Unit 6: Distance & slope Name:
9 December 2019

6.9b Do Now: Analytic proof

(complete 10 stars per group)

1. The line l has the equation $y = \frac{3}{2}x + 5$. (1 star each part)

   (a) What is the slope of the line k, given $k \parallel l$?

   (b) What is the slope of the line j, given $j \perp l$?

2. Find the decimal value of each expression, rounded to the nearest throusandth.
   Write your answer as given in example #1. (1 star per problem)

   (a) $\tan 60° = 1.7320508\ldots$

   ≈ 1.732

   (b) $\tan 30°$

   (c) $\frac{2}{3}\sqrt{11}$

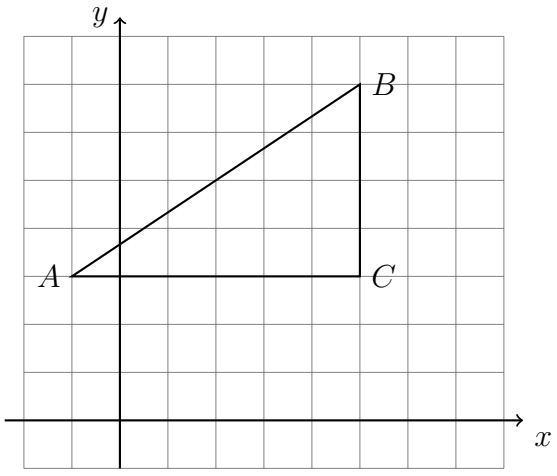
   (d) $\dfrac{(-5)^2}{7}$

3. Given $\triangle ABC$, find the lengths of its sides. $A(-1, 3)$, $B(5, 7)$, $C(5, 3)$. (2 stars each)

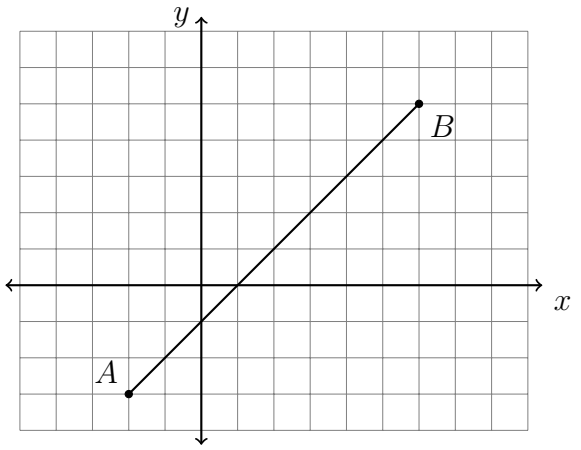
   (a) $AC =$

   (b) $BC =$

   (c) Use the formula for distance:
   $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
   $AB =$



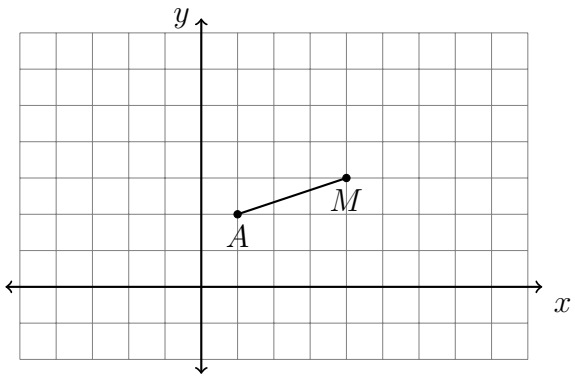
4. As shown, $\overline{AB}$ has endpoints with coordinates $A(-2,-3)$ and $B(6,5)$. Show the calculation for the coordinates of the midpoint M of $\overline{AB}$. Mark and label it on the graph. (2 stars)



5. $A(1,2)$ is one endpoint of $\overline{AB}$. The segment's midpoint is $M(4,3)$. Find the other endpoint, B. (3 stars)

What translation maps

$A(1,2) \to M(4,3)$?



6. In the diagram below, $\overline{AD}$ has endpoints with coordinates $A(-4,-2)$ and $D(5,4)$. What points B and C trisect $\overline{AD}$ into three congruent segments? Mark and label them on the graph. State their coordinates. (3 stars)