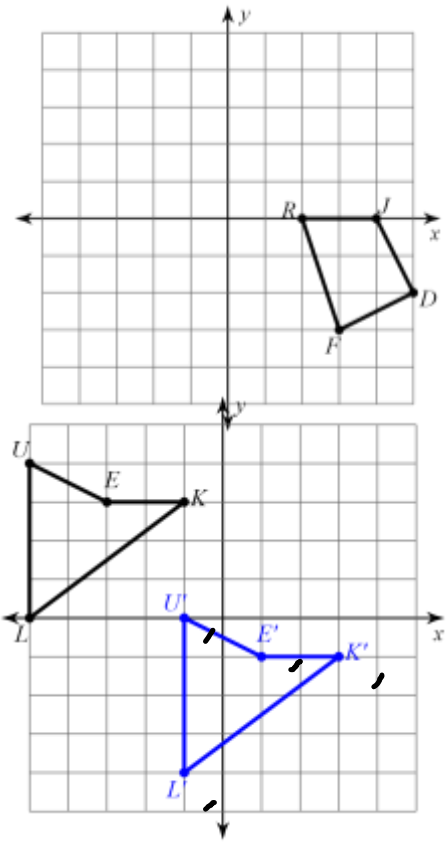
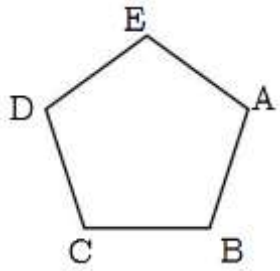
Congruence 1: Transformations:

1. Draw and label the figure after a reflection across the line x=2.
2. Describe the term line segment in terms of points, lines, and planes.



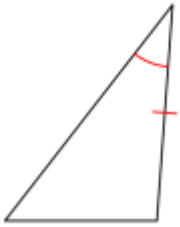
3. How many degrees of clockwise rotation would it take for A to be carried onto D? (ABCDE is a regular pentagon.)

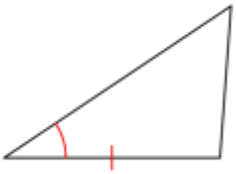


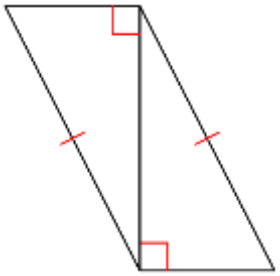
4. Use arrow notation to write a rule that will carry $LUEK$ to $L'U'E'K'$.

Congruence 2: Triangle Congruence

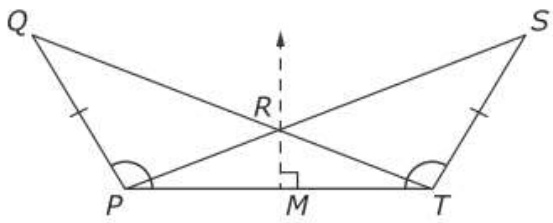
5. In each pair, are the triangles congruent? If so, what criteria is shown?





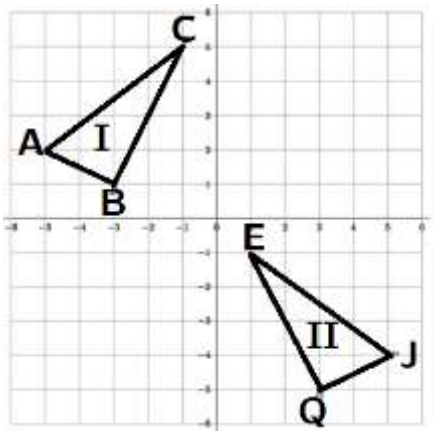


6. Which transformation(s) would show $\Delta QTP \cong \Delta SPT$? Select all that apply.

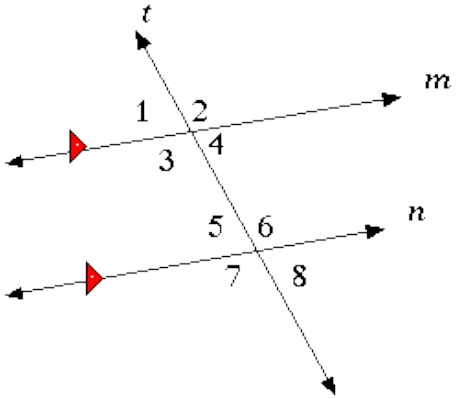


[ ] horizontal translation along the length PR
[ ] horizontal translation along the length of PT
[ ] reflection over RM
[ ] reflection over SP
[ ] rotation around R

