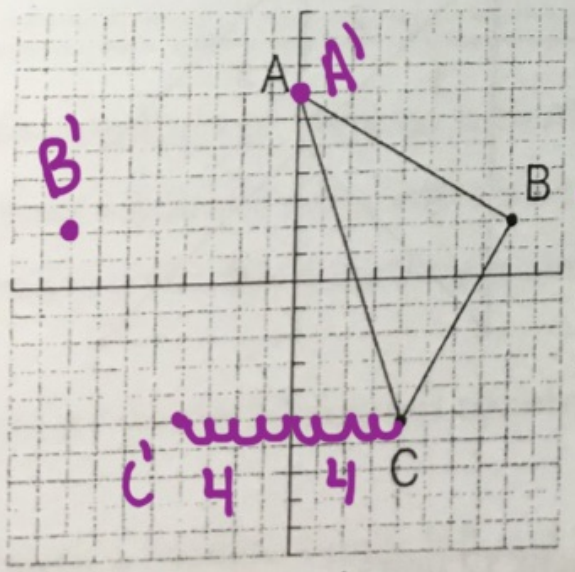
Quiz Review

Pages 28-29

REVIEW HOMEWORK

For each of the following, graph and label the image for each transformation using proper prime notation.

Reflect over the $y-axis$ $\Rightarrow (-x, y)$

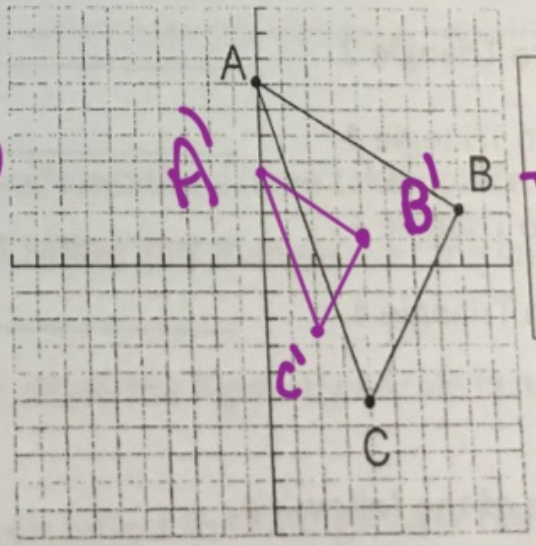


Algebraic Rule: $T:(x,y) \rightarrow (-x,y)$

