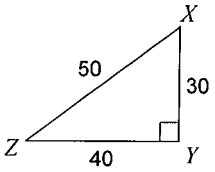
Honors Geometry

Name HUFF

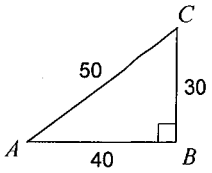
Review for Right Triangle Trig

Find the value of each trigonometric ratio. Write answers as simplified ratios AND as a 4-digit decimal.

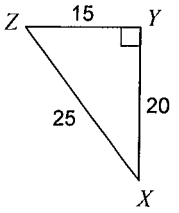
1) $\cos Z$ = $40/50 = \boxed{4/5} = .8000$



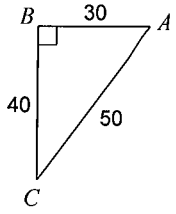
2) $\sin A = \frac{30}{50} = \boxed{\frac{3}{5}} = .6000$



3) $\tan X = \frac{15}{20} = \boxed{\frac{3}{4}} = .7500$

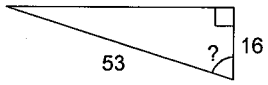


4) $\cos A$ = $\frac{30}{50} = \boxed{\frac{3}{5}} = .6000$



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

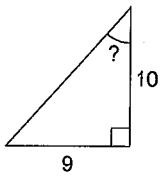
5)



$\cos^{-1}\left(\frac{16}{53}\right) = ?$

$\boxed{72.4°}$

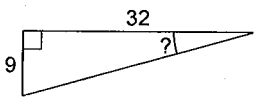
6)



$\tan^{-1}\left(\frac{9}{10}\right) = ?$

$\boxed{41.99° = ?}$

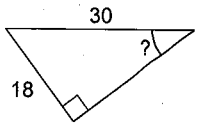
7)



$\tan^{-1}\left(\frac{9}{32}\right) = ?$

$\boxed{15.7° = ?}$

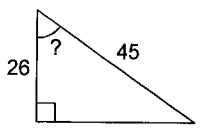
8)



$\sin^{-1}\left(\frac{18}{30}\right) = ?$

$\boxed{36.9°}$

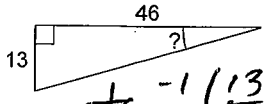
9)



$\cos^{-1}\left(\frac{26}{45}\right) = ?$

$\boxed{54.7° = ?}$

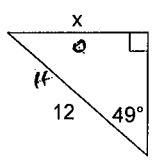
10)



$\tan^{-1}\left(\frac{13}{46}\right) = ?$

$\boxed{15.8 \simeq ?}$

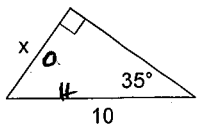
Find the missing side. Round to the nearest tenth. Or in the case of a special right triangle, answer should be exact.

11) 

$\sin 49 = \frac{x}{12}$

$12 \sin 49 = x$

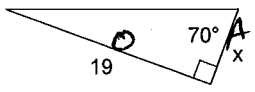
$9.1 = x$

12) 

$\sin 35 = \frac{x}{10}$

$10 \sin 35 = x$

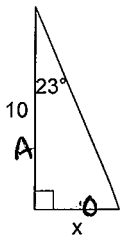
$5.7 = x$

13) 

$\tan 70 = \frac{19}{x}$

$x = \frac{19}{\tan(70)}$

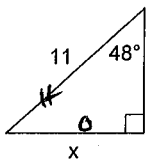
$x = 6.9$

14) 

$\tan 23 = \frac{x}{10}$

$10 \tan 23 = x$

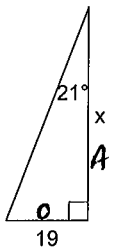
$4.2 = x$

15) 

$\sin 48 = \frac{x}{11}$

$11 \sin 48 = x$

$8.2 = x$

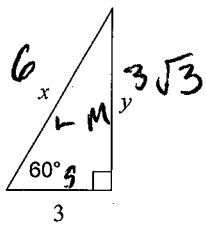
16) 

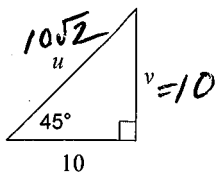
$\tan 21 = \frac{19}{x}$

$x = \frac{19}{\tan 21}$

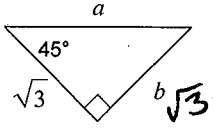
$x = 49.5$

Special Rt. Triangles. Find the missing side lengths. Leave your answers as radicals in simplest form.

