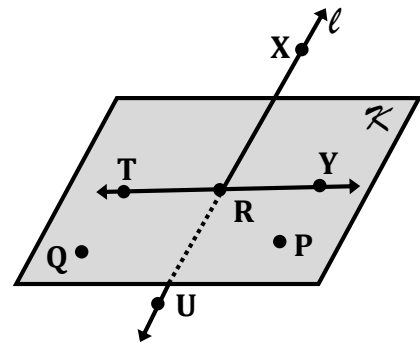


GEOMETRY FALL SEMESTER REVIEW

PART 1: GEOMETRY BASICS

Using the figure below, name each of the following.

1. _____	What is another name for plane \mathcal{K} ?
2. _____	Name a ray opposite \overrightarrow{RY} .
3. _____	Name a segment on line ℓ .
4. _____	The intersection of \mathcal{K} and \overleftrightarrow{XU} .



Find the indicated value.

5. $x =$ _____	If A is between X and Y, and $XA = 3x$, $AY = 2x + 5$, and $XY = 60$, find the value of 'x'. (Draw a picture...it helps!)
6. $EF =$ _____	Find the distance between the points $E(-3, -4)$ and $F(5, 4)$. Simplify the radical if necessary.
7. $AB =$ _____	Find the distance between the points $A(-3, 5)$ and $B(0, 1)$. Simplify the radical if necessary.
8. $FG =$ _____	F is the midpoint of \overline{EG} . If $EF = 2x + 3$ and $EG = 6x - 3$, find FG.

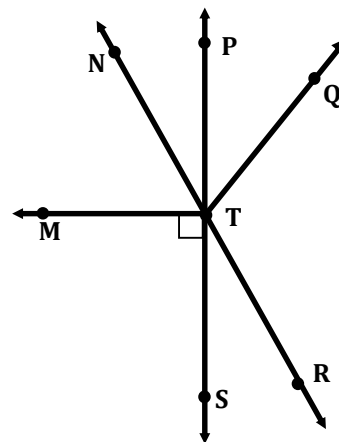
Find the midpoint of the segment with the given endpoints.

9. $M =$ _____	$(-7, 7)$ and $(-9, 8)$
10. $M =$ _____	$(-3, 6)$ and $(2, -8)$

PART 2: ANGLE BASICS

Use the figure to the right to answer questions 11-14.

11. _____	Name a straight angle.
12. _____	Which angle is vertical to $\angle STR$?
13. _____	What term describes $\angle STM$?
14. _____	If $m\angle STR = 25^\circ$, find $m\angle MTN$.



15. _____	Which angles are adjacent and form a linear pair?	
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Find the indicated measures.

16. $m\angle A =$ _____ $m\angle B =$ _____	Find the measures of two complementary angles, $\angle A$ & $\angle B$, if $m\angle A = (7x + 4)^\circ$ and $m\angle B = (4x + 9)^\circ$.
17. $m\angle T =$ _____ $m\angle U =$ _____	Suppose $\angle T$ and $\angle U$ are supplementary. Find $m\angle T$ and $m\angle U$, if $m\angle T = (16x - 9)^\circ$ and $m\angle U = (4x + 9)^\circ$.

PART 3: REASONING

18. What are the next two items in the pattern?

3, -6, 9, ...

19. Write a counterexample that shows the following conjecture is false: "If $\angle 1$ and $\angle 2$ are supplementary, then one of the angles is obtuse."

20. Write the inverse of the conditional statement, "If a number is divisible by 6, then it is divisible by 3."

21. Write the converse of the conditional statement, "If a number is divisible by 6, then it is divisible by 3."

22. Write a biconditional statement of the conditional statement, "If $x^3 = -1$, then $x = -1$."

23. Which properties are used when solving $15 = 2x - 1$?

24. Identify the property that justifies the statement, "If $\angle B \cong \angle A$, then $\angle A \cong \angle B$."

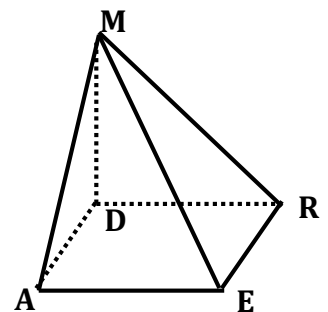
Use the square pyramid to the right to answer questions 25 and 26.

25. _____

Name a segment that is parallel to \overline{AE} .

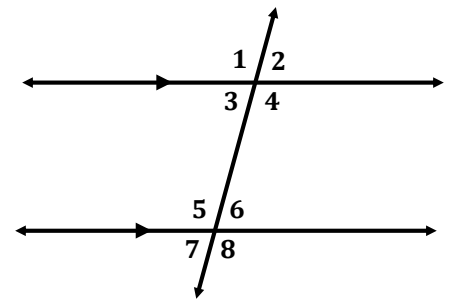
26. _____

Name a segment that is perpendicular to \overline{AD} .



PART 4: PARALLEL LINES AND TRANSVERSALS

27. _____	Name a pair of Alternate Interior Angles.
28. _____	Name a pair of Alternate Exterior Angles.
29. _____	Complete the sentence. If two parallel lines are cut by a transversal, then the two pairs of same-side interior angles are _____.
30. _____	If a transversal is perpendicular to one of two parallel lines, how many different angle measures are formed?



