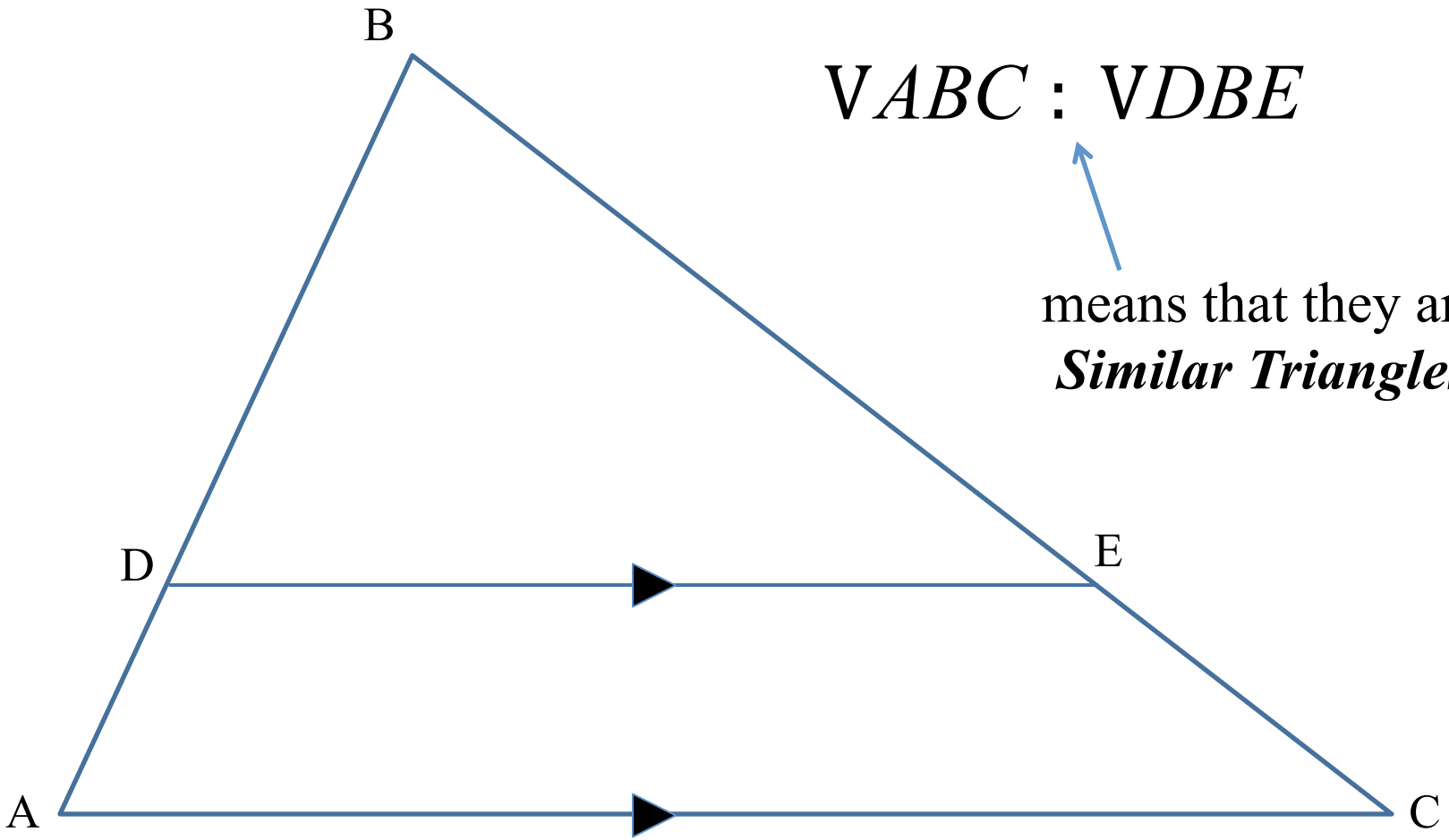
Similarity & Transformations