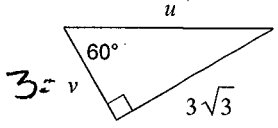
17) 

18) 

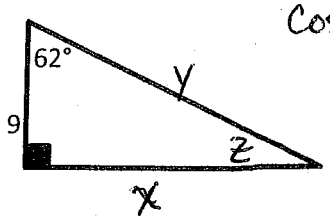
19) $\sqrt{3} \cdot \sqrt{2} = \sqrt{6}$



20) $= 6$



22. Solve the right triangle.



$\tan(62) = \frac{x}{9}$

$9\tan(62) = x$

$16.9 = x$

$\cos 62 = \frac{9}{y}$

$y = \frac{9}{\cos(62)}$

$y = 19.2$

$z = 90 - 62$

$z = 28°$

23. If Tan(A) = 5/7, what is the tangent of the complement of A?

The tangent of an ∠ is the reciprocal of the tangent of its complement. So If $\tan(A) = \frac{5}{7}$, then $\tan(90-A) = \frac{7}{5}$

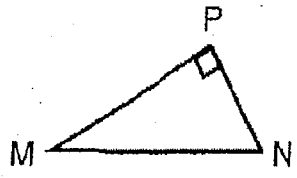
24. Which is the same as sin(47°) ? Sin of an ∠ is = to cos of its complement.

a. cos 47° b. tan 43° c. sin 43° d. cos 43°

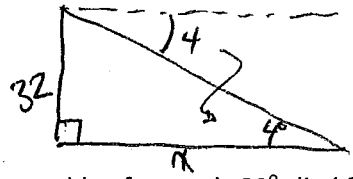
25. Which trig function has the same value as cos N?

Same rule as # 24

Sin(M)



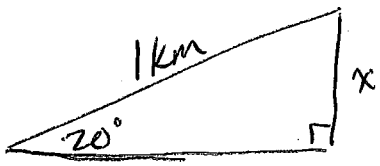
26. From the top of a lighthouse 32 meters high, the angle of depression to sight a boat is 4°. What is the distance between the boat and the base of the lighthouse?



$\tan(4) = \frac{32}{x}$

$x = \frac{32}{\tan(4)} = 457.6\text{ m}$

27. A certain jet is capable of a steady 20° climb? How much altitude does the jet gain when it moves 1 km through the air?

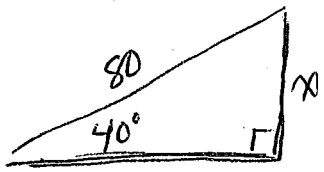


$\sin(20) = \frac{x}{1}$

$1 \cdot \sin(20) = x$

$.34\text{ km} = x$

28. A kite is flying at an angle of elevation of 40°. All 80 meters of string have been let out. Find the height of the kite.

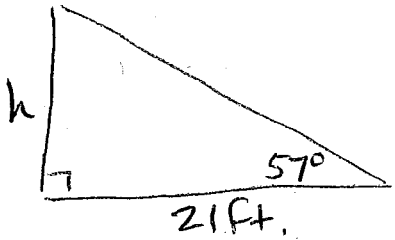


$\sin 40 = \frac{x}{80}$

$80\sin(40) = x$

$51.4\text{m} = x$

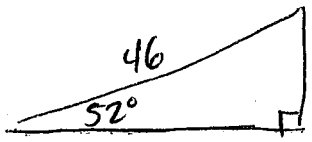
29. When the sun's angle of elevation is 57°, a building casts a shadow 21 feet long. How tall is the building?