7. Figure 1 goes through rigid transformations to become Figure 2. What segment is congruent to CA?



Congruence 3: Parallel Lines and Triangles



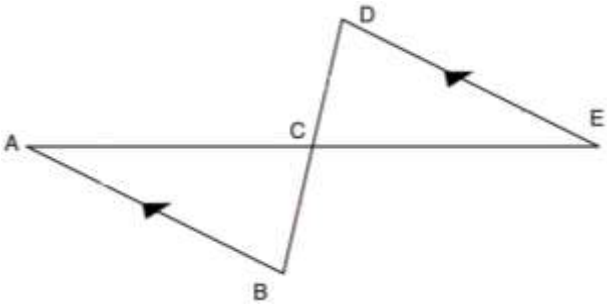
8. Name a pair of corresponding angles.

9. Name a pair of alternate interior angles.

10. If $\angle 3 = 14x + 45$ and $\angle 5 = 7x + 30$, what is the value of x?

11. Complete the proof.
Given: $m \parallel n$ Prove: $\angle 3 \cong \angle 6$

Statements	Reasons
1.	1.
2. $\angle 3 \cong \angle 7$	2.
3. $\angle 7 \cong \angle 6$	3.
4. $\angle 3 \cong \angle 6$	4.



12. Complete the proof.
Given: $\overline{AE}$ *bisects* $\overline{BD}$; $\overline{AB} \parallel \overline{ED}$ Prove: $\overline{AB} \cong \overline{ED}$

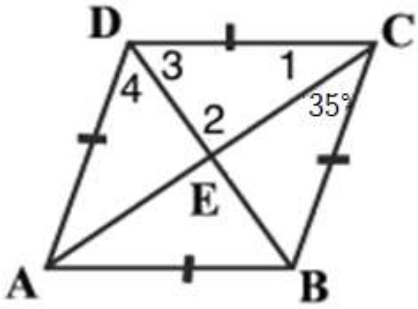
Statements	Reasons
1. $\overline{AE}$ *bisects* $\overline{BD}$; $\overline{AB} \parallel \overline{ED}$	1. Given
2. $\angle BCA \cong \angle DCE$	2.
3.	3. Def. of bisect
4. $\angle A \cong \angle E$	4.
5. $\Delta ACB \cong \Delta ECD$	5.
6. $\overline{AB} \cong \overline{ED}$	6.

Congruence 4: Quadrilaterals

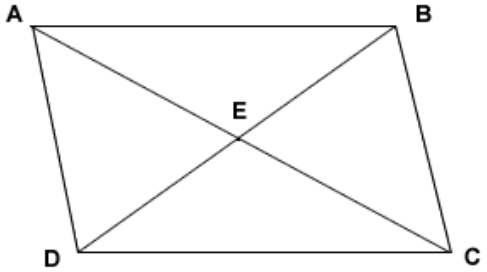
13. Consider rhombus DCBA with diagonals intersecting at E.
Find the angle measures

$\angle 1 =$ $\angle 2 =$ $\angle 3 =$

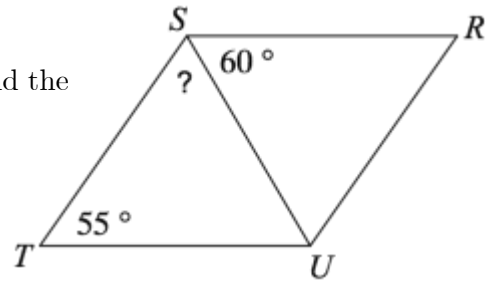
$\angle 4 =$ $\angle ABC =$



14. *ABCD* is a parallelogram. If BE = 11x-15, and BD = 8x+12, find the length of DE.

