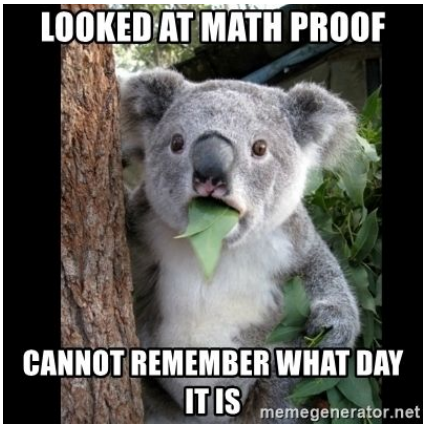
Name _____

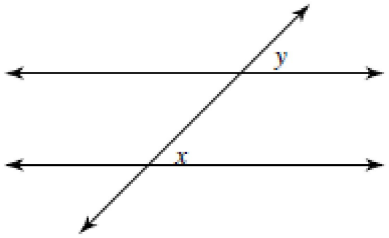
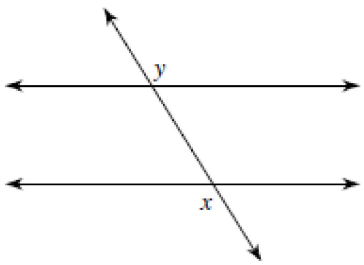
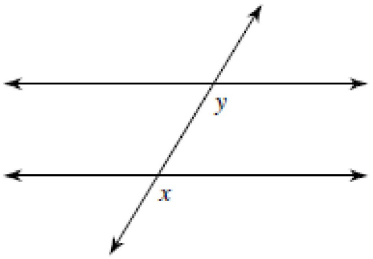
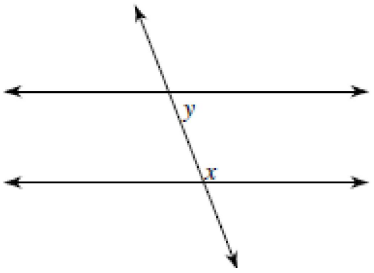
Math 3 Honors Unit 5: Reasoning With Geometry



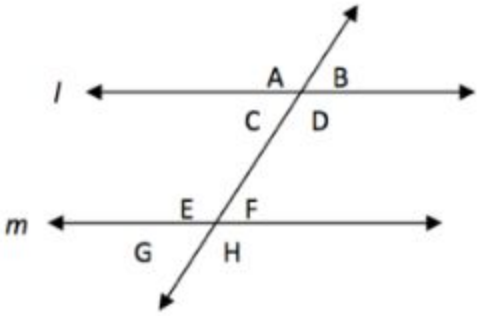
Monday	Tuesday	Wednesday	Thursday	Friday
March 18 ● Intro to geometric properties HW: worksheet 5.1	**March 19** ● Triangle Centers HW: worksheet 5.2	**March 20** ● Triangle Proofs HW: worksheet 5.3	**March 21** ● Parallelogram properties and proofs HW: worksheet 5.4	**March 22** ● Quadrilateral proofs HW: worksheet 5.5
March 25 ● Quadrilateral proofs HW: worksheet 5.6	**March 26** ● Review for test HW: finish review	**March 27** ● TEST!!		

5.1 - Intro to Geometric Properties

Directions: Name each of the following types of angles. Then, state whether they are congruent or supplementary.

1) 	Name: Congruent or Supplementary	2) 	Name: Congruent or Supplementary
3) 	Name: Congruent or Supplementary	4) 	Name: Congruent or Supplementary

Directions: Find the value of x in each question given that lines *l* and *m* are parallel. Check your answers by finding the measure of each angle.



