BECA / Dr. Huson / Geometry
Unit 10: Trigonometry
4 May 2023

Name: Solutions

10.9 Classwork: Inverse trigonometric functions

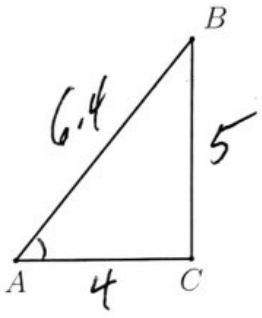
HSG.SRT.C.8

1. Given right $\triangle ABC$ with $AC = 4, BC = 5, AB = 6.4, m\angle C = 90°$. Express each trig ratio as a fraction, then as a decimal to the nearest thousandth. (1a is an example)

   (a) $\sin A = \dfrac{5}{6.4} = 0.78125 \approx 0.781$

   (b) $\cos A = \dfrac{4}{6.4} = 0.625$

   (c) $\tan A = \dfrac{5}{4} = 1.250$



2. Isosceles right triangle $\triangle ABC$ is shown with base $AC = 1$ length marked.

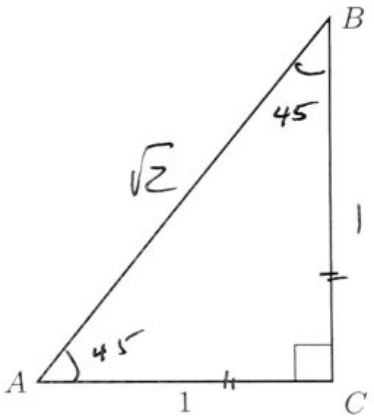
   (a) Write down the length of side BC. 1

   (b) Find the length of the hypotenuse AB. $AB = \sqrt{1^2+1^2} = \sqrt{2}$

   (c) Write down the angle measures of $\angle A$ and $\angle B$. $45°$

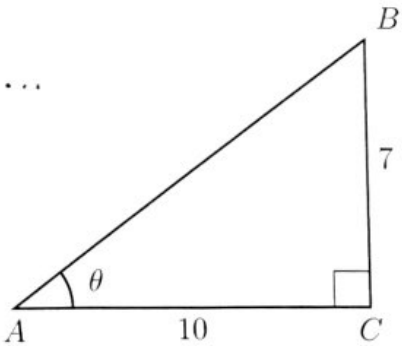
   (d) Write down $\tan A$. $= 1$

   (e) Write down $\cos A$. $= \dfrac{1}{\sqrt{2}} = 0.707106\ldots \approx 0.707$



3. Use the inverse tangent function to find $m\angle A = \theta$ for right $\triangle ABC$ as shown.

$\theta = \tan^{-1}\left(\dfrac{7}{10}\right) = 34.992\,02\ldots \approx 35°$

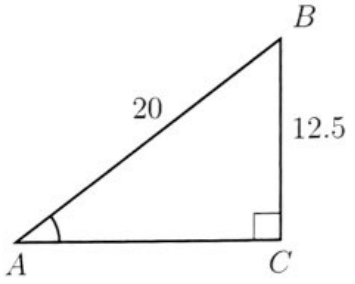


4. Triangle ABC is shown with $AB = 20.0$, $BC = 12.5$, and $m\angle C = 90°$. Find $m\angle A$.

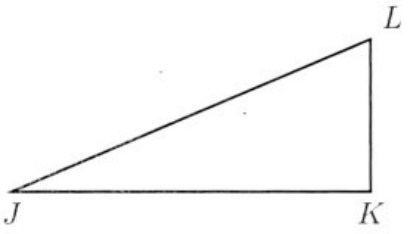
$\sin A = \frac{12.5}{20.0}$

$A = \sin^{-1}\left(\frac{12.5}{20}\right)$

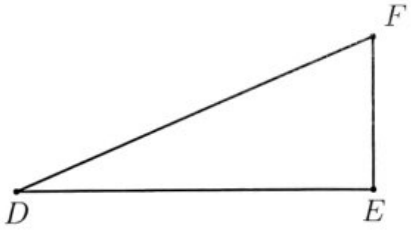
$= 38.68218\ldots \approx 39°$



5. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JL = 12.5$, $JK = 10.9$. Find $m\angle J$ in degrees, *rounded to three significant figures.*



6. Given right $\triangle DEF$ with $DE = 7, EF = 3, DF = 7.6$, $m\angle E = 90°$. Express each trig ratio as a fraction, then as a decimal *rounded to three significant figures.*



(a) $\sin F =$

(b) $\cos F =$

(c) $\tan F =$

(d) $\sin D =$

(e) $\cos D =$

(f) $\tan D =$