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10.9 Classwork: Inverse trigonometric functions

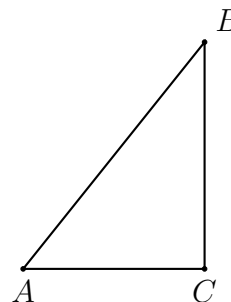
HSG.SRT.C.8

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

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

(b) $\cos A =$

(c) $\tan A =$



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

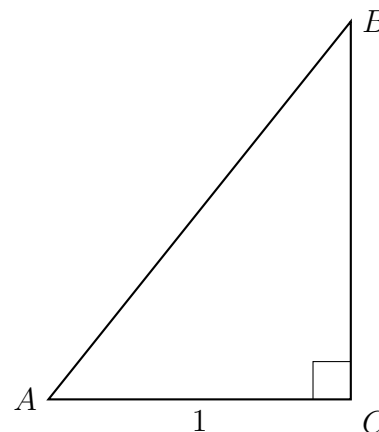
(a) Write down the length of side BC .

(b) Find the length of the hypotenuse AB .

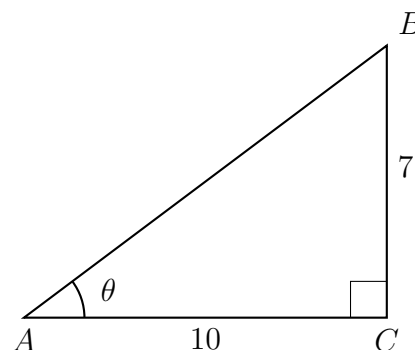
(c) Write down the angle measures of $\angle A$ and $\angle B$.

(d) Write down $\tan A$.

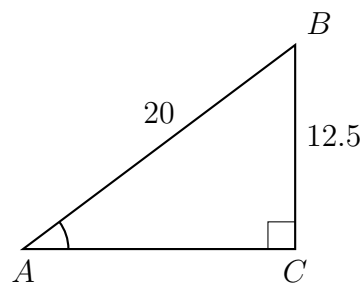
(e) Write down $\cos A$.



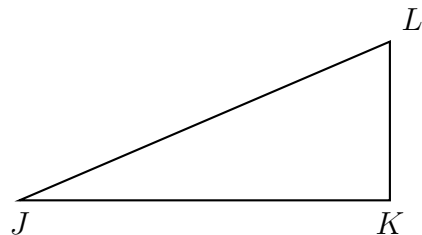
3. Use the inverse tangent function to find $m\angle A = \theta$ for right $\triangle ABC$ as shown.



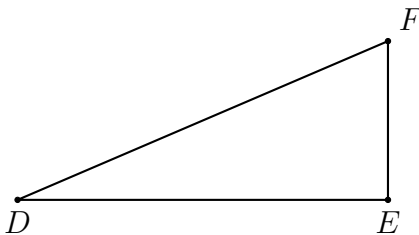
4. Triangle ABC is shown with $AB = 20.0$, $BC = 12.5$, and $m\angle C = 90^\circ$. Find $m\angle A$.



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 $DE = 7$, $EF = 3$, $DF = 7.6$, $m\angle E = 90^\circ$. Express each trig ratio as a fraction, then as a decimal *rounded to three significant figures*.



(a) $\sin F =$

(d) $\sin D =$

(b) $\cos F =$

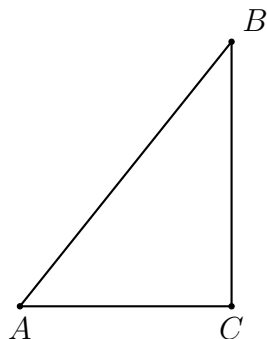
(e) $\cos D =$

(c) $\tan F =$

(f) $\tan D =$

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

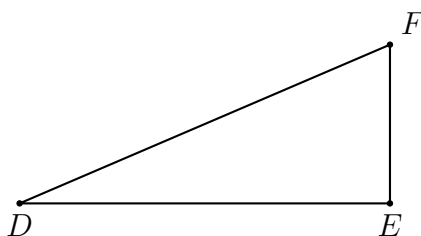


(a) $\sin A = \frac{5}{6.4} = 0.781$

(b) $\cos A =$

(c) $\tan A =$

8. Given right $\triangle DEF$ with $DE = 7$, $EF = 3$, $DF = 7.6$, $m\angle E = 90^\circ$. Express each trig ratio as a fraction, then as a decimal to the nearest thousandth.



(a) $\sin F =$

(d) $\sin D =$

(b) $\cos F =$

(e) $\cos D =$

(c) $\tan F =$

(f) $\tan D =$

Classwork: Use a calculator for trig ratio

9. Express the result to the nearest thousandth.

(a) $\sin 30^\circ =$

(d) $\sin 57^\circ =$

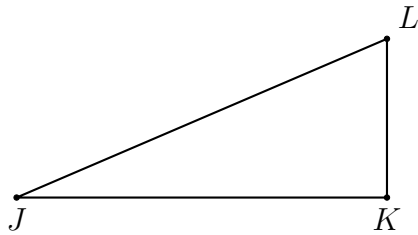
(b) $\cos 45^\circ =$

(e) $\cos 23^\circ =$

(c) $\tan 60^\circ =$

(f) $\tan 81^\circ =$

10. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JL = 10$, $m\angle J = 25^\circ$.



(a) Find the length JK

(b) Find the length KL