5. $m\angle C = 3x - 10$
   $m\angle F = x + 70$

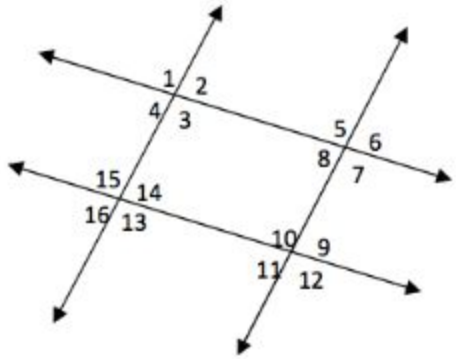
6. $m\angle D = x + 27$
   $m\angle F = 2x - 39$

7. $m\angle B = 2(x + 40)$
   $m\angle G = 5x + 44$

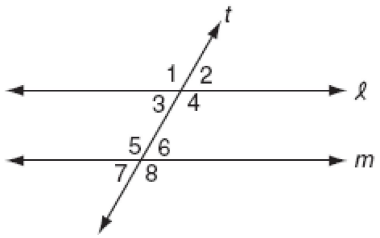
5. x =	6. x =	7. x =
m∠C =	m∠D =	m∠B =
m∠F =	m∠F =	m∠ G =

Directions: Solve for the following. Show all work in the space provided.

8. Given that $m\angle 4 = 3x + 10$ and $m\angle 12 = 2x + 30$, find the value of x, $m\angle 4$, and $m\angle 10$.

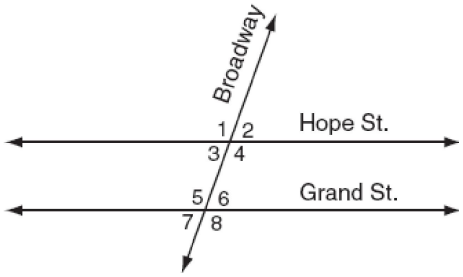


9. In the accompanying diagram, line ℓ is parallel to line *m*, and line *t* is a transversal. Which must be a true statement?



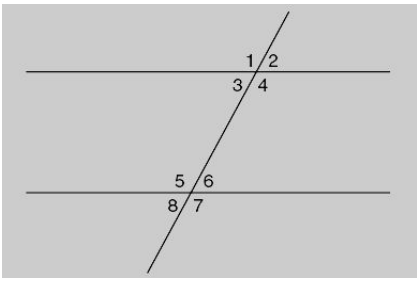
A $m\angle 1 + m\angle 4 = 180$ B $m\angle 3 + m\angle 6 = 1$
C $m\angle 1 + m\angle 8 = 180$ D $m\angle 2 + m\angle 5 = 180$

10. The accompanying diagram shows two parallel roads, Hope Street and Grand Street, crossed by a transversal road, Broadway. If $m\angle 1 = 110$, what is the measure of $m\angle 7$?



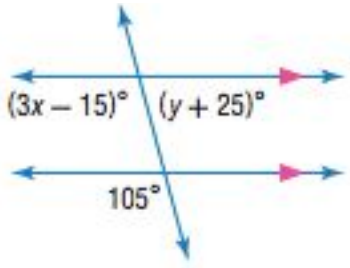
A 40° B 110°
C 70° D 180°

11. In the accompanying figure, what is one pair of alternate interior angles?



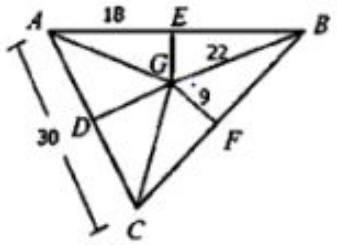
A $\angle 1$ and $\angle 2$ B $\angle 4$ and $\angle 6$
C $\angle 4$ and $\angle 5$ D $\angle 6$ and $\angle 8$

12. Find the value of x and y.



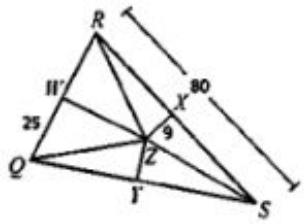
5.2 - Triangle Centers

1. If G is the circumcenter of ΔABC, find each missing measure.



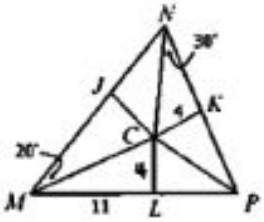
a) AD = _____
b) FC = _____
c) EB = _____
d) AG = _____
e) EG = _____

