \tan 35}$
 $x = 865.98$
 $\tan 35 = \frac{h}{865.98}$
 $h = 606.37 \text{ ft}$

Apr 4-12:20 PM

HOMework



p 359 5-13, 19, 21, 22, 25, 31, 35, 40,
45-49 odd

Feb 2-9:51 PM