Notation: $R_{y\text{-axis}}$

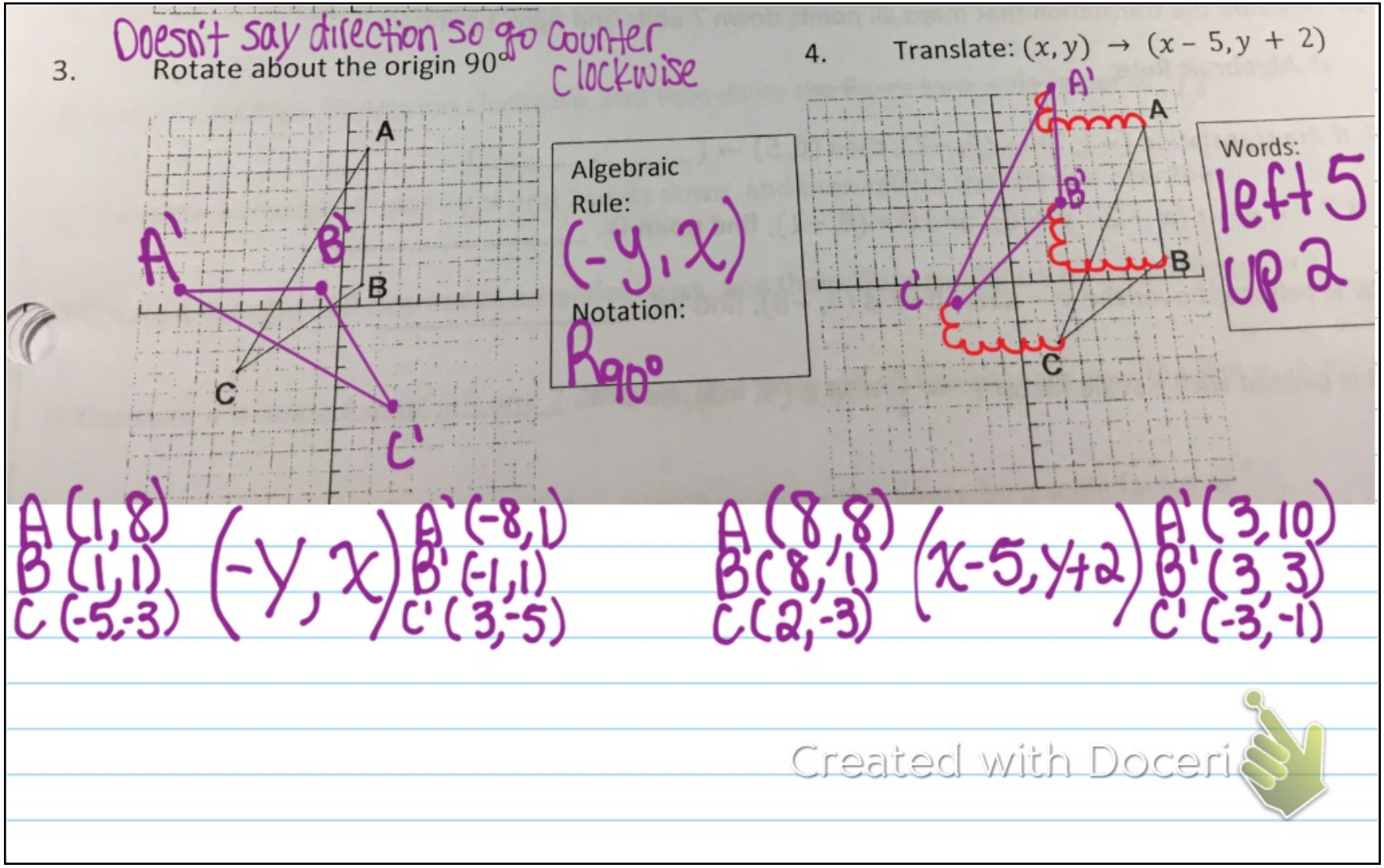
A(0,7) (-x,y) A'(0,7)
B(8,2) (-x,y) B'(-8,2)
C(4,-5) (-x,y) C'(-4,-5)

2. Dilate with a scale factor $r = ½$



Algebraic Rule: $T:(x,y) \rightarrow (½x, ½y)$

A(0,7) (½x, ½y) A'(0,3.5)
B(8,2) (½x, ½y) B'(4,1)
C(4,-5) (½x, ½y) C'(2,-2.5)