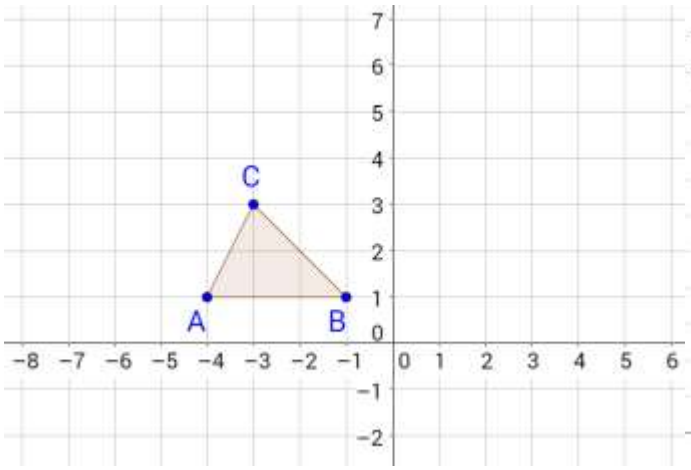


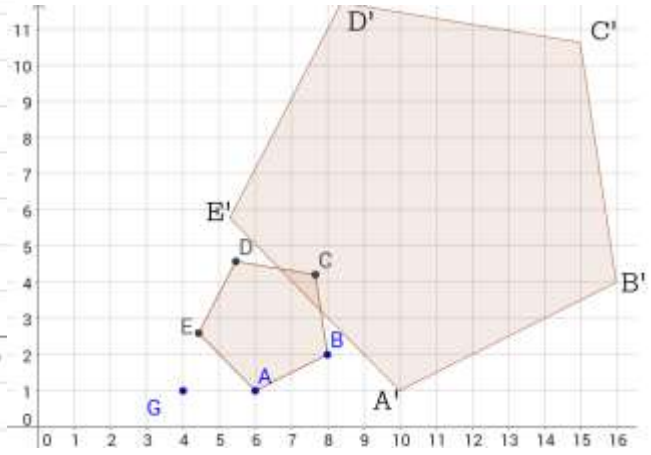
15. *RSTU* is a parallelogram. Find the measure of the indicated angle.



SRT-1: Dilations and Similar Triangles

16. ΔABC is translated by rule $(x, y) \rightarrow (x + 1, y - 1)$. It then undergoes a dilation centered at the origin with scale factor 2. Draw the resulting image.



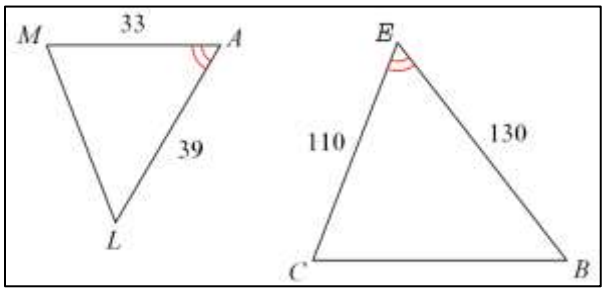


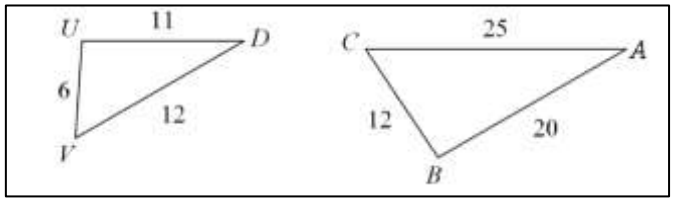
17. Pentagon ABCDE is dilated about point G to create pentagon $A'B'C'D'E'$. Determine the scale factor of dilation.

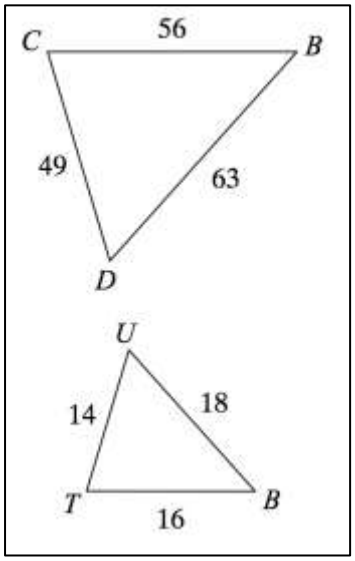
18. A rectangle is dilated using graphics software such that its area is 16 times the original. What was the scale factor of dilation?

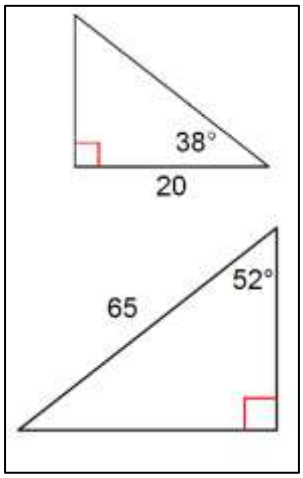
19. Given $\Delta ESQ \sim \Delta RPG$, SE = 16, RG=5, and PR = 4. What is the length of QE?

