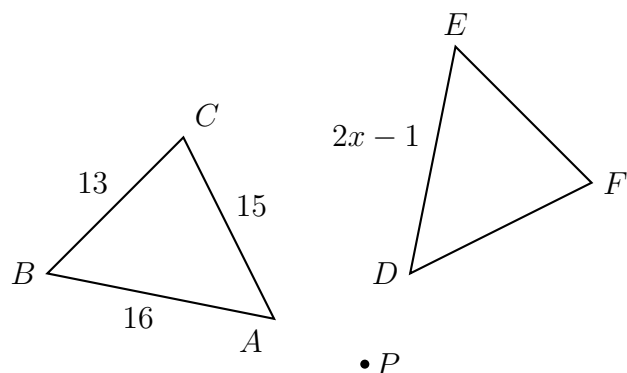


5-10DN-Composition

1. After a dilation with center $(0,0)$, the image of \overline{MN} is $\overline{M'N'}$. If $MN = 4.5$ and $M'N' = 18$, find the scale factor of this dilation.

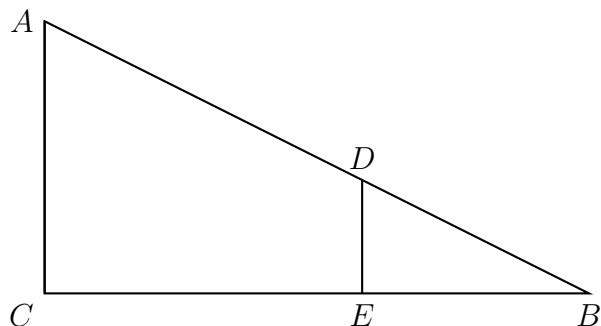
2. In the diagram below, $\triangle ABC$ with sides of 13, 15, and 16, is mapped onto $\triangle DEF$ after a clockwise rotation of 90° about point P .

If $DE = 2x - 1$, what is the value of x ?



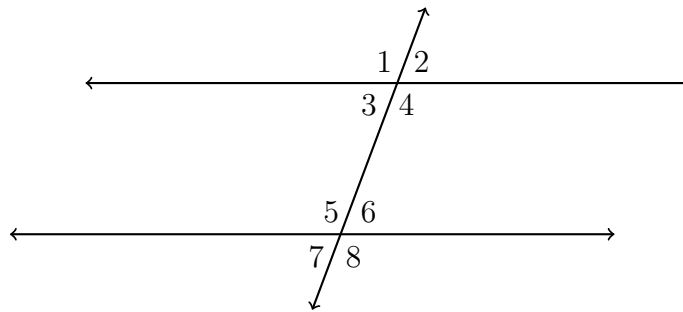
3. In right triangle ABC shown below, point D is on \overline{AB} and point E is on \overline{BC} such that $\triangle ABC \sim \triangle DBE$.

If $AB = 15$, $BC = 12$, and $EC = 7$, what is the length of \overline{BD} ?



