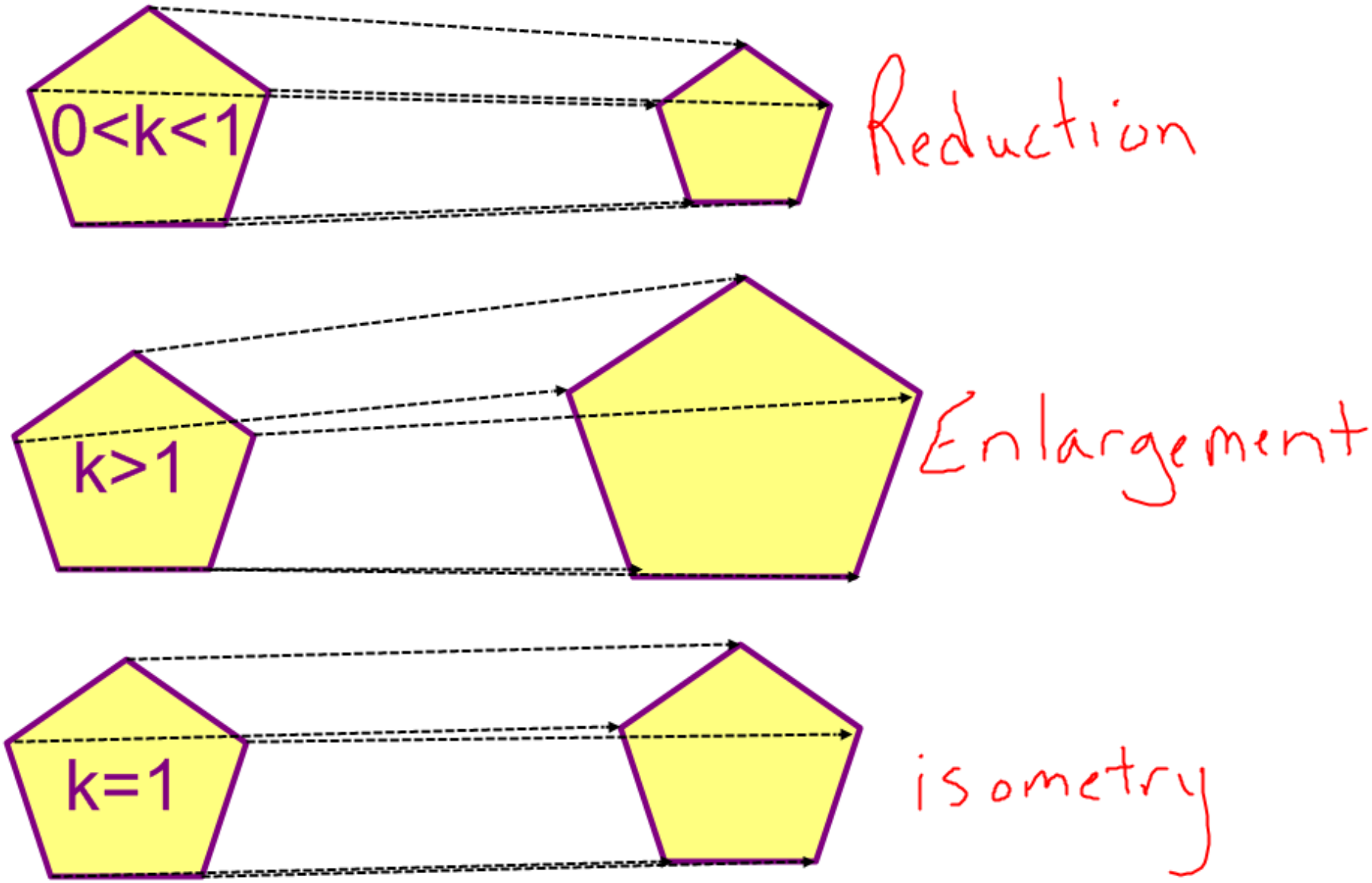
Lesson

9-6 Dilations

Dilation: a transformation that may change the size of a figure

"k" is the value of the enlargment or reduction (scale factor)

SCALE FACTOR:



Dilations in the coordinate plane

Dilate by a scale factor of *k*:

multiply each coordinate by k

$A(x, y) \rightarrow A'(kx, ky)$

Trapezoid *EFGH* has vertices *E*(–8, 4), *F*(–4, 8), *G*(8, 4) and *H*(–4, –8). Graph the image of *EFGH* after a dilation centered at the origin with a scale factor of $\frac{1}{4}$.