2. If Z is the circumcenter of ΔQRS, find each missing measure.



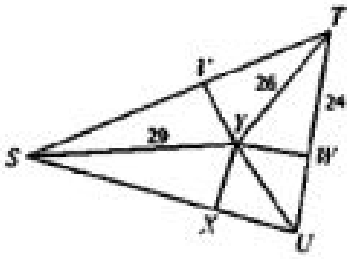
a) QR = _____
b) RZ = _____
c) XS = _____
d) ZS = _____
e) WZ = _____

3. If C is the incenter of ΔMNP, find each missing measure.



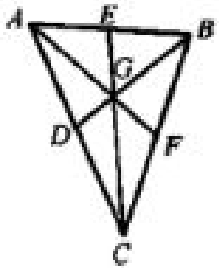
a) m∠CML = _____
b) m∠MNP = _____
c) m∠NPC = _____
d) JC = _____
e) MC = _____

4. If Y is the incenter of ΔSTU, find each missing measure.



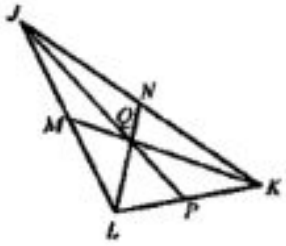
a) VT = _____
b) YW = _____
c) SX = _____
d) YX = _____
e) SV = _____

5. If G is the centroid of ΔACE, AG = 26, BC = 44, and DG = 12, find each missing measure.



a) GF = _____
b) AF = _____
c) PC = _____
d) GB = _____
e) DB = _____

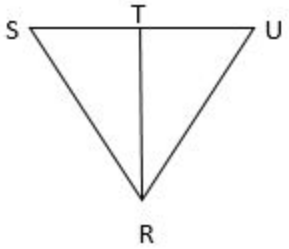
6. If Q is the centroid of ΔJKL, LN = 72, JP=93, and MK = 78, find each missing measure.



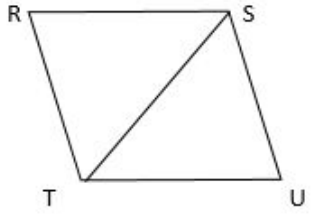
a) LQ = _____
b) QN = _____
c) QP = _____
d) JQ = _____
e) Qk = _____

5.3 - Triangle Proofs

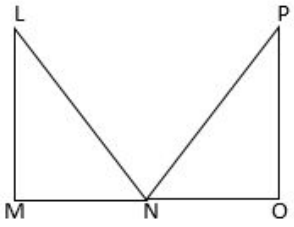
1. Given: $RS \cong RU,\ TS \cong TU,$
$\angle S \cong \angle U,\ \angle SRT \cong \angle URT$
Prove: $\Delta RST \cong \Delta RUT$



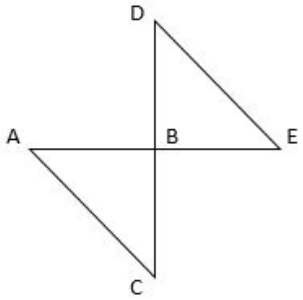
2. Given: $RS \cong UT,\ RT \cong SU$
Prove: $\Delta RST \cong \Delta UTS$



3. Given: $LM \cong PO,\ \angle L \cong \angle P, \angle M$ & $\angle O$ *are* $90°$
Prove: $\Delta LMN \cong \Delta PON$

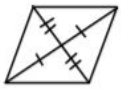


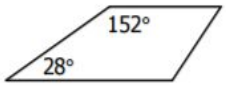
4. Given: $DC \mid AE,\ DE \cong AC,$
B *is the midpoint of* AE
Prove: $\Delta BDE \cong \Delta BCA$

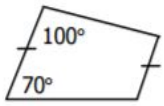


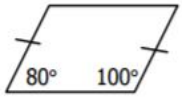
5.4 - Parallelogram Properties and Proofs

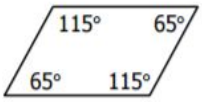
Determine if each quadrilateral is a parallelogram. Explain why or why it does not work.

