Name:		Date:		
Торіс:		Class:		
Main Ideas/Questions	Notes/Examples			
	• A transformation is an operation that maps an original figure called the \mathcal{N} onto a new figure called the			figure called the
	 On the graph to the left, is the preimage and is the image. (' is read as "prime") A transformation can change the,, or of a figure. 			
RIGID MOTION	Examples of rigid motions:			
	Coordinate Notation: represents the represents the			
	Graph and label a Identify the coord 1. Rectangle QRS Q(-6, -1), R(-3, 1 T(-2, -7): (x, y)	each figure and its linates of the imag T with vertices), $S(1, -5)$, and $\rightarrow (x + 5, y + 7)$	image under the give e. 2. Triangle CDE with D(7, -4), and $E(4)(x, y) \rightarrow (x - 3, y)$	n translation. h vertices C(2, -1), l, -6): y + 8)
	<i>Q</i> ':	<i>S'</i> :	<i>C</i> ':	<i>E</i> ':
	<i>R'</i> :	T:	D^{\prime} :	

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	 A Each point an the line of reflection is 	over a line called ad its image are the ection. also an example c	the e	 from
	Common lines of r > > Vertical or > Diagonal lin	eflection: or horizontal lines in thes, for example, _	 ne formoror	_ or
Reflecting in THE X-AXIS AND Y-AXIS	Graph and label e line. Give the coor 1. Triangle ABC with B(4, 7), and C(5)	each figure and its rdinates of the ima th vertices A(-4, 2) 5, 1): x-axis	image under a reflec ge. , 2. Rectangle PQR P(1, 2), Q(2, 5), S(7, 0): y-axis	ction in the given
	A': B': 3. Trapezoid FGHI F(-5, -2), G(-2, -2 I(-8, -6): y-axis		<i>P</i> ': <i>Q</i> ': 4. Rhombus <i>WXYZ</i> <i>W</i> (-2, -4), <i>X</i> (1, -2 <i>Z</i> (1, -6): <i>x</i> -axis	<i>R</i> ': <i>S</i> ': <i>S</i> with vertices 2), <i>Y</i> (4, -4), and <i>Y</i> (4, -4), and <i>Y</i> (4, -4), and <i>Y</i> (4, -4), and
	<i>F</i> ': <i>G</i> ':	H': I':	W': X':	Y': Z':

Main Ideas/Questions	Notes/Examples		
DILATION	A dilation is a of a figure with respect to a fixed point, called the		
	 A dilation is an example of a A dilation produces A dilation produces All corresponding angles are congruent, and all corresponding sides are proportional. 		
SCALE FACTOR	 The scale factor indicates how much the figure will enlarge or reduce. Variable for scale factor: When, the dilation is an When, the dilation is a 		
DILATION RULE (origin as center)	If $P(x, y)$ is the preimage of a point, then its image after a dilation centered at the origin (0, 0) with scale factor k will follow the rule:		

Graph and label each figure and its image under the sequence of transformations. Give the coordinates of the image.

- **1.** Triangle *XYZ* with vertices *X*(-3, 7), *Y*(-2, 1), and *Z*(-5, 2):
 - **a)** reflection in the *x*-axis
 - **b)** translation along the rule $(x, y) \rightarrow (x + 9, y + 2)$



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TRANSFORMATIONS	 A transformation is an operation th <u>pre-image</u> onto a new On the graph to the left, <u>Δ A B</u> <u>Δ A¹ B¹ C¹</u> is the image. ('1) A transformation can change the or <u>Size</u> of a figure 	nat maps an original figure called the w figure called the <u>image</u> . <u>C</u> is the pre-image and is read as "prime") <u>position</u> , <u>Orientation</u> e.
RIGID MOTION	When a transformation and shape of a figure angles of the pre-image Examples of rigid motions: translo	n preserves the size All Corresponding sides + + image are congruent. utions, reflections, rotations
TRANSLATION	To vertically and/or horiz Coordinate Notation: $(X, Y) \rightarrow$ <u>h</u> represents the <u>K</u> represents the Graph and label each figure and its in Identify the coordinates of the image. 1. Rectangle QRST with vertices Q(-6, -1), R(-3, 1), S(1, -5), and T(-2, -7): $(x, y) \rightarrow (x + 5, y + 7)$ <u>k</u> Q': (-1, 6) S': (6, 2) R': (2, 8) T': (3, 6)	choics, reflections, rotations zontally SLIDE a figure (X + h, y + k) horizontal shift Vertical shift nage under the given translation. 2. Triangle CDE with vertices C(2, -1), D(7, -4), and $E(4, -6)$: $(x, y) \rightarrow (x - 3, y + 8)$ C: (-1, -1) E: (1, 2) D^{2} : (4, 4)

