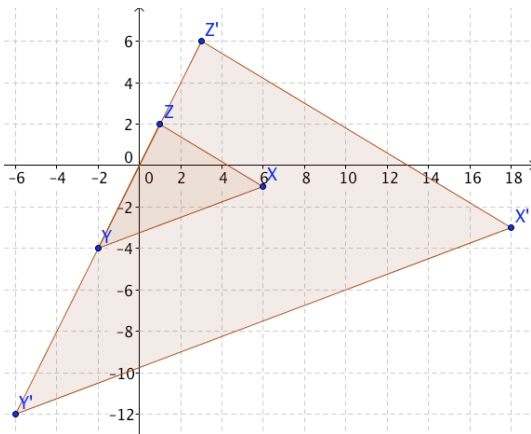


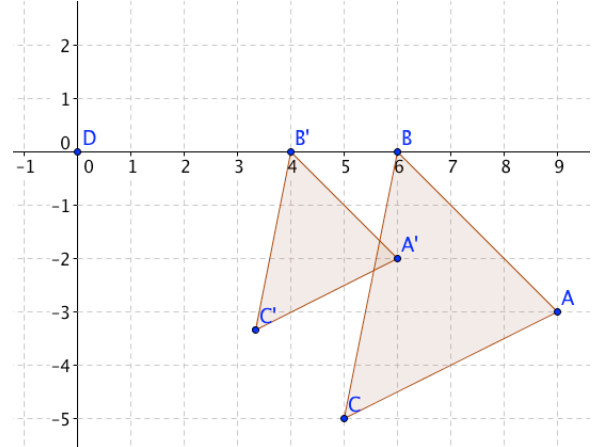
4-5-Dilations and Similarity Transformations – Homework Solutions

1) a. $3/7$; reduction b. $7/2$; enlargement

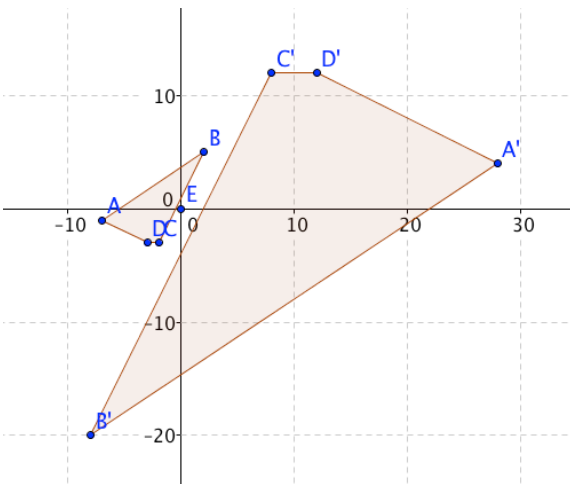
2) a.



b.



c.



3) a. $k = 2$; $n = 6$

b. $k = 2/3$; $y = 3$

4) no; the scale factor for the shorter sides is $8/4 = 2$, but the scale factor for the longer sides is $10/6 = 5/3$. The scale factor for both sides has to be the same or the picture will be distorted

5) $x = 5$, $y = 25$

6) A figure that is 200% larger than the preimage will be twice as large.

7) a. $O'A' = 2(OA)$

b. $\overline{O'A'}$ coincides with \overline{OA}

c. $A'B' = 1/2(AB)$ and the lines are parallel

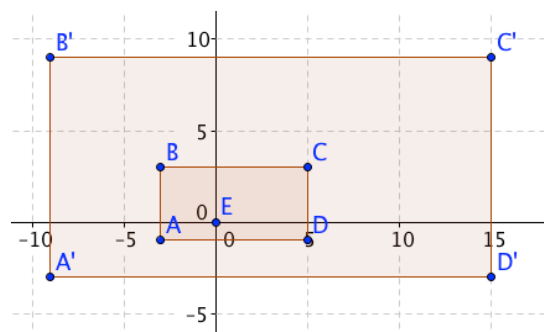
8) no; the figures will be congruent, but the location of the figures will change.

9) a. $P = 24$ units; $A = 32$ square units

b. $P = 72$ units; $A = 288$ square units –

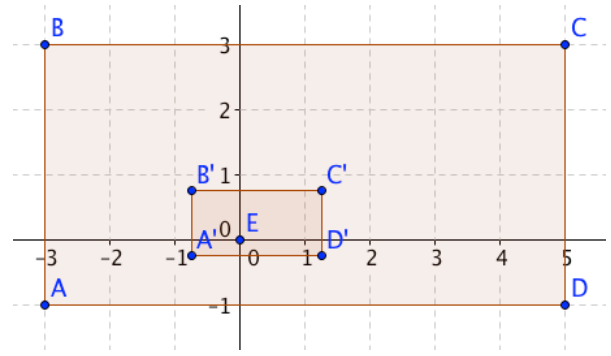
the perimeter of the dilated rectangle is three times the perimeter of the original rectangle.

The area of the dilated rectangle is 9 times the area of the original rectangle.

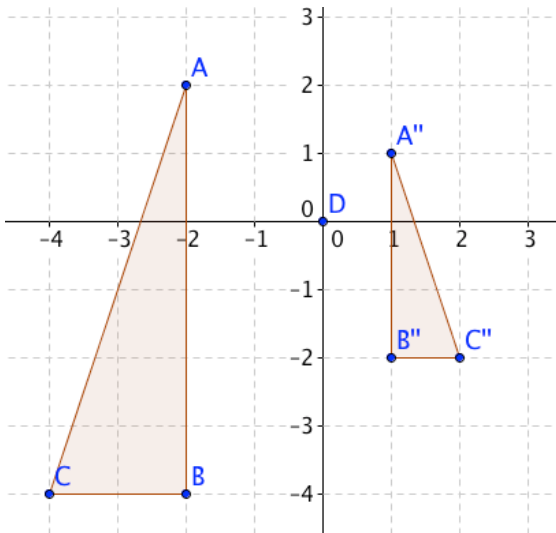


c. $P = 6$ units; $A = 2$ square units - the perimeter of the dilated rectangle is one fourth of the perimeter of the original rectangle. The area of the dilated rectangle is one sixteenth the area of the original rectangle.

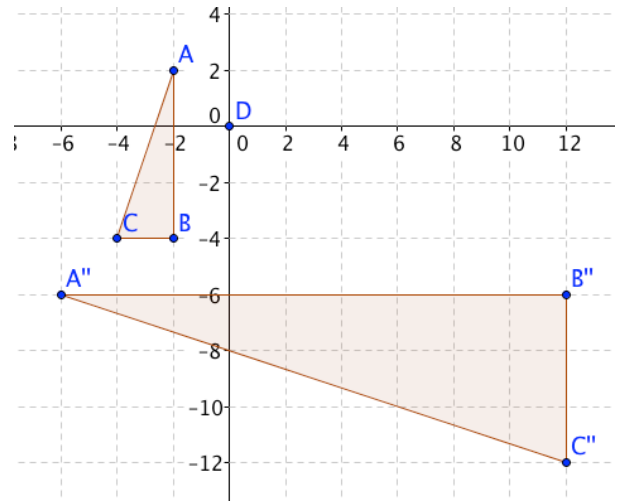
d. The perimeter changes by a factor of k . The area changes by a factor of k^2 .



10) a.



b.



11) No, they are not similar

12) $J(-8,0)$, $K(-8,12)$, $L(-4, 12)$, $M(-4, 0)$

$J''(-9, -4)$, $K''(-9,14)$, $L''(-3, 14)$, $M''(-3, -4)$

Yes, they are similar.