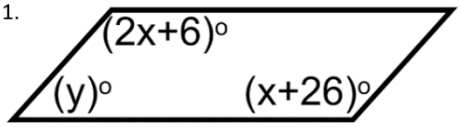
Unit 3 Traingles, Parallelograms, and Constructions EOC Review

Find the value of x and y that would make the following quadrilaterals parallelograms.

1.



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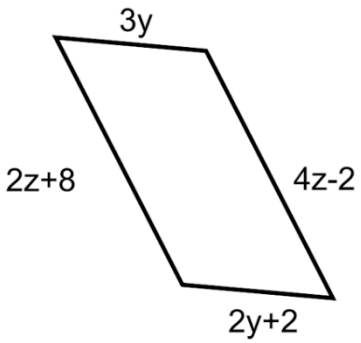

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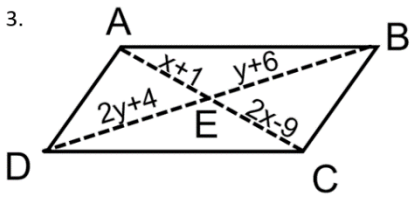
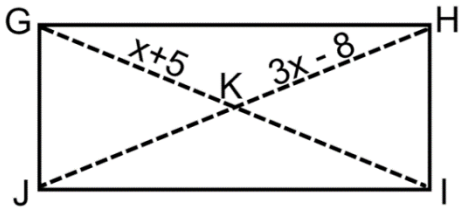
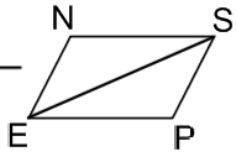


4. $GHIJ$ is a rectangle. Find the value of x.

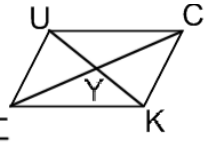


5. Given: PENS is a parallelogram
Prove: $\overline{PE} \cong \overline{NS}$ and $\overline{EN} \cong \overline{SP}$



Statement	Reason

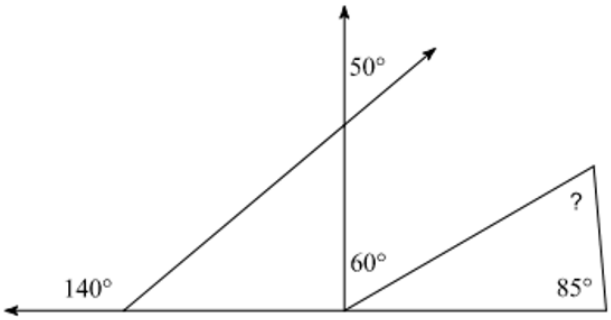
6. Given: LUCK is a parallelogram
Prove: $\overline{LY} \cong \overline{CY}$ and $\overline{UY} \cong \overline{KY}$



Statement	Reason

Find the measure of the missing angle.

7.



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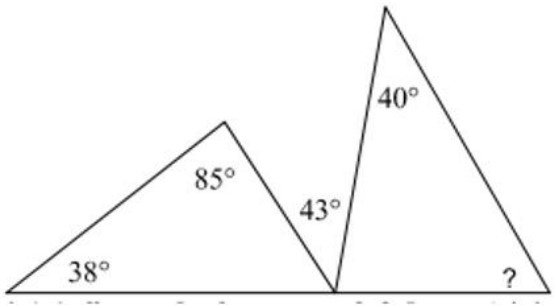
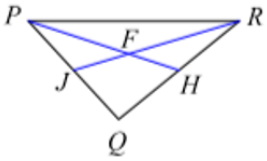
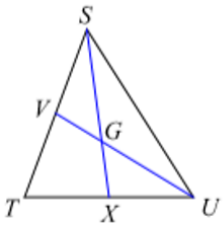


Find the value of x.

9. Find x if $RJ = 5x + 8$ and $FJ = 2x + 1$



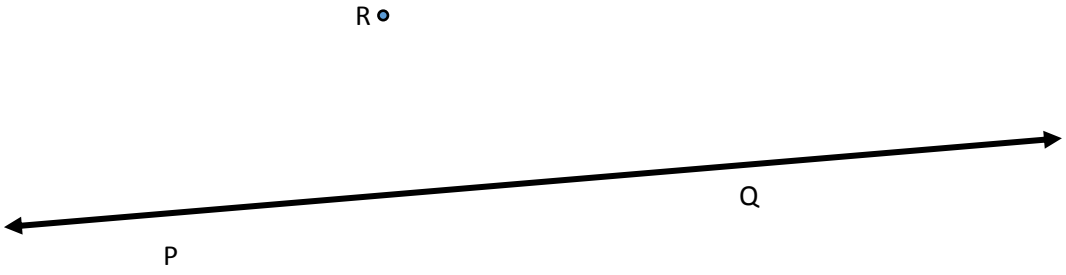
10. Find x if $UG = x + 1$ and $GV = x - 2$



Complete the following constructions.

11.A square inscribed in a circle.