3.
Rotate about the origin 90°
Doesn't say direction so go counter clockwise
A
B
C
A'
B'
C'
Algebraic Rule:
(-y, x)
Notation:
R90°
4.
Translate: (x, y) → (x − 5, y + 2)
A
B
C
A'
B'
C'
Words:
left 5
up 2
A (1,8)
B (1,1)
C (-5,-3)
(-y, x)
A' (-8,1)
B' (-1,1)
C' (3,-5)
A (8,8)
B (8,1)
C (2,-3)
(x-5, y+2)
A' (3,10)
B' (3,3)
C' (-3,-1)
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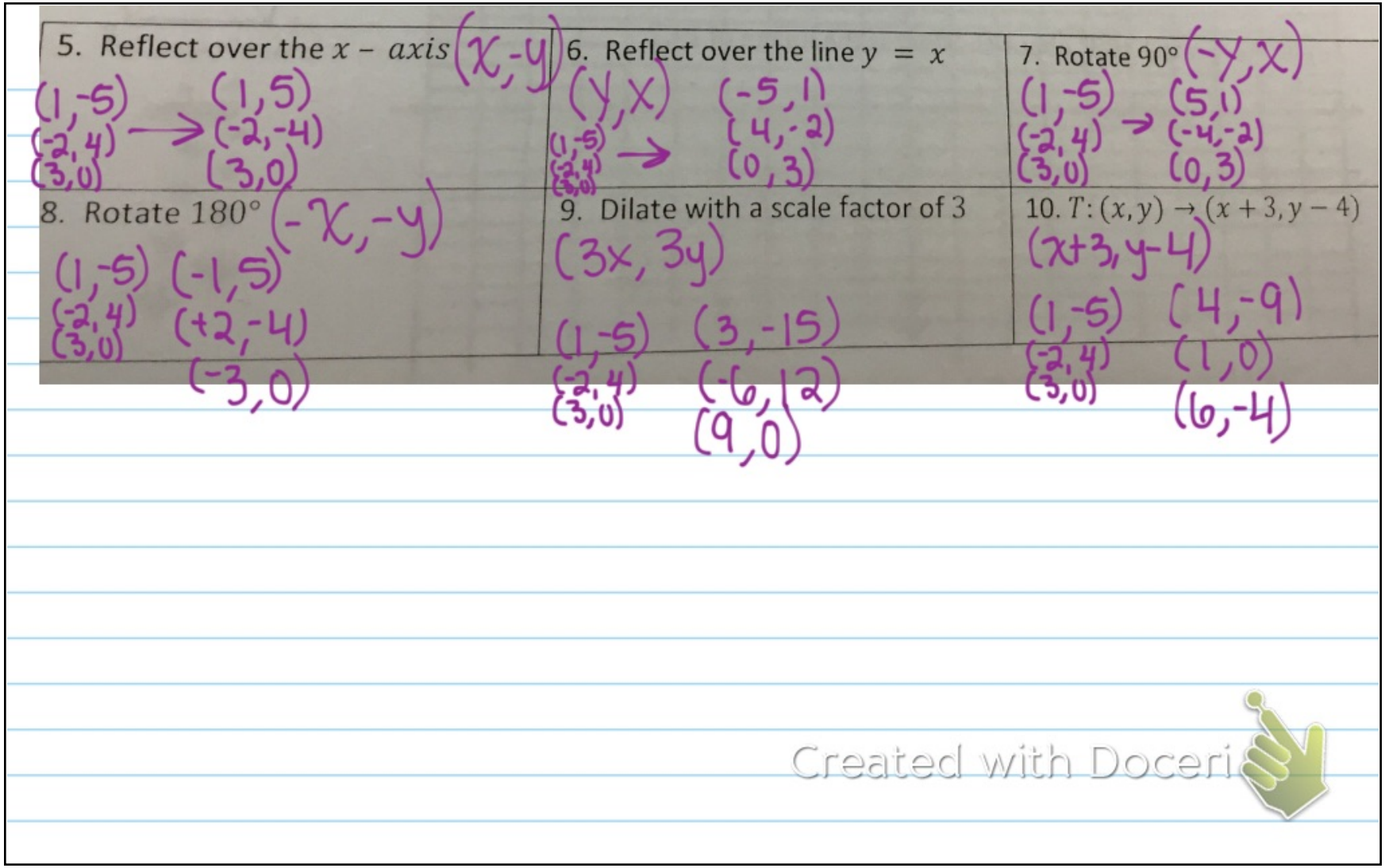
5. Reflect over the $x-axis$
(x,-y)
(1,-5) (-2,4) (3,0) → (1,5) (-2,-4) (3,0)
6. Reflect over the line $y = x$
(y,x)
(1,-5) (-2,4) (3,0) → (-5,1) (4,-2) (0,3)
7. Rotate 90°
(-y,x)
(1,-5) (-2,4) (3,0) → (5,1) (-4,-2) (0,3)
8. Rotate 180°
(-x,-y)
(1,-5) (-2,4) (3,0) (-1,5) (+2,-4) (-3,0)
9. Dilate with a scale factor of 3
(3x, 3y)
(1,-5) (-2,4) (3,0) (3,-15) (-6,12) (9,0)
10. $T:(x,y) \rightarrow (x+3, y-4)$
(x+3, y-4)
(1,-5) (-2,4) (3,0) (4,-9) (1,0) (6,-4)
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Math 2

