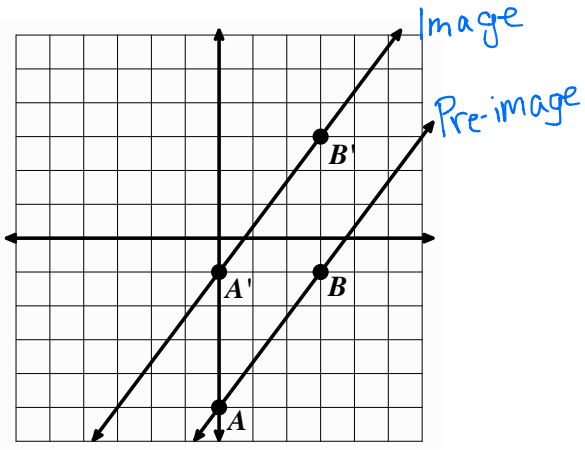
READY, SET, GO! Name Period Date

READY

Topic: Transformation of lines, connecting geometry and algebra.

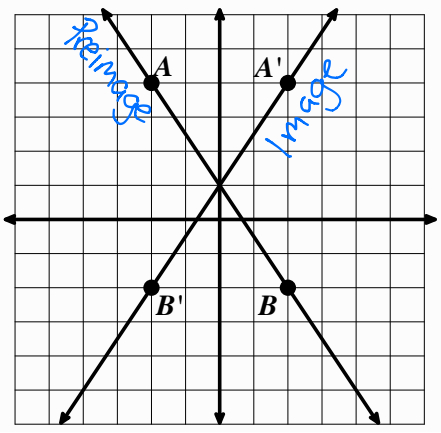
For each set of lines use the points on the line to determine which line is the image and which is the pre-image, write image by the image line and pre image by the original line. Then define the transformation that was used to create the image. Finally find the equation for each line.

1.



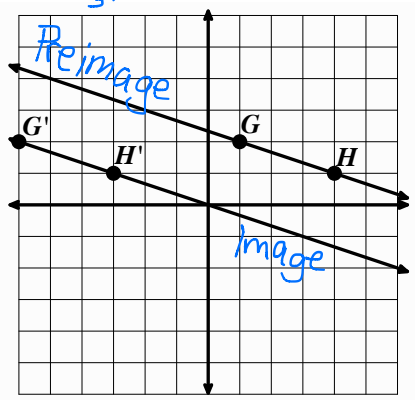
a. Description of Transformation:
translation (x+0, y+4)
b. Equation for pre-image:
$y=\frac{4}{3}x-5$
c. Equation for image:

2.



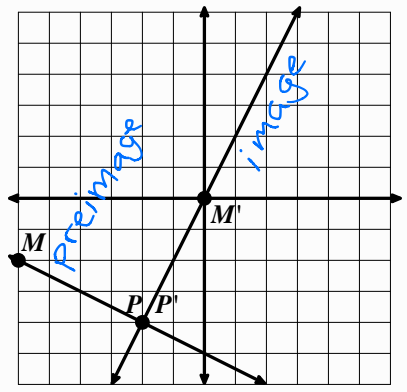
a. Description of Transformation:
Reflection over x=0
b. Equation for pre-image:
$y=\frac{3}{2}x+1$
c. Equation for image:

3. $y=\frac{4}{3}x-1$



a. Description of Transformation:
Translation (x-7, y+0)
b. Equation for pre-image:
$y=-\frac{1}{3}x+\frac{7}{3}$
c. Equation for image:
$y=-\frac{1}{3}x$