$k = \frac{1}{4}$

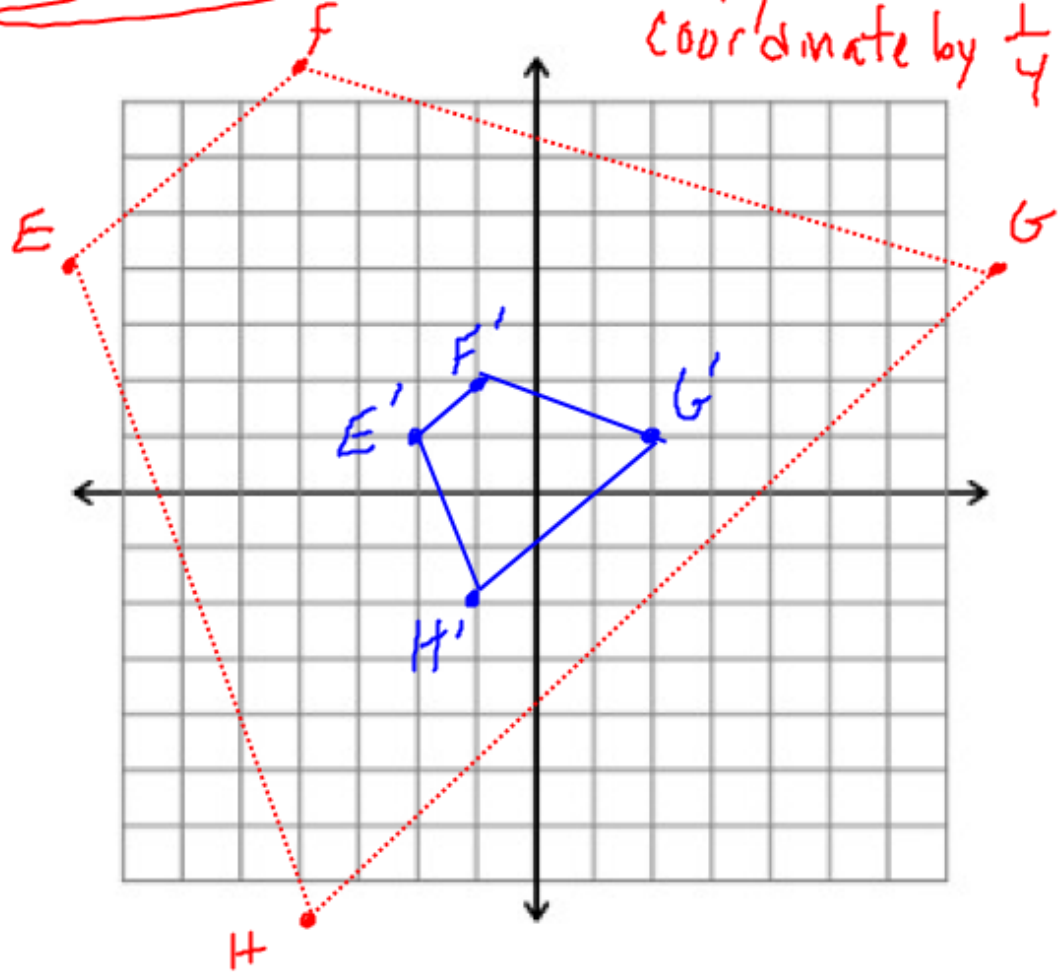
multiply each coordinate by $\frac{1}{4}$

$E'(-2, 1)$

$F'(-1, 2)$

$G'(2, 1)$

$H'(-1, -2)$



EXAMPLE 3 Check Your Progress

CheckPoint

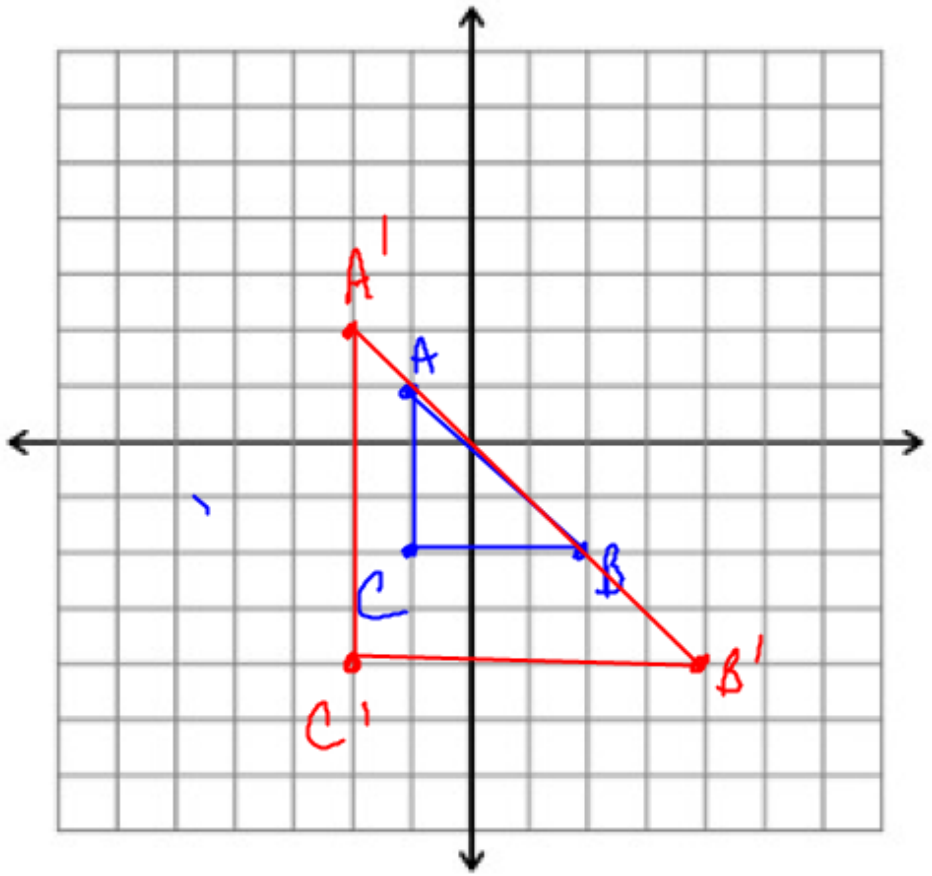
Triangle *ABC* has vertices *A*(–1, 1), *B*(2, –2), and *C*(–1, –2). Find the image of Δ*ABC* after a dilation centered at the origin with a scale factor of 2. Sketch the preimage and the image.

$k = 2$

$A'(-2, 2)$

$B'(4, -4)$

$C'(-2, -4)$



Graph the image of ΔWXY with vertices $W(0,0)$, $X(6,6)$, and $Y(6,0)$ with a scale factor $k=1.5$

$W'(0,0)$

$X'(9,9)$

$Y'(9,0)$