$\tan 57° = \frac{h}{21}$

$21\tan(57) = h$

$32.3\text{ft} = h$



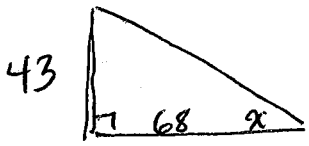
$\sin(52) = \frac{x}{46}$

$46 \cdot \sin(52) = x$

30. A 46 meter fire truck ladder is leaning against a wall. Find the distance the ladder goes up the wall if it makes an angle of 52° with the ground.

$36.2 = x$

31. Find the angle of elevation of the sun if a 43 foot flagpole casts a shadow 68 feet long.

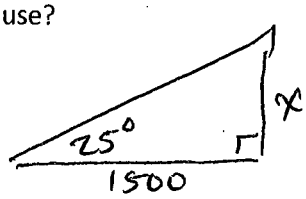


$\tan x = \frac{43}{68}$

$\tan^{-1}\left(\frac{43}{68}\right) = x$

$x = 32.3°$

32. The angle of elevation from a ship to the top of lighthouse is 25°. If the ship is 1500 m from the lighthouse, how tall is the lighthouse?

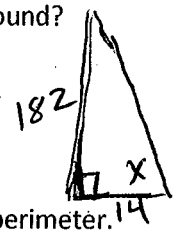


$\tan(25) = \frac{x}{1500}$

$1500 \tan(25) = x$

$699.5[illegible] = x$ m

33. A rock is dropped 182 feet from the top of the Leaning Tower of Pisa falls to a point 14 feet from its base. What angle does the tower make with the ground?

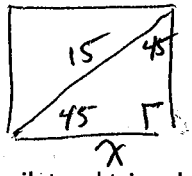


$\tan x = \frac{182}{14}$

$\tan^{-1}\left(\frac{182}{14}\right) = x$

$85.6° = x$

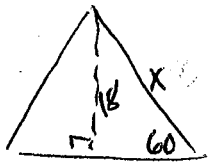
34. The diagonal of a square is 15 inches. Find the perimeter.



$x = 15 \sin(45)$

$x = \frac{15\sqrt{2}}{2} \times 4 = 30\sqrt{2}$

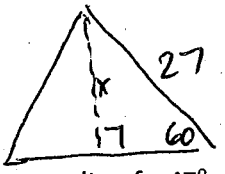
35. The altitude of an equilateral triangle is 18m. Find the side of the triangle.



$\sin 60 = \frac{18}{x}$

$x = \frac{18}{\sin 60} = 12\sqrt{3}$

36. The side of an equilateral triangle is 27 cm. Find the altitude of the triangle.

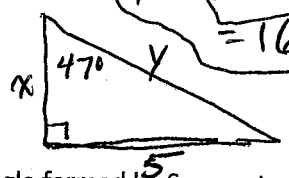


$\sin 60 = \frac{x}{27}$

$27 \sin(60) = x$

$\frac{27\sqrt{3}}{2} = x$

38. In a triangle, the side opposite of a 47° angle is 5 cm. Find the perimeter.



$\tan 47 = 5/x$

$x = \frac{5}{\tan 47} \approx 4.7$

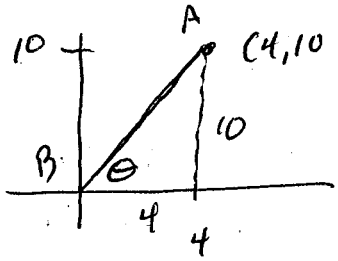
$\sin 47 = 5/y$

$y = 5/\sin 47 \approx 6.8$

$P = 4.7 + 6.8 + 5$

$= 16.5$

39. Point A is at (4, 10), and point B is at the origin. What's the measure of the angle formed by Segment AB and the x – axis?



$\tan\theta = \frac{10}{4}$

$\tan^{-1}\left(\frac{10}{4}\right) = \theta$

$68.2° = \theta$

It would be 21.2° from the y axis