Unit 1 – Geometric Transformations

QUIZ REVIEW HOMEWORK

Date_____

❖ **State whether the isosceles triangle mapped to the other triangle is by a reflection, translation, or rc**

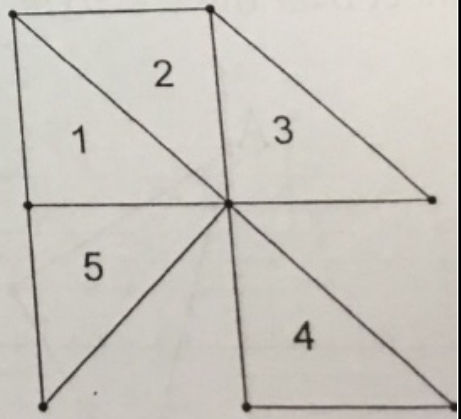
11. Triangle 1 to Triangle 5 reflection

12. Triangle 5 to Triangle 2 Rotation

13. Triangle 2 to Triangle 4 Rotation

14. Triangle 3 to Triangle 4 translation

15. Triangle 1 to Triangle 4 translation



❖ **Answer each of the following.**

16. Describe the translation that maps all points down 7 units and right 12 units.

a) **Algebraic Rule:** $T:(x,y)(x+12, y-7)$

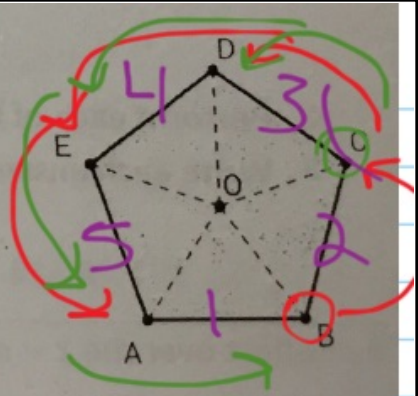
17. If the translation $(-1, 7) \rightarrow (5, -2)$, then $(0, 5) \rightarrow$ (6 , -4)

18. If $T: (x, y) \rightarrow (x - 2,\ y + 6)$, and D = $(8, -1)$, find point D'. $(6, 5)$

19. W is reflected over the $y-axis$. If W is $(3, -8)$, find W'. $(-3, -8)$

20. M is dilated with a scale factor $r = \frac{3}{4}$. If M is $(9, -3)$, find M'. $(6.75, -2.25)$

21. Given *Regular Pentagon ABCDE* with center O.



a) A is rotated about O. If the image of A is C, what is the angle of rotation?

From A to C is 2 turns x 72 = 144°

b) E is rotated about O. If the image of E is A, what is the angle of rotation?

