7.2 Do Now: Slope and the tangent function, similar triangles
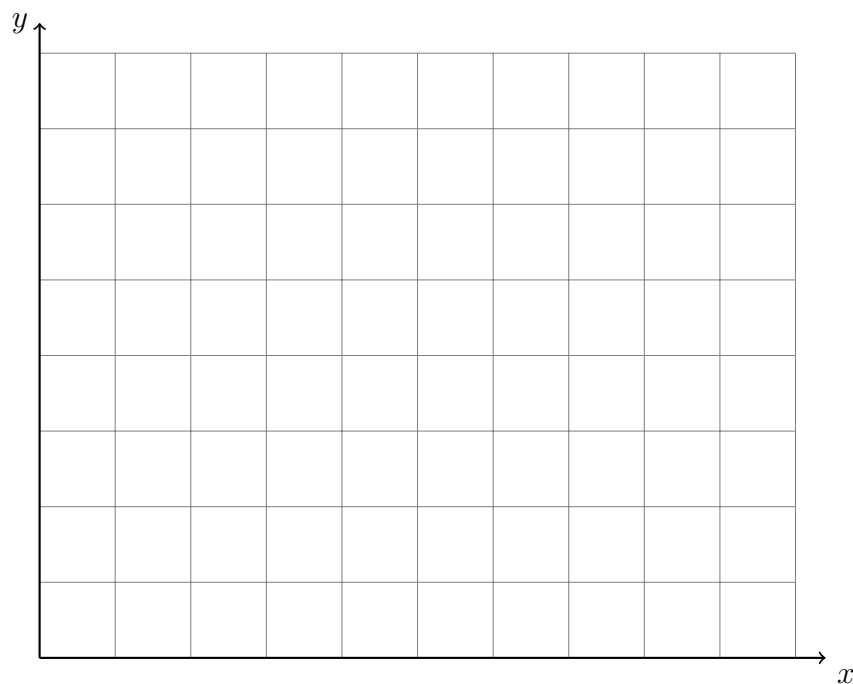
1. (a) Graph and label $\triangle ABC$ with $A(0,0)$, $B(7,4)$, and $C(7,0)$.

(b) Find the slope and y-intercept of the line $\overleftrightarrow{AB}$.

$m_{AB} =$ $\qquad\qquad\qquad\qquad$ $b_{AB} =$

(c) Write down the equation of each line.

$\overleftrightarrow{AB}$: $\qquad\qquad$ $\overleftrightarrow{BC}$: $\qquad\qquad$ $\overleftrightarrow{AC}$:

(d) Find the measure of $\angle BAC$ in degrees with a protractor.

(e) Find the same $m\angle BAC$ with a calculator's inverse tangent function.
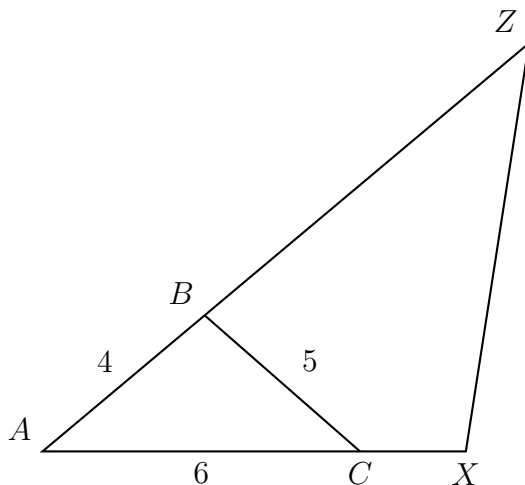
$\tan^{-1}\left(\dfrac{4}{7}\right) =$

2. Given $\triangle ABC$ has sides $AC = 6$, $BC = 5$, $AB = 4$. $\triangle ABC$ is reflected across the bisector of $\angle BAC$ and then dilated by a factor of $k = 2$ centered at A, creating the image shown. Complete the similarity statement (with the letters in the right order) and calculate the lengths of the triangle image.

(a) $\triangle ABC \sim$

(b) $AZ =$

(c) $AX =$

(d) $XZ =$

3. Given $\triangle ABC \sim \triangle AED$ and $AB = 11$, $BC = 8$, $AC = 15$, $DE = 24$.

Find:

(a) $k =$

(b) $AD =$

(c) $AE =$

(d) $CE =$