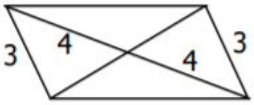
1) 

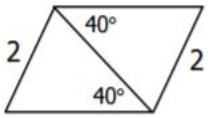
2) 

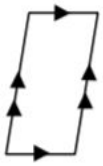
3) 

4) 

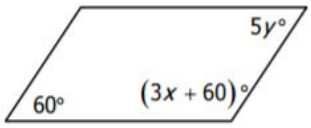
5) 

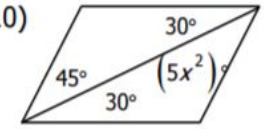
6) 

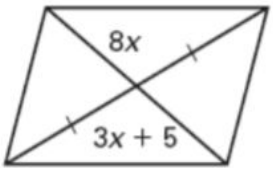
7) 

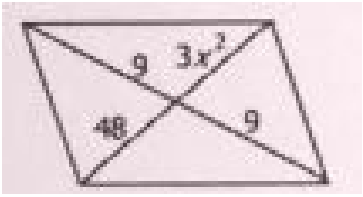
8) 

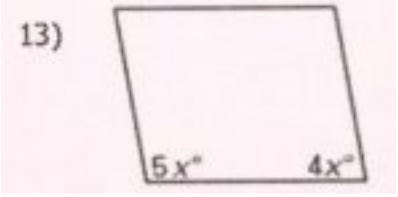
Find the value of x and y that ensure each quadrilateral is a parallelogram.

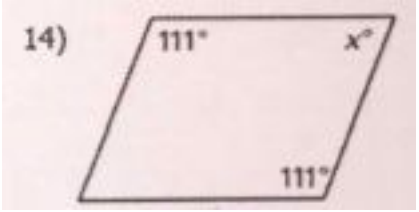
9) 

10) 

11) 

12) 

13) 

14) 

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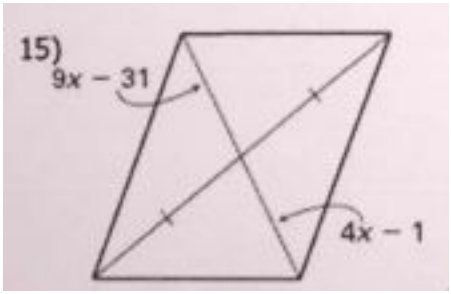

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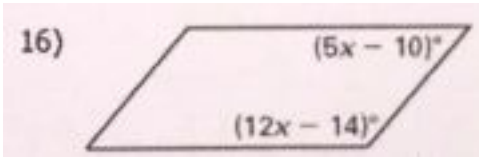

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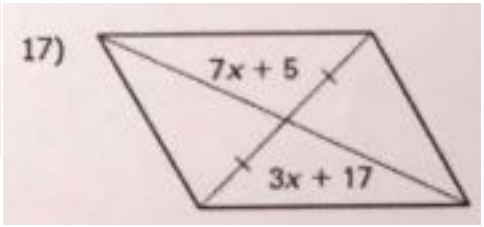

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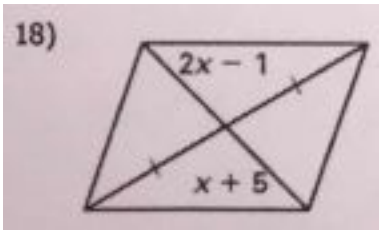

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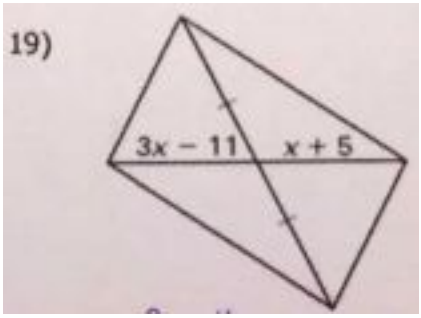