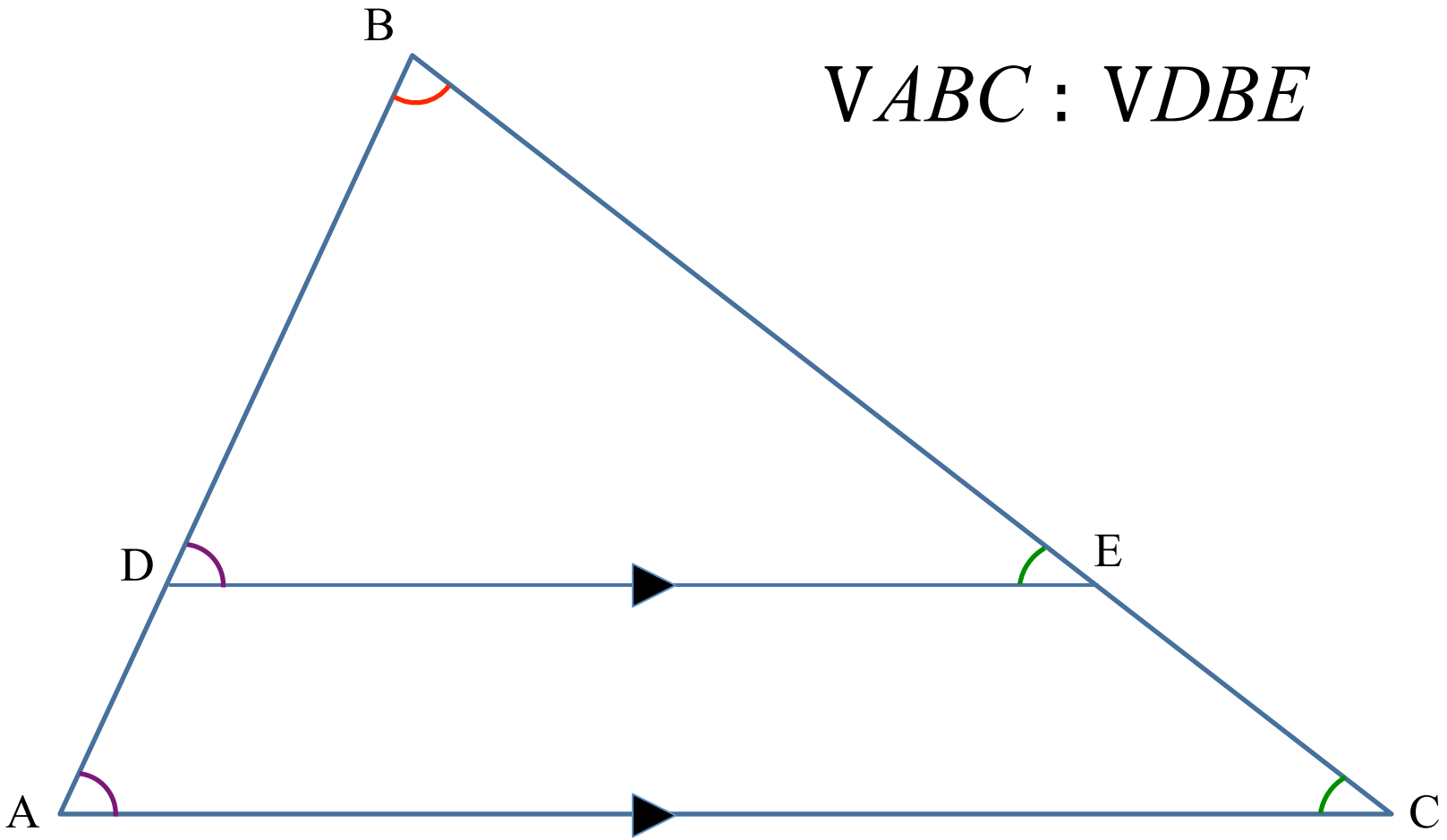
Standards 7-2



$V ABC : V DBE$

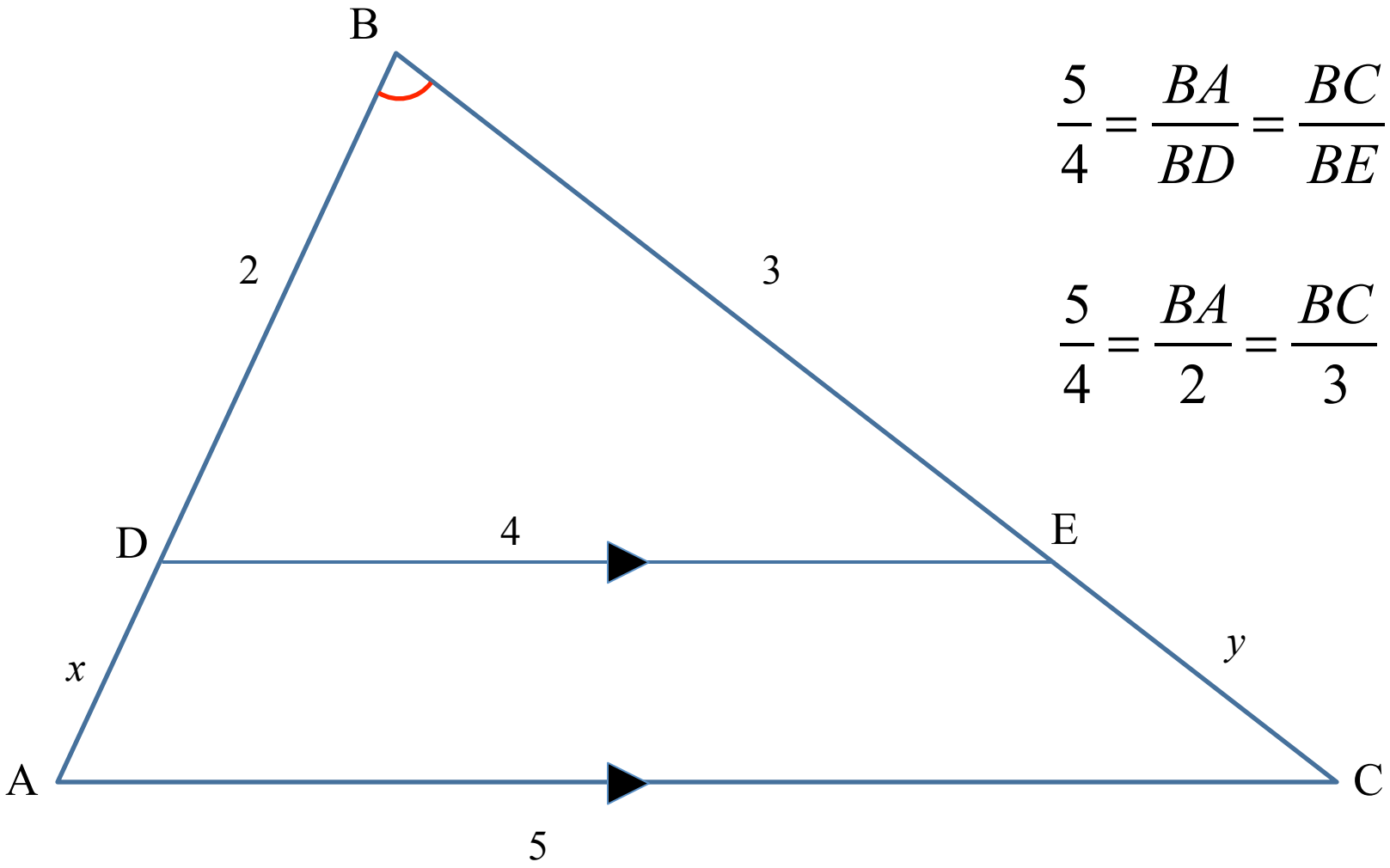
means that they are
Similar Triangles

How could this be proven?



