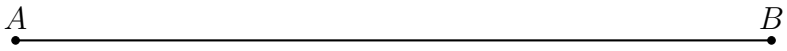
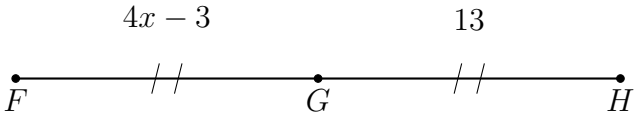
1.4 Homework: Midpoints and bisectors

1. Line segments that have the same length are _____.

2. The length of the segment shown below is 10 centimeters. Bisect $\overline{AB}$ with point M. (Measure and mark it exactly. Label point M and make the hash marks.)

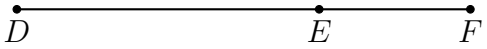


3. Point G bisects $\overline{FH}$, with $FG = 4x - 3$, $GH = 13$. Find x. (remember to check)

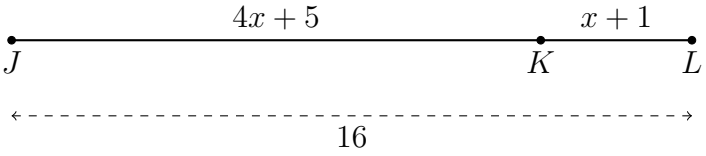


4. Given M is the midpoint of $\overline{PQ}$, $PM = 2x - 2$, $PQ = 14$.
   (a) Mark the diagram with the values and tick marks
   (b) Write an equation and solve for x
   (c) Check your result

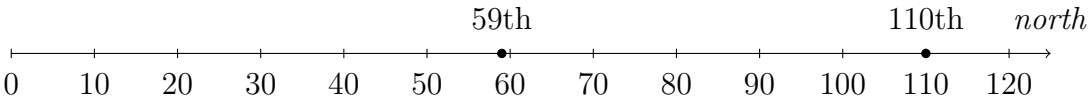
5. Given $\overline{DEF}$, $DE = 3\frac{1}{3}$, and $EF = 1$. Find DF (expressed as a mixed fraction).



6. The diagram shows $\overline{JKL}$ with $JK = 4x + 5$, $KL = x + 1$, $JL = 16$. Find x.



7. New York's Central Park in Manhattan runs from 59th Street in Midtown to 110th Street in Harlem. The park's streets are diagrammed below.



(a) How many blocks long is the park in the north-south direction?

(b) The Metropolitan Museum of Art (the "Met") runs from 80th Street to 84th Street on the east side of the park. Is the Met located in the southern half of the park, the northern part, or in the middle? Justify your answer.