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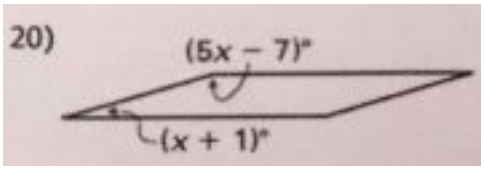
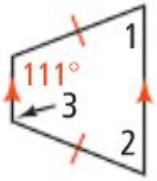


5.5 - Quadrilateral Proofs

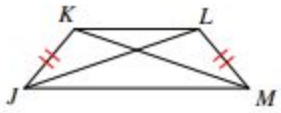
1. Find m∠1, m∠2, m∠3.



2. Find m∠1, m∠2, m∠3.

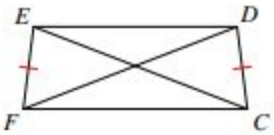
3. Find JL.

$KM = 22$
Find JL

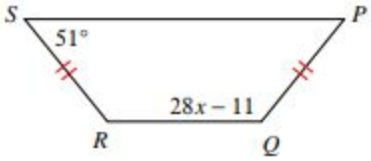


4. Solve for x.

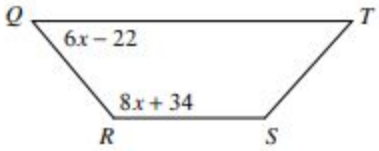
$EC = 20$
$FD = 5x - 10$



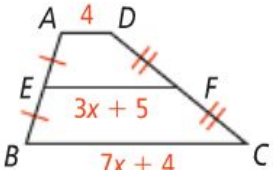
5. Solve for x.



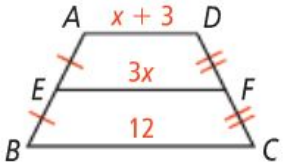
6. Find m∠R.



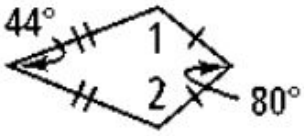
7. Find x and length of EF.



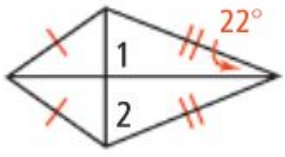
8. Find x and length of EF.



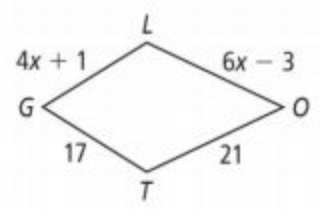
9. Find m∠1, m∠2.



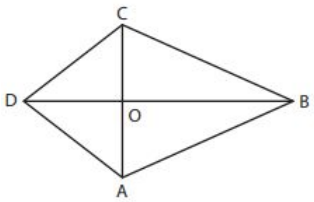
10. Find m∠1, m∠2.



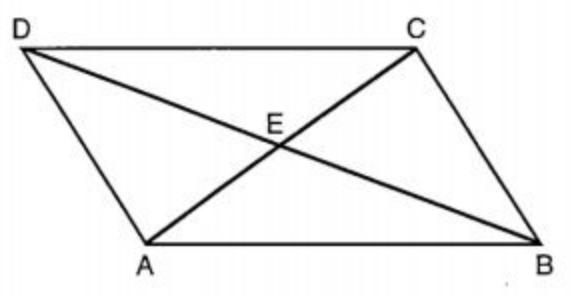
11. Solve for x.



12. CO = 8, OD = 6. Find CD.

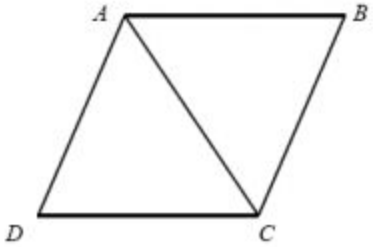


13. Given: ABCD is a parallelogram
Prove: △AEB ≅ △CED



Statement:	**Reason:**
1. Parallelogram ABCD	1. Given
2. $\overline{AB}$ ≅ _____	2.
3. $\overline{AB}$ || _____	3.
4. ∠CAB ≅ _____	4. Alternate Interior Angles
5. ∠AEB ≅ ∠CED	5.
6. △AEB ≅ △CED	6.