$$\triangle ABC : \triangle DBE$$

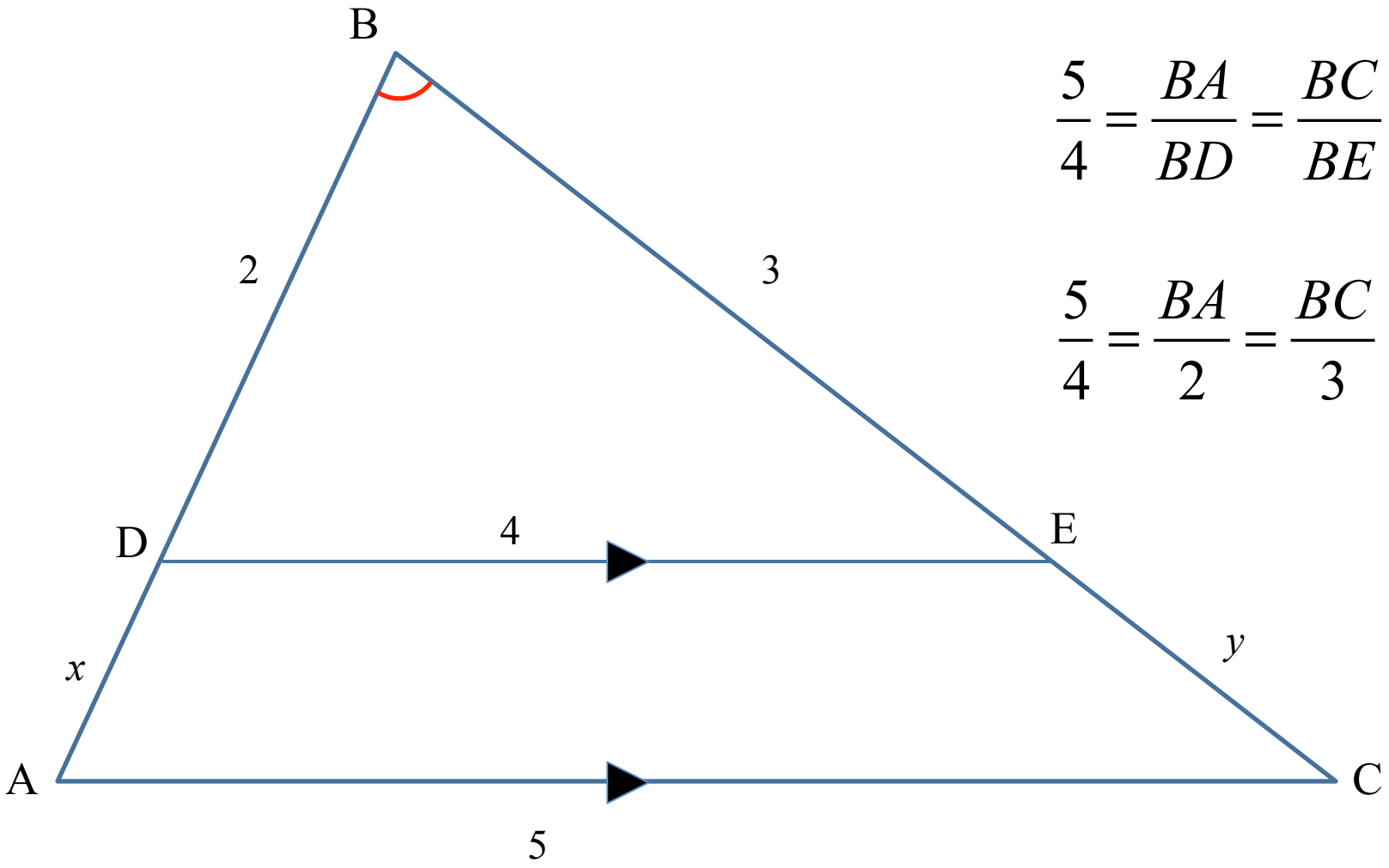
$\overline{DE} \parallel \overline{AC}$ → $\angle BDE \cong \angle BAC$, $\angle BED \cong \angle BCA$ → Similar Polygons have congruent corresponding angles



$$\frac{5}{4}=\frac{BA}{BD}=\frac{BC}{BE}$$

$$\frac{5}{4}=\frac{BA}{2}=\frac{BC}{3}$$

$$\frac{5}{4}=\frac{BA}{2} \longrightarrow 10=4(BA) \longrightarrow BA=\frac{5}{2} \qquad x=\frac{1}{2}$$



$$\frac{5}{4}=\frac{BA}{BD}=\frac{BC}{BE}$$

$$\frac{5}{4}=\frac{BA}{2}=\frac{BC}{3}$$

$$\frac{5}{4}=\frac{BC}{3} \longrightarrow 15=4(BC) \longrightarrow BC=\frac{15}{4} \qquad y=\frac{3}{4}$$