4. $y=-\frac{3}{2}x+1$

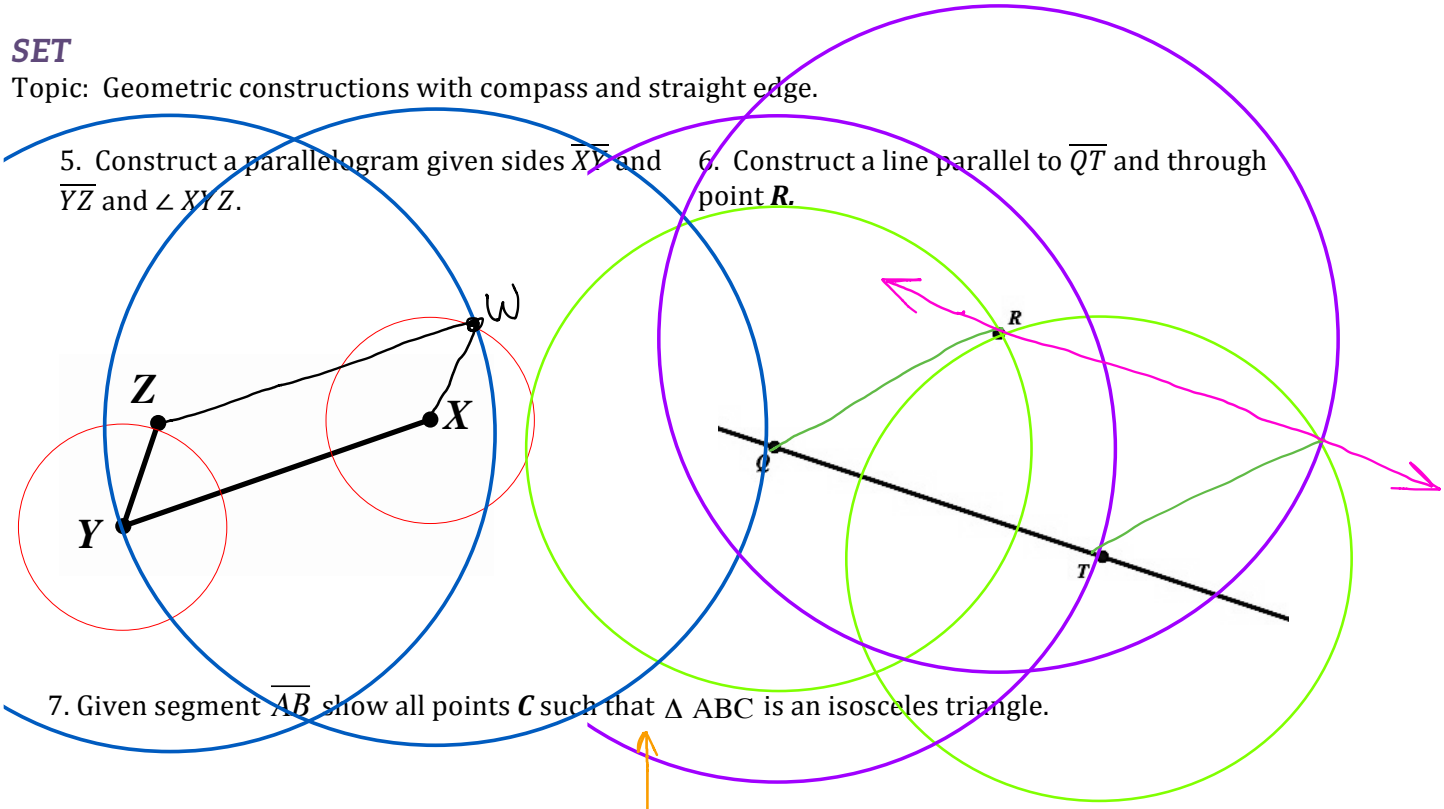


a. Description of Transformation:
Rotation 90° clockwise about (-2,-4)
b. Equation for pre-image:
$y=-\frac{1}{2}x-5$
c. Equation for image:
y=2x

SET

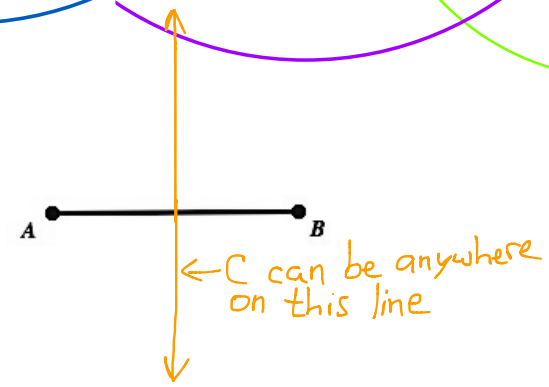
Topic: Geometric constructions with compass and straight edge.