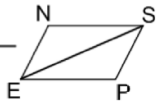
12.A line parallel to the given line through the given point.



13.Why does the above construction make a parallel line?

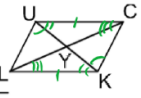
Answers: 1. x=20°, y=134°; 2. y=2, z=5; 3. x=10, y=2; 4. x=6.5; 5. Refer to key ; 6. Refer to key; 7. ? = 65° ; 8. ? = 60°; 9. x=5; 10. x=5; 11. Refer to key; 12. Refer to key; 13. It creates two congruent corresponding angles, so by the converse of corresponding angles postulate then two lines are parallel.

Given: PENS is a parallelogram
Prove: $\overline{PE} \cong \overline{NS}$ and $\overline{EN} \cong \overline{SP}$

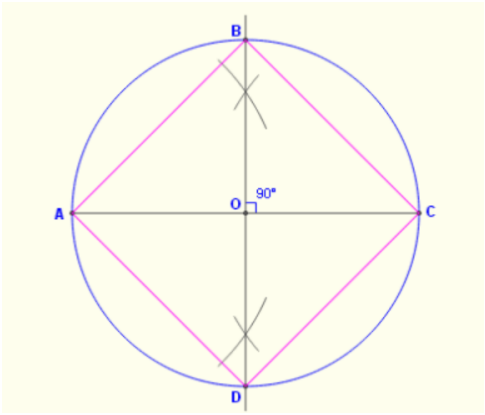


Statement	Reason
PENS is a parallelogram	Given
$\overline{NS} \parallel \overline{PE}$ and $\overline{NE} \parallel \overline{PS}$	Def. of Parallelogram.
$\angle NES \cong \angle PSE$	Alt. Int. ∠'s thm.
$\angle PES \cong \angle NSE$	Alt. Int. ∠'s thm.
$\overline{SE} \cong \overline{ES}$	Reflexive Prop.
$\triangle NES \cong \triangle PSE$	ASA
$\overline{PE} \cong \overline{NS}$ and $\overline{EN} \cong \overline{SP}$	CPCTC

Given: LUCK is a parallelogram
Prove: $\overline{LY} \cong \overline{CY}$ and $\overline{UY} \cong \overline{KY}$



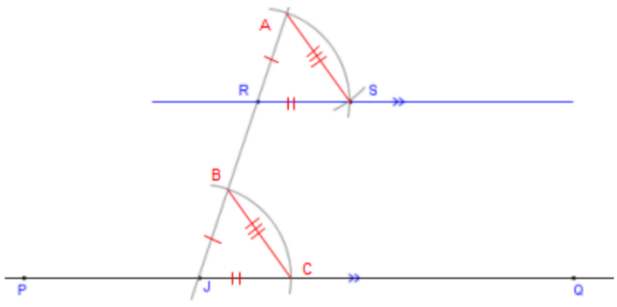
Statement	Reason
LUCK is a Parallelogram	Given
$\overline{UC} \parallel \overline{LK}$ & $\overline{UL} \parallel \overline{KC}$	Def. of Parallelogram.
$\angle CUK \cong \angle LKU$	Alt. Int. ∠'s Thm.
$\angle LUK \cong \angle CKU$	Alt. Int. ∠'s Thm.
$\overline{KU} \cong \overline{UK}$	Reflexive Prop.
$\triangle LUK \cong \triangle CKU$	ASA
$\overline{UC} \cong \overline{KL}$	CPCTC
$\angle UCL \cong \angle KLC$	Alt. Int ∠'s Thm
$\triangle UYC \cong \triangle KYL$	ASA
$\overline{LY} \cong \overline{CY}$ and $\overline{UY} \cong \overline{KY}$	CPCTC



Follow these steps to complete this construction.

1. Start with a point O, and make a circle center O.
2. Mark a point A on the circle. This will become one of the vertices of the square.
3. Draw a diameter line from the point A, through the center and on to cross the circle again, creating point C.
4. Set the compass on A and set the width to a little more than the distance to O.
5. Draw an arc above and below O.
6. Move the compass to C and repeat.
7. Draw a line through where the arc pairs cross, making it long enough to touch the circle at top and bottom, creating the new points B and D.

   This is a diameter at right angles to the first one AC.
8. Draw a line between each successive pairs of points A, B, C, D
9. Done. ABCD is a square inscribed in the given circle.



Follow these steps to complete the construction.

1. Draw a transverse line through R and across the line PQ at an angle, forming the point J where it intersects the line PQ. The exact angle is not important.
2. With the compasses' width set to about half the distance between R and J, place the point on J, and draw an arc across both lines.
3. Without adjusting the compasses' width, move the compasses to R and draw a similar arc to the one in step 2.
4. Set compasses' width to the distance where the lower arc crosses the two lines.
5. Move the compasses to where the upper arc crosses the transverse line and draw an arc across the upper arc, forming point S.
6. Draw a straight line through points R and S.
7. Done. The line RS is parallel to the line PQ