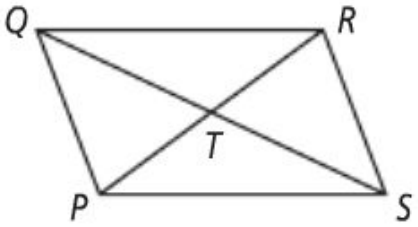
14. Given: ABCD is a parallelogram
Prove: △DAC ≅ △BCA



Statement:	Reason:
1. Parallelogram ABCD	1. Given
2. ∠D ≅ _____	2.
3. ∠BAC ≅ _____	3.
4.	4. Reflexive Property
5. △DAC ≅ △BCA	5.

5.6 - More Quadrilateral Proofs

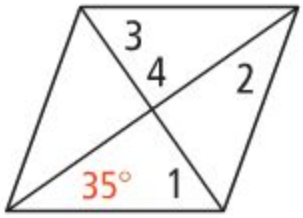
1. Use the diagram below to solve for x and y if the figure is a parallelogram.



   a. $PT = 2x$, $QT = y + 12$, $TR = x + 2$, $TS = 7y$

   b. $PT = y$, $TR = 4y - 15$, $QT = x + 6$, $TS = 4x - 6$

2. Find the measure of each angle if the figure is a rhombus.



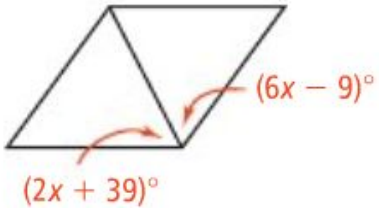
   a. Find the m∠1.

   b. Find the m∠2.

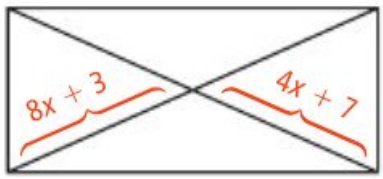
   c. Find the m∠3.

   d. Find the m∠4.

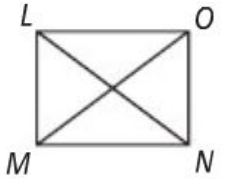
3. Solve for x if the figure is a rhombus.



4. Solve for x if the figure is a rectangle.

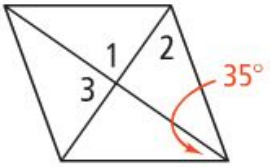


5. What is the length of LN if the figure is a rectangle?



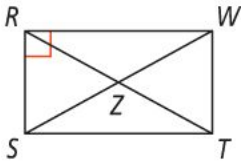
$LN = 4x - 7$
$MO = 2x + 13$

6. Solve for the missing angle measures if the figure is a rhombus.

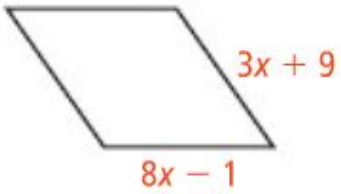


7. What is the length of SW?

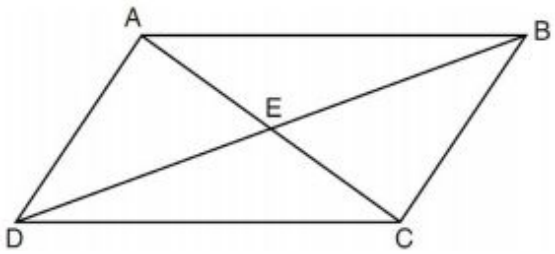
$RZ = 2x + 5,$
$SW = 5x - 20$



8. Solve for x in the figure if it is a rhombus.



9. Given: $\measuredangle ABE \cong \measuredangle CDE$
$AB \cong CD$
Prove: $AD \cong CB$



10. Given: ABCD is a rectangle, M is the midpoint of $\overline{AB}$
Prove: $\overline{DM} \cong \overline{CM}$