5. Construct a parallelogram given sides $\overline{XY}$ and $\overline{YZ}$ and $\angle XYZ$.

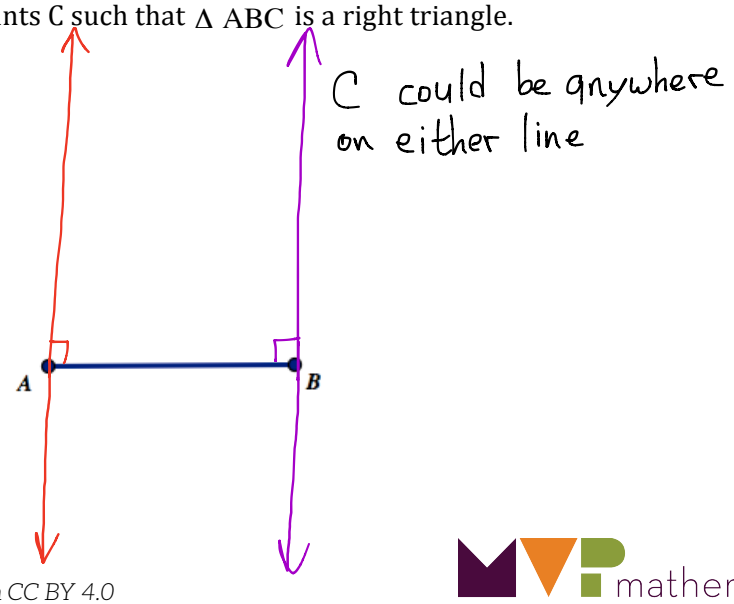


6. Construct a line parallel to $\overline{QT}$ and through point ***R.***

7. Given segment $\overline{AB}$ show all points ***C*** such that Δ ABC is an isosceles triangle.



8. Given segment $\overline{AB}$ show all points C such that Δ ABC is a right triangle.



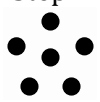
GO

Topic: Creating explicit and recursive rules for visual patterns

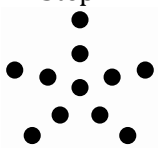
9. Find an explicit function rule and a recursive rule for dots in step *n*.

Recursive
$f(n)=f(n-1)+5$
$f(0)=1$
Explicit
$f(n)=5n+1$

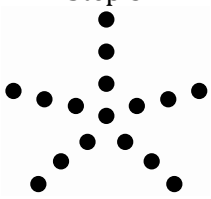
Step 1



Step 2



Step 3

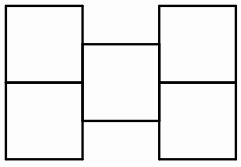


10. Find an explicit function rule and a recursive rule for squares in step *n*.

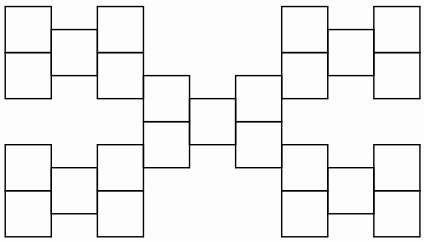
Recursive
$f(n)=f(n-1)\cdot 5$
$f(1)=1$
Explicit
$f(n)=\frac{1}{5}(5)^n$

Step 1

Step 2



Step 3



Find an explicit function rule and a recursive rule for the values in each table.

11.

Step	Value
1	1
2	11
3	21
4	31

+10, +10, +10

Explicit
$f(n)=10n-9$

Recursive
$f(n)=f(n-1)+10$
$f(1)=1$

12.

n	$f(n)$
2	16
3	8
4	4
5	2

÷2, ÷2, ÷2

Explicit
$f(n)=64\left(\frac{1}{2}\right)^n$

Recursive
$f(n)=\frac{1}{2}f(n-1)$
$f(0)=64$

13.

n	$f(n)$
1	-5
2	25
3	-125
4	625

·(-5), ·(-5), ·(-5)

Explicit
$f(n)=(-5)^n$

Recursive
$f(n)=-5f(n-1)$
$f(1)=-5$