20. Are the triangles in each pair similar? If so, what criteria allow you to know?





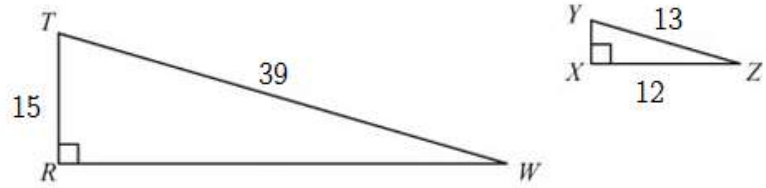




SRT-2: Trigonometry

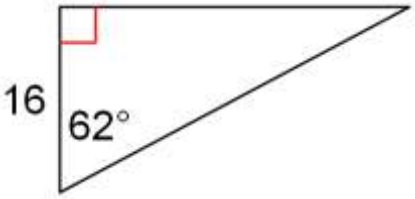
21. A right triangle has legs of length 10 and 24. Find the cosine of the smallest angle.

22. $\Delta RTW \sim \Delta XYZ$. Find tan Y.

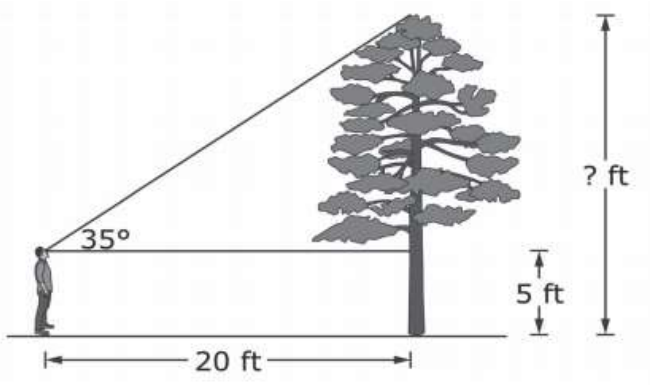


23. P and Q are complementary angles. sin P $= \frac{7}{25}$ and sin Q $= \frac{24}{25}$. Find tan Q.

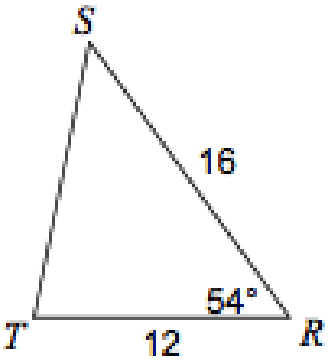
24. Find the perimeter of this triangle to the nearest tenth.



25. A person stands 20 feet from the base of a tree. The angle of elevation of their line of sight is 35°. If the person's eye-height is 5 feet, how tall is the tree (to the nearest foot)?

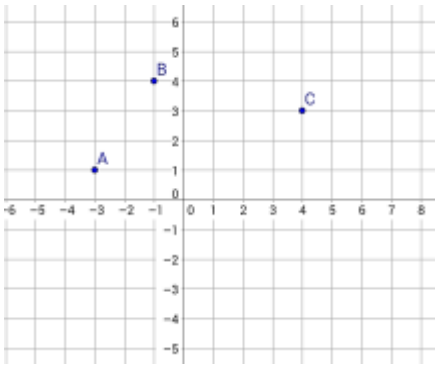


26. Find all missing sides and angles in the triangle.

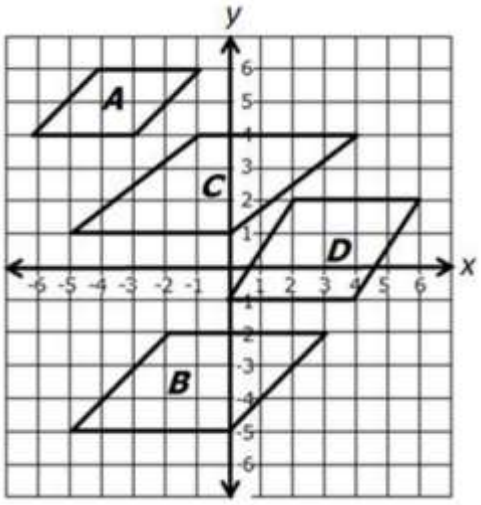


GPE-1: Coordinate Quads and Parallel/Perpendicular Lines

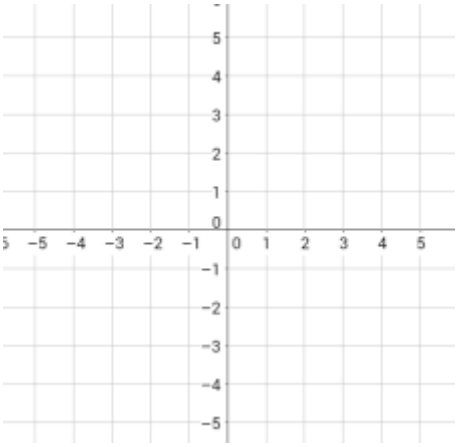
27. ABCD is a parallelogram. Find the coordinates of point D.