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Main Ideas/Questions	Notes/Examples				
REFLECTION	 A <u>FLIP</u> over a line called the <u>line of reflection</u>. Each point its image are the <u>Same distance</u> from the line of reflection. 				
	A reflection is	also an example (of	ra <u>rigid mo</u>	<u>ton</u> .
	Common lines of reflection: $\begin{array}{r} X - \underline{0XiS} \text{ or } \underline{Y} - \underline{0XiS} \\ \end{array}$ $\begin{array}{r} Y = \underline{W} \text{ or } \underline{Y} = \underline{W} \\ \end{array}$ $\begin{array}{r} Y = \underline{W} \text{ or } \underline{Y} = \underline{W} \\ \end{array}$ $\begin{array}{r} Y = \underline{W} \text{ or } \underline{Y} = \underline{W} \\ \end{array}$				
	Graph and label e	ach figure and its	s iı	mage under a reflect	tion in the given
Reflecting in THE X-AXIS AND Y-AXIS	line. Give the coor 1. Triangle <i>ABC</i> wi <i>B</i> (4, 7), and <i>C</i> (5)	rdinates of the image of the im		ge. 2. Rectangle PQRS P(1, 2), Q(2, 5), F S(7, 0): y-axis Q ¹	with vertices (8, 3), and
	A': (-4, -2) B': (4, -7) 3. Trapezoid FGHI F(-5, -2), G(-2, -2 I(-8, -6): y-axis	C': $(5, -1)$ with vertices c), $H(0, -6)$, and		$P': (-1_{12})$ $Q': (-2_{15})$ 4. Rhombus <i>WXYZ</i> <i>W</i> (-2, -4), <i>X</i> (1, -2) <i>Z</i> (1, -6): <i>x</i> -axis	R': (-8_13) S': $(-7, 0)$ with vertices Y(4, -4), and Y
	F': (5,-2) G': (2,-2)	H': (D,-6) I': (8,-6)		W': (-2,4) X': (1,2)	Y': (4,4) Z': (1,6)

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Main Ideas/Questions	Notes/Examples
DILATION	 A dilation is a <u>Enlargement</u> or <u>reduction</u> of a figure with respect to a fixed point, called the <u>Center</u> <u>of dilation</u>. A dilation is an example of a <u>Nonrigid</u> <u>motion</u> in that it does not preserve congruency. A dilation produces <u>Similar</u> <u>figures</u>. All corresponding angles are congruent, and all corresponding sides are proportional.
SCALE FACTOR	 The scale factor indicates how much the figure will enlarge or reduce. Variable for scale factor:K WhenK 7 1, the dilation is anENLArgement WhenK 41, the dilation is anYEduction
DILATION RULE (origin as center)	If $P(x, y)$ is the preimage of a point, then its image after a dilation centered at the origin (0, 0) with scale factor k will follow the rule: $(X, y) \rightarrow (KX, Ky)$

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SEQUENCES OF Transformations	When two or more tra <u>Combined to form a</u> Graph and label each figure and its transformations. Give the coordina 1. Triangle XYZ with vertices X(-3, 7) a) reflection in the x-axis b) translation along the rule (x, y) X'(<u>b</u> , -5)	Unstructions are transformation. simage under the sequence of tes of the image.), $Y(-2, 1)$, and $Z(-5, 2)$: $y) \rightarrow (x+9, y+2)$
	$\begin{bmatrix} z \cdot (4, 0) \\ z \cdot (4, 0) \end{bmatrix}$	