

Chapter 5 - Properties & Attributes of Triangles

1. There are rods of 5 in. 9 in. and 11 in. on the ground.

a. Can these rods form a triangle? *yes*

$$(5+9 > 11)$$

$$5^2 + 9^2 = 11^2$$

$$25 + 81 = 106$$

$$106 = 121$$

*^ bigger*

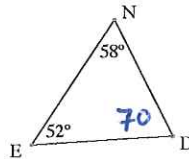
b. Classify the triangle by sides scalene and by angles obtuse.

c. What if only the 9" and 11" rod were present, then what possible lengths could the third rod be to form a  $\Delta$ ?

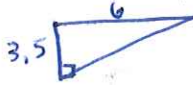
$$2 < 3rd < 20$$

2. Rank the sides of  $\Delta END$  from *shortest* to *longest*

*ND, ED, NE*



3. Luke and Wyatt left BHS at 5 pm. Wyatt went home, 3.5 miles due south. Luke drove due east for 6 miles. How far apart are the two boys?



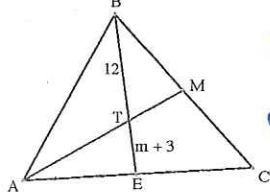
$$6^2 + 3.5^2 = 6.95 \text{ miles}$$

#4-8 Solve for m in each diagram.

4.  $3^2 + m^2 = \sqrt{12}^2$   
 $9 + m^2 = 12$   
 $m^2 = 3$   
 $m = 1.73$

5.  $2(11) = 4m + 4$   
 $18 = 4m$   
 $4.5 = m$

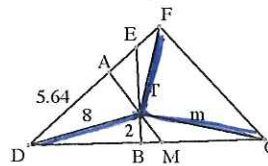
6.  $\overline{BE}$  and  $\overline{AM}$  are medians



$$m + 3 = 6$$

$$m = 3$$

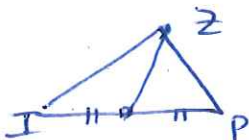
7.  $\overline{BE}$  and  $\overline{AM}$  are perpendicular bisectors



$$m = 8$$

#9-10, Use  $\Delta ZIP$  where  $Z(5, 10)$ ,  $I(-2, -5)$  and  $P(8, 1)$

9. Find the equation of the median for side  $\overline{IP}$  in *point-slope* form.



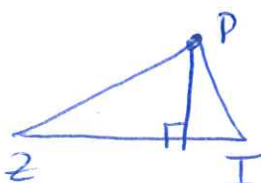
midpoint  $IP: (3, -2)$   
 through  $Z: (5, 10) \frac{10+2}{5-3}$

$$y - 10 = 6(x - 5)$$

or

$$y + 2 = 6(x - 3)$$

10. Find the equation of the altitude from side  $\overline{ZI}$  in *slope intercept* form.



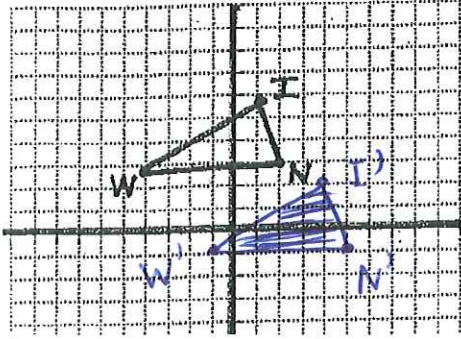
through  $P: (8, 1)$   
 $\perp$  to  $\overline{ZI}: \frac{10+5}{5-2} = \frac{15}{7} \perp = -\frac{7}{15}$

$$y - 1 = -\frac{7}{15}(x - 8)$$

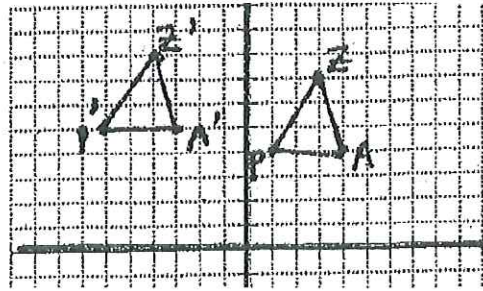
$$y = -\frac{7}{15}x + 4.73$$

Chapter 12 - Transformational Geometry

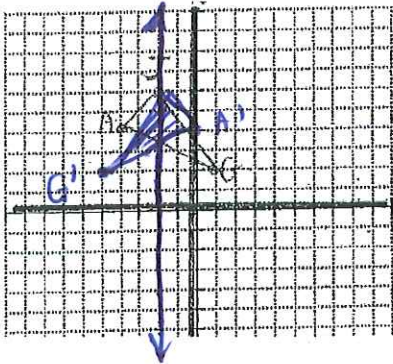
1. Translate the triangle with vector  $\langle 3, -4 \rangle$



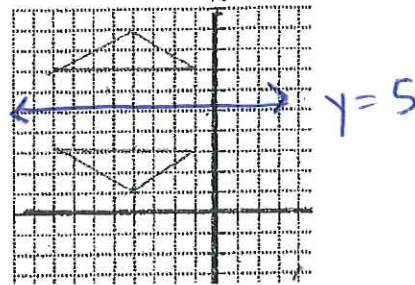
2. The triangle was translated. Write the rule  $(x,y) \longrightarrow (x-7, y+1)$



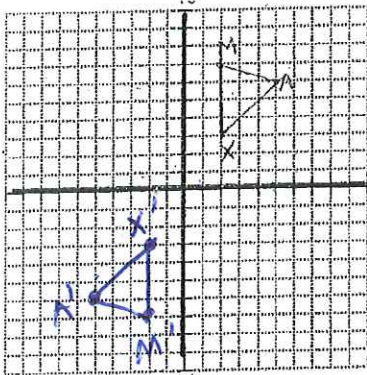
3. Reflect the triangle over  $x = -2$



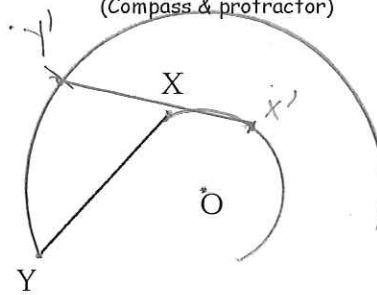
4. What line was the triangle reflected over?



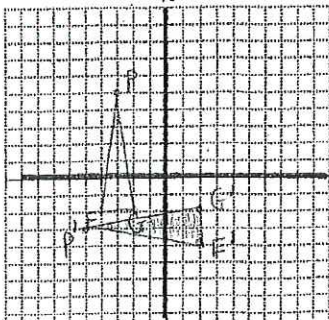
5. Rotate the triangle 180° about origin.



6. Rotate XY 60° clockwise about O.  
(Compass & protractor)

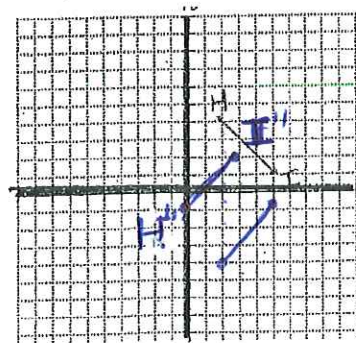


7. Give the direction and distance the  $\Delta$  was rotated about  $(0,0)$



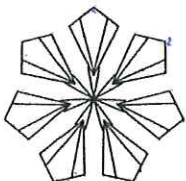
90°  
counterclock  
or  
270° clockwise

8. Reflect the segment over the x-axis, then  $\langle -2, 3 \rangle$



#9-10, Describe the symmetry of each design.

9.



lines = 7  
rotate = 51.43°

10.



lines = 0  
rotate = 120°