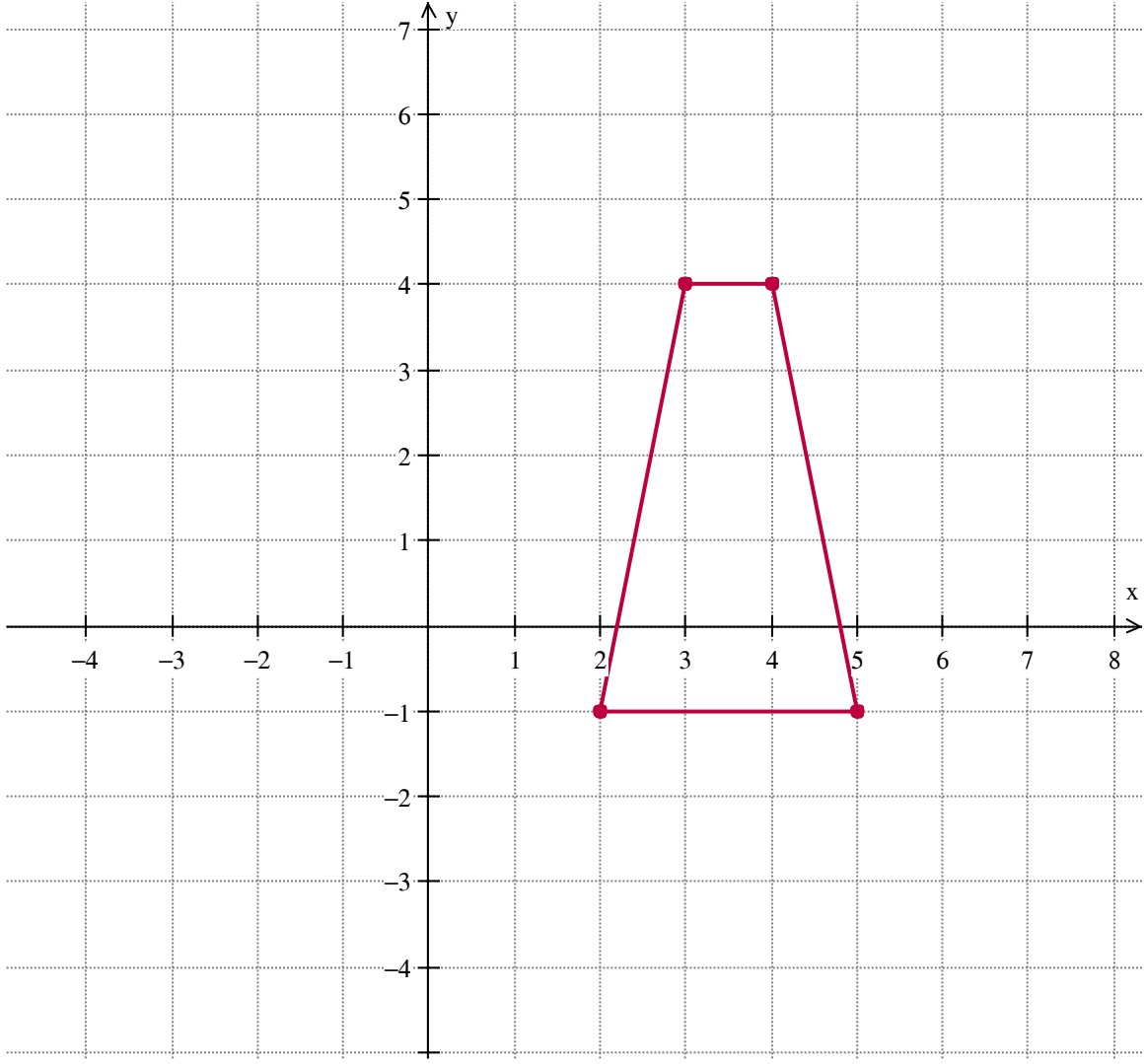
Draw the quadrilateral with coordinates

(2, –1)

(3, 4)

(4, 4)

(5, –1)



An isosceles trapezoid?