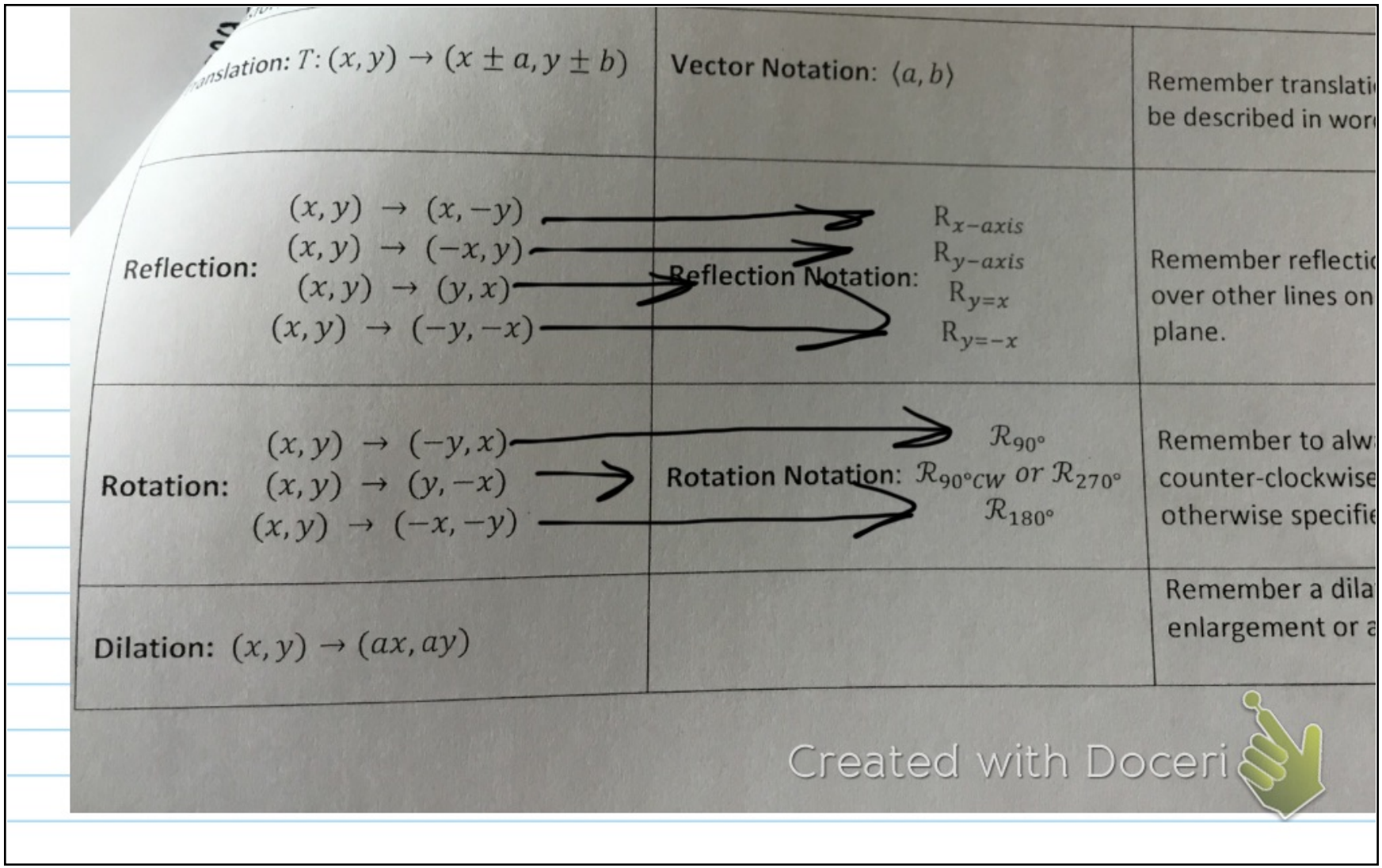
From E to A 1 turn x 72 = 72°

c) $\overline{BC}$ is rotated $288°$ about O. What is the image of $\overline{BC}$?

288/72 = 4 turns

$\overline{AB}$

5 sides so 360/5 = 72° per turn



anslation: $T: (x, y) \rightarrow (x \pm a, y \pm b)$	**Vector Notation:** $\langle a, b \rangle$	Remember translati be described in wor
Reflection: $(x, y) \rightarrow (x, -y)$ $(x, y) \rightarrow (-x, y)$ $(x, y) \rightarrow (y, x)$ $(x, y) \rightarrow (-y, -x)$	**Reflection Notation:** R_{x-axis} R_{y-axis} $R_{y=x}$ $R_{y=-x}$	Remember reflecti over other lines on plane.
Rotation: $(x, y) \rightarrow (-y, x)$ $(x, y) \rightarrow (y, -x)$ $(x, y) \rightarrow (-x, -y)$	**Rotation Notation:** $\mathcal{R}_{90°}$ $\mathcal{R}_{90°CW}$ *or* $\mathcal{R}_{270°}$ $\mathcal{R}_{180°}$	Remember to alw counter-clockwise otherwise specifi
Dilation: $(x, y) \rightarrow (ax, ay)$		Remember a dila enlargement or a