28. Which of these is a rhombus? Explain how you know.



29. Quadrilateral $CHAT$ (not shown) has coordinates $C(-5,-1)$ $H(1,3)$ $A(3,0)$ *and* $D(-3,-4)$. What is the most specific name for $CHAT$?
[parallelogram rectangle rhombus square]



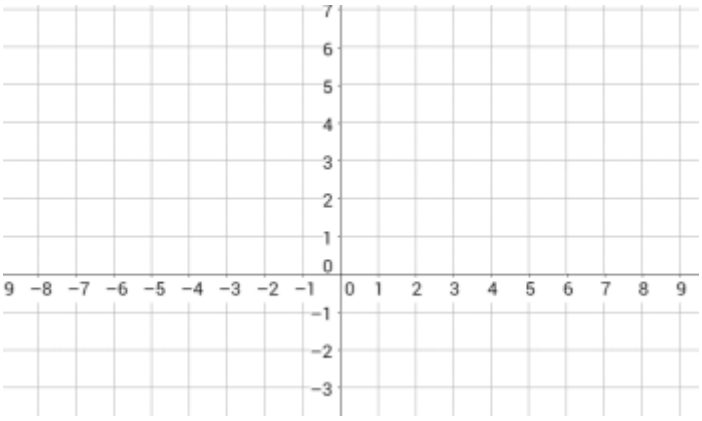
30. Does the point $(2,\sqrt{21})$ lie on a circle centered at the origin (0,0) with radius 5? Show the calculations that lead to your conclusion.

31. Write the equation of the perpendicular bisector of a line segment with endpoints $A(5,1)$ and $B(-3,3)$.

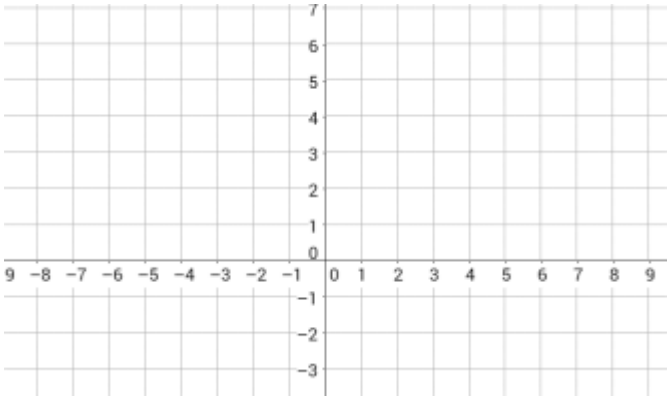
32. Are the following lines parallel, perpendicular, or neither? Justify your answer. $\begin{cases} 2x+3y=9 \\ 6x-4y=12 \end{cases}$

GPE-2: Graphing

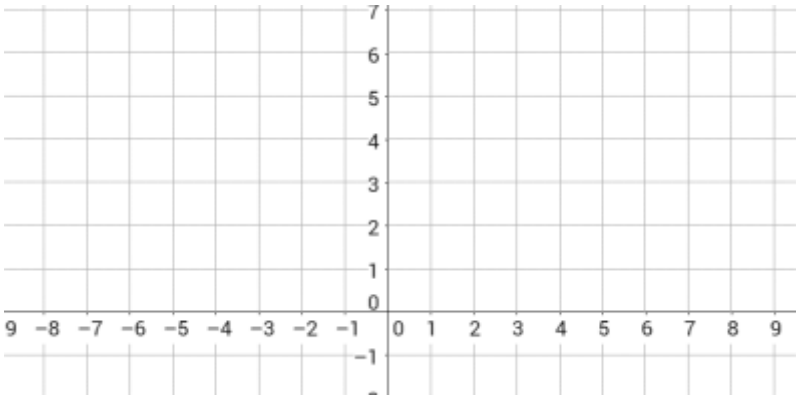
33. Graph the line that passes thru $(1,3)$ and is perpendicular to $y = -\frac{2}{3}x + 1$. Then graph the a line also passing thru $(1,3)$ that is parallel to $y = -\frac{2}{3}x + 1$. Label each clearly.



34. Line t passes through the points $(0,-1)$ and $(2,2)$. Line p passes through $(-1,1)$. Find the coordinates of a another point on line p if $p \parallel t$.



35. Line segment $\overline{PQ}$ has endpoint P$(4,6)$. If M is the midpoint of $\overline{PQ}$ and $M(1,5)$, find the coordinates of Q



36. Find the perimeter and area of ΔABC.