We'll see. Is this is similar to…

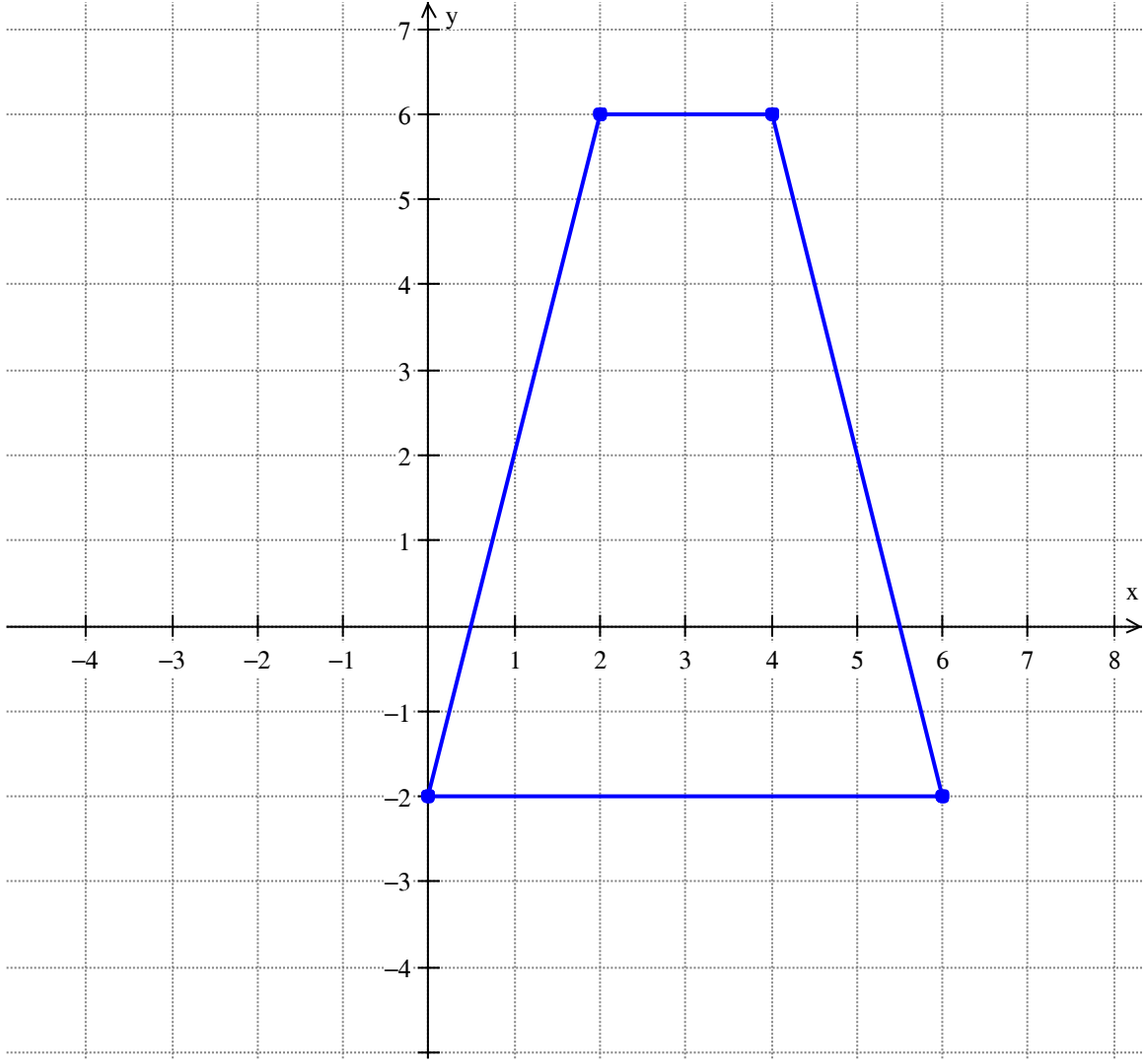
…the quadrilateral with coordinates

(0, –2)

(2, 6)

(4, 6)

(6, –2)



