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**12.5 Classwork: Inverse trigonometric functions**

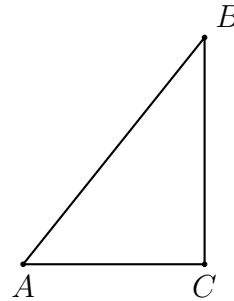
**HSG.SRT.C.8**

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

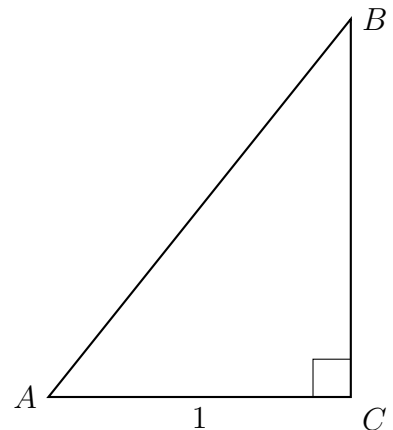
(b)  $\cos A =$

(c)  $\tan A =$

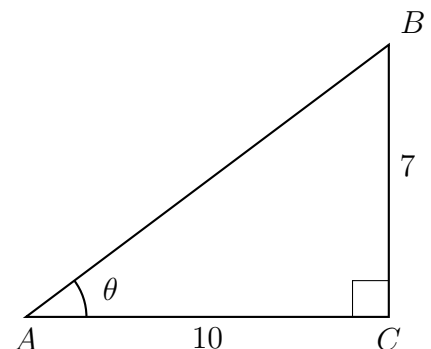


2. Isosceles right triangle  $\triangle ABC$  is shown with base  $AC = 1$  length marked.

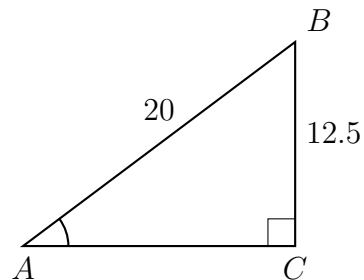
- (a) Write down the length of side  $BC$ .
- (b) Find the length of the hypotenuse  $AB$ .
- (c) Write down the angle measures of  $\angle A$  and  $\angle B$ .
- (d) Write down  $\tan A$ .
- (e) Write down  $\cos A$ .



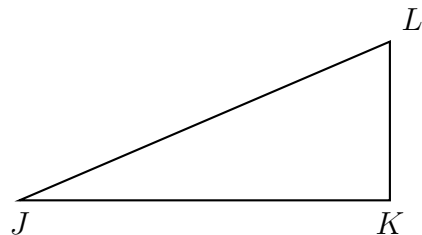
3. Use the inverse tangent function to find  $m\angle A = \theta$  for right  $\triangle ABC$  as shown.



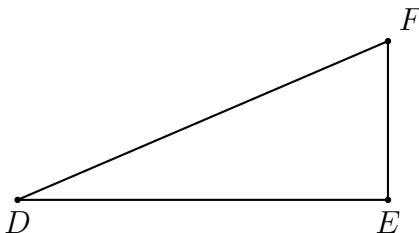
4. Triangle  $ABC$  is shown with  $AB = 20.0$ ,  $BC = 12.5$ , and  $m\angle C = 90^\circ$ . Find  $m\angle A$ .



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)  $\cos D =$

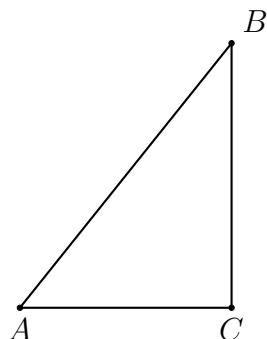
(c)  $\tan F =$

(f)  $\tan D =$

7. Given right  $\triangle ABC$  with  $AC = 4$ ,  $BC = 5$ ,  $AB = 6.4$ ,  $m\angle C = 90^\circ$ . Express each trig

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ratio as a fraction, then as a decimal to the nearest thousandth. (1a is an example)

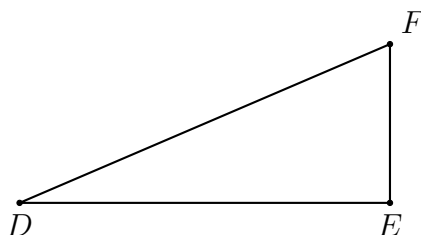


(a)  $\sin A = \frac{5}{6.4} = 0.781$

(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)  $\sin 57^\circ =$

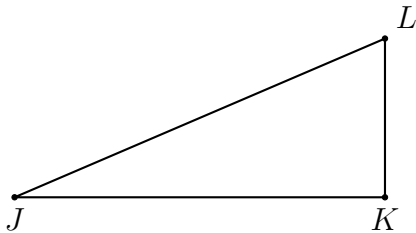
(b)  $\cos 45^\circ =$

(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  $KL$