

9 January 2020

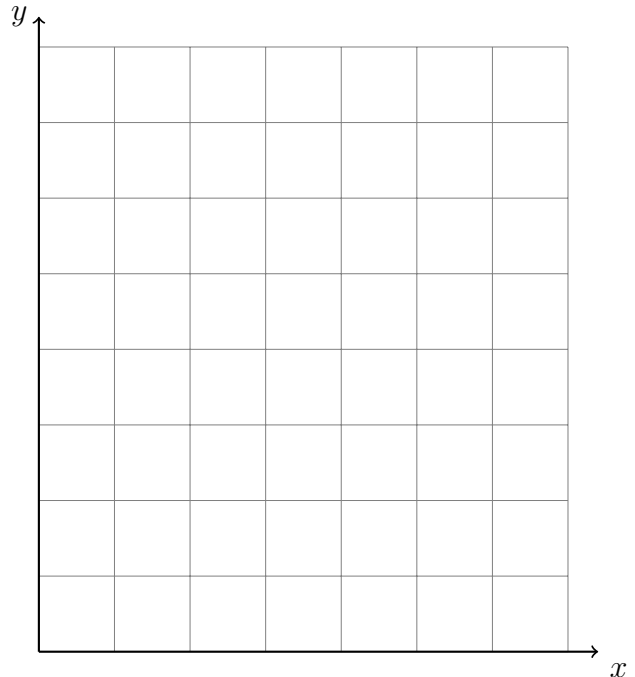
7.6b Classwork Mastery: Tangent function (collect 8 stars for each topic)**Mastery topic: Interpreting tangent graphically**

1. (a) Graph and label $\triangle ABC$ with $A(0, 0)$, $B(5, 5)$, and $C(5, 0)$. Calculate each length:

i. $AC =$ (1 star)

ii. $BC =$ (1 star)

iii. $AB = \sqrt{AC^2 + BC^2}$ (2 stars)



- (b) Use a protractor to measure $\angle BAC$ in degrees. (1 star)

- (c) 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. (1 star)

$\tan \angle BAC =$

- (d) Find $m\angle BAC$ with a calculator's inverse tangent function,
 $m\angle BAC = \tan^{-1}\left(\frac{opp}{adj}\right)$ (2 stars)

Mastery topic: Algebraic solution

(2 stars each)

Solve each equation for x , rounding to the nearest hundredth.

2. $\tan 63^\circ = \frac{x}{14}$

4. $\sin 46^\circ = \frac{x}{3.5}$

3. $\tan 77^\circ = \frac{10}{x}$

5. $\cos 35^\circ = \frac{x}{21}$

Solve for x , rounding to the nearest whole degree.

6. $x = \tan^{-1}\left(\frac{12}{5}\right)$

7. $\tan x^\circ = \frac{3.2}{4.8}$

Name:

Mastery topic: Calculator use

8. Express the result to the nearest thousandth. (1 star each)

(a) $\tan 22^\circ =$

(c) $\tan 15^\circ =$

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

(d) $\tan 65^\circ =$

9. Round each value to the nearest degree. (1 star each)

(a) $\tan^{-1}(2) =$

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

(b) $\tan^{-1}(0.5) =$

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

10. Round each value to the nearest hundredth. (2 stars each)

(a) $AB = \sqrt{11^2 + 7^2}$

(c) $AB = \sqrt{(-8.0)^2 + (14.5)^2}$

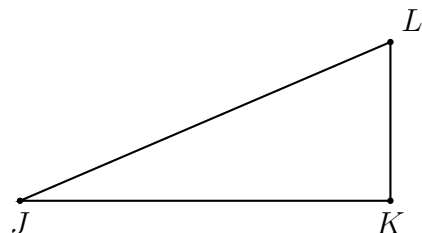
(b) $AB = \sqrt{3.2^2 + 1.9^2}$

(d) $AB = \sqrt{(4 - 3)^2 + (7 - 11)^2}$

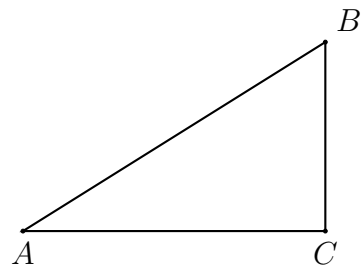
Modeling: Mark each diagram and write an equation. Do Not Solve!

11. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JK = 8$, $m\angle J = 24^\circ$. Let x be the length of the side opposite $\angle J$, $x = KL$.

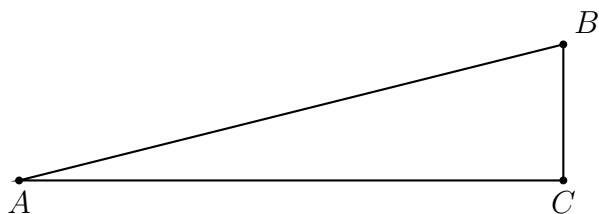
Write an equation expressing $\tan \angle J$ as a ratio of *opposite* over *adjacent*. (2 stars)



12. Given right $\triangle ABC$ with $m\angle C = 90^\circ$, $BC = 15$, $m\angle A = 41^\circ$. Let $x = AC$. (2 stars)



13. Given right $\triangle ABC$ with $m\angle C = 90^\circ$, $BC = 4$, $AC = 19$, and $m\angle A = x^\circ$. (2 stars)



14. Given right $\triangle ABC$ with $\overline{AC} \perp \overline{BC}$, $BC = 7$, $m\angle B = 55^\circ$. Let $x = AC$. (3 stars)