What appears to be another isosceles trapezoid

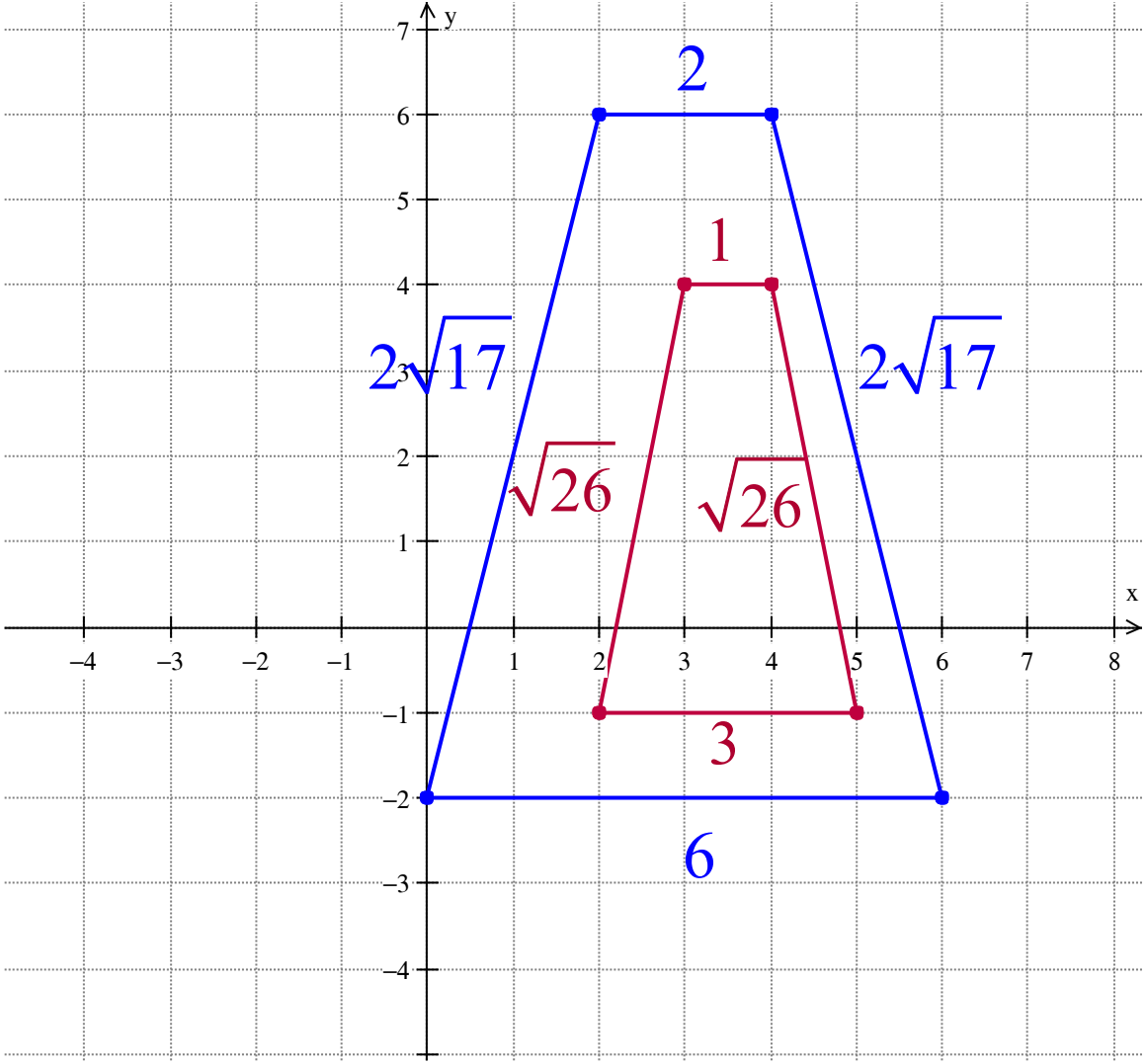
Are they similar polygons?

(2, –1) (0, –2)

(3, 4) (2, 6)

(4, 4) (4, 6)

(5, –1) (6, –2)



Using the distance formula, the side lengths are

The proportion of the two pairs of congruent sides is *not* 2 to 1

So these two isosceles trapezoids (top and bottom sides with slope of 0) are *not* similar

Assignment 7-2: Pg 476 #7, 8, 12, 14, 16