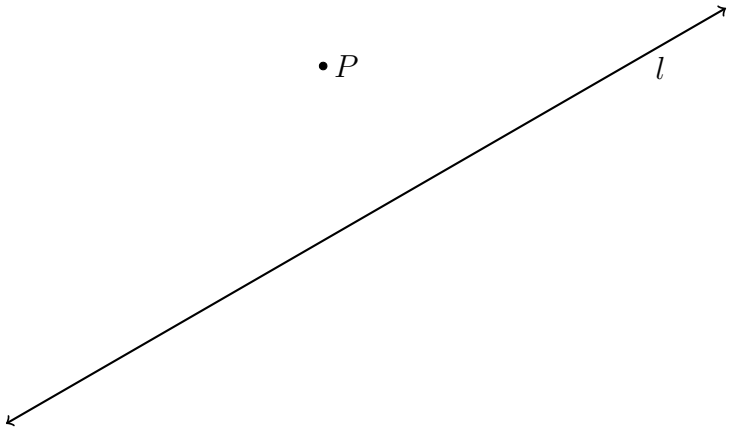
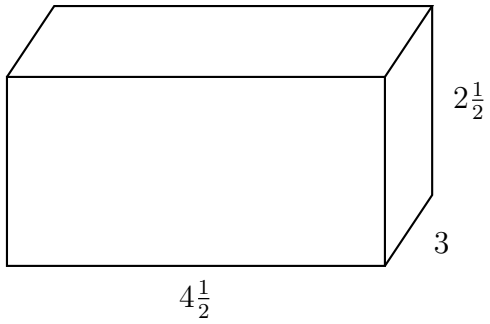
3.7 Do Now: Segment modeling & volume

1. Complete the construction of a line perpendicular to line l through the point P.



2. A shipping crate is $4\frac{1}{2}$ feet long, 3 feet wide, and $2\frac{1}{2}$ tall. Find the volume of the crate. Show the calculation.



Do Not Solve! Complete the drawing on the right and write an equation modeling the situation on the left. Write down a justification, either "Segment addition postulate" or "Definition of a bisector (or midpoint)."

3. Given $\overline{PQR}$, with $PQ = 2x + 1$, $QR = 5x + 3$, and $PR = 18$. Find PQ.

4. Given that X bisects $\overline{MN}$. $MX = x + 5$, $MN = 30$. Find x.

5. The points A, B, and C are collinear, with $AB = 2x + 5$ and $BC = 22$. If $AC = 5x$, find AC.

6. The point E is the midpoint of $\overline{DF}$, $DE = 3x - 5$, and $DF = 7x - 13$. Find DE.