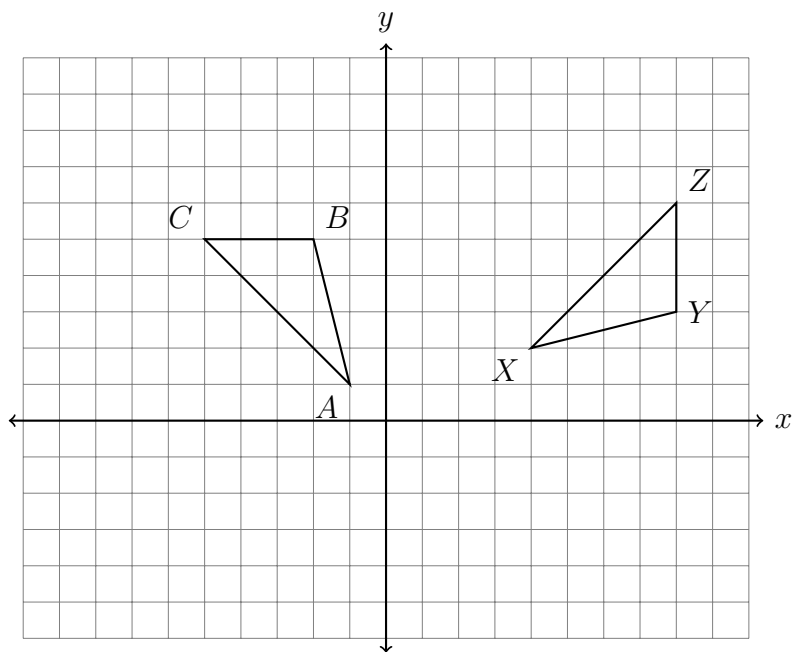
4. Line segment $A'B'$, having a length of 12.8 cm, is the image of \overline{AB} after a dilation of $\frac{1}{2}$ centered at the origin. What is the length of \overline{AB} ?

5. Given two parallel lines and a transversal, as shown below.



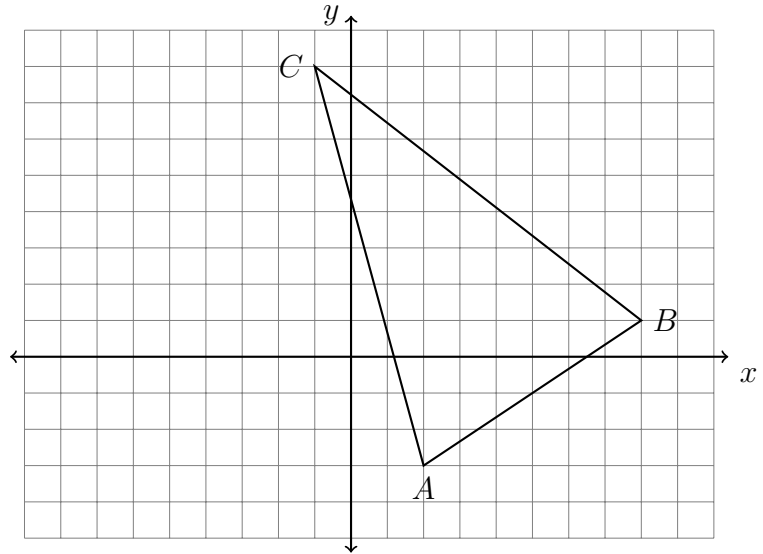
- (a) State the angle corresponding with $\angle 6$.
- (b) What theorem would justify $m\angle 5 + m\angle 6 = 180^\circ$? _____
- (c) What theorem would justify $m\angle 7 = m\angle 2$? _____
- (d) Given $m\angle 3 = 73^\circ$ and $m\angle 5 = (3x - 1)^\circ$. Find x .

6. A translation maps $D(2, 4) \rightarrow D'(-3, 4)$. What is the image of $E(5, -5)$ under the same translation?
7. The image of triangle ABC after a rotation is $\triangle A'B'C'$. Is the area of the triangle greater, smaller, or the same after the transformation? Justify your answer.
8. The triangle ABC , shown below, undergoes two rigid motions carrying it onto triangle XYZ . State the two isometric transformations. (be specific)



9. Triangle $\triangle ABC$ is graphed on the set of axes below. The vertices of $\triangle ABC$ have the coordinates $A(2, -3)$, $B(8, 1)$, and $C(-1, 8)$.

Reflect the triangle across the y -axis. Write down its coordinates in a table and plot and label it on the graph.



10. In $\triangle ABC$ shown below, side \overline{AC} is extended to point D with $m\angle DAB = (6x - 16)^\circ$, $m\angle C = (x + 4)^\circ$, and $m\angle B = (4x + 3)^\circ$.

What is $m\angle BAC$?

