

Name:

12.1 Homework: Tangent

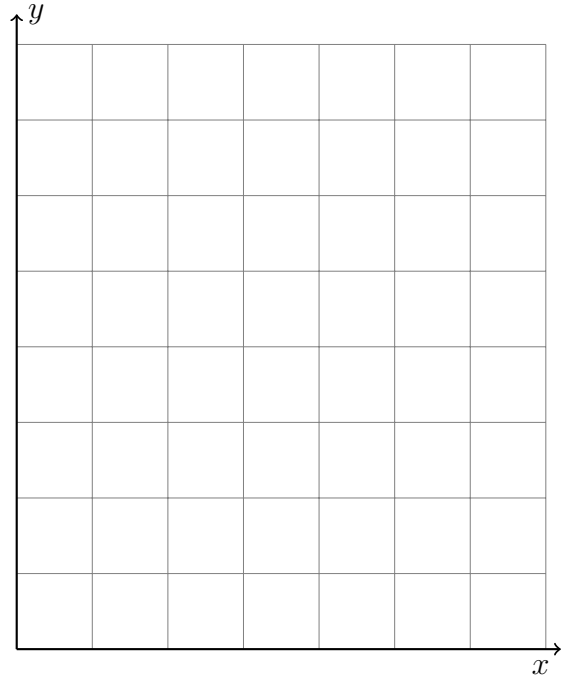
CCSS.HSG.SRT.C.8

1. Graph and label $\triangle ABC$ with $A(0, 0)$, $B(4, 7)$, and $C(4, 0)$. Calculate each length:

(a) $AC =$

(b) $BC =$

(c) $AB =$



(d) Write down the equation of the line \overleftrightarrow{BC} .

(e) Write down the equation of the line \overleftrightarrow{AB} .

- (f) The tangent of an angle is the ratio of the side lengths *opposite* over *adjacent* to the angle. Write down the value as a fraction.

$\tan m\angle BAC =$

- (g) Find $m\angle BAC = \theta$ with a calculator's inverse tangent function, $\theta = \tan^{-1}\left(\frac{opp}{adj}\right)$

2. Express the result to the nearest thousandth.

(a) $\tan 34^\circ =$

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

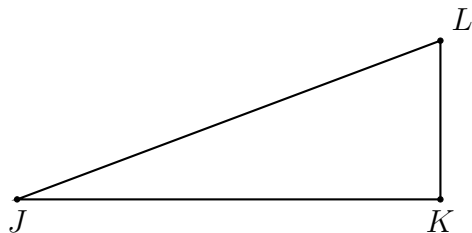
3. Round each value to the nearest degree.

(a) $\tan^{-1}(1) =$

(b) $\tan^{-1}(\sqrt{3}) =$

4. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JK = 8$, $m\angle J = 22^\circ$. (mark the diagram)

(a) Let x be the length of the side opposite $\angle J$, $x = KL$. Write an equation expressing $\tan \angle J$ as a ratio of *opposite* over *adjacent*.



(b) Solve the equation for $x = KL$.

(c) Use the Pythagorean formula to find the length JL