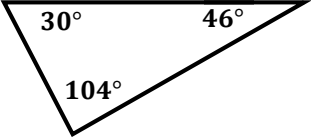
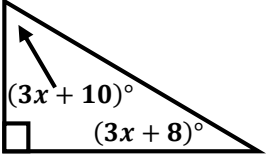
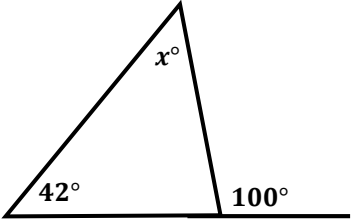
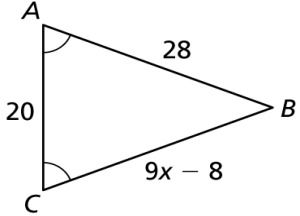
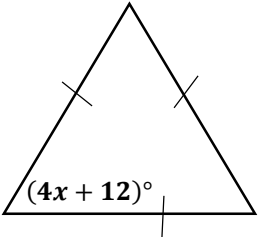
Find the value of 'x' in each of the following.

31. $x =$ _____	
32. $x =$ _____	

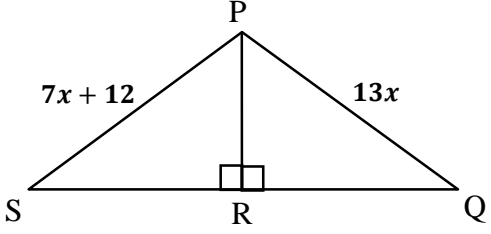
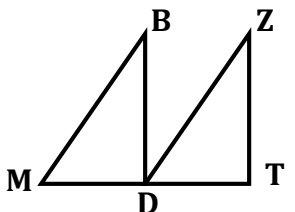
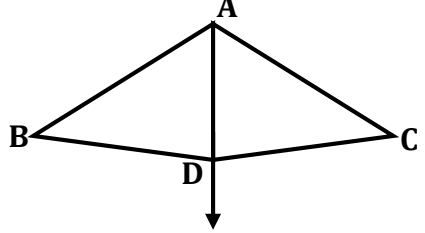
PART 5: SLOPE

33. $m =$ _____	What is the slope of the line through $(-1, 4)$ and $(5, 2)$?
34. $m =$ _____	What is the slope of the line parallel to $y = \frac{1}{2}x + 5$?
35. $m =$ _____	What is the slope of the line perpendicular to $y = 3x + 9$?

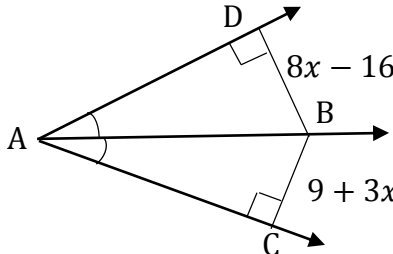
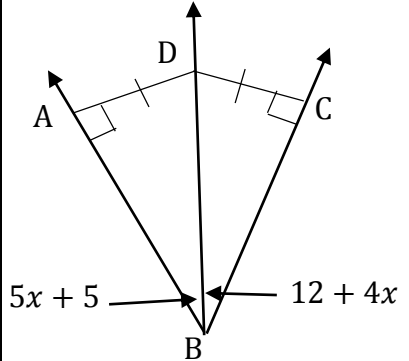
PART 6: ANGLES OF POLYGONS

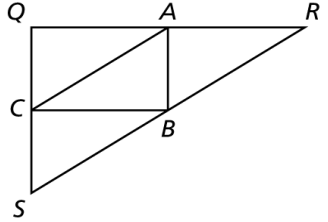
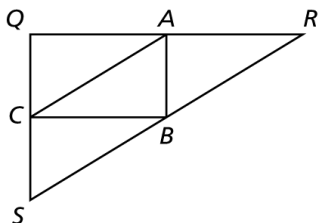
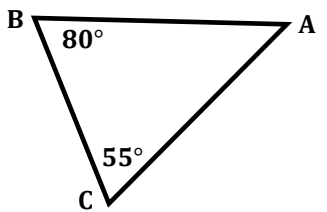
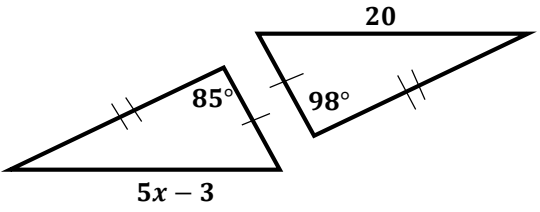
<p>36. _____</p>	<p>Classify the triangle.</p>	
<p>37. $x =$ _____</p>	<p>Find the value of 'x'.</p>	
<p>38. $x =$ _____</p>	<p>Find the value of 'x'.</p>	
<p>39. $x =$ _____</p>	<p>Find the value of 'x'.</p>	
<p>40. $x =$ _____</p>	<p>Find the value of 'x'.</p>	

PART 7: TRIANGLE CONGRUENCE

<p>41. $x =$ _____</p>	<p>$\triangle KLM \cong \triangle RST$, $m\angle L = (3x + 15)^\circ$ and $m\angle S = (6x + 3)^\circ$. What is the value of 'x'?</p>
<p>42. $x =$ _____</p>	<p>What must the value of 'x' be in order to prove $\triangle SRP \cong \triangle QRP$ by HL?</p> 
<p>43. _____</p>	<p>D is the midpoint of \overline{MT}, $\angle MDB$ and $\angle T$ are right angles. What additional information do you need in order to prove $\triangle MDB \cong \triangle DTZ$ by SAS?</p> 
<p>44. _____</p>	<p>\overline{AD} is the angle bisector of $\angle BAC$. What additional information do you need in order to prove $\triangle BDA \cong \triangle CDA$ by ASA?</p> 

PART 8: RELATIONSHIPS WITHIN TRIANGLES

<p>45. $BC =$ _____</p>	
<p>46. $x =$ _____ $m\angle ABC =$ _____</p>	

<p>47. $x =$ _____</p>	<p>$CA = 15x - 9$ and $SR = 12x$ Find the value of x.</p>	
<p>48. $m\angle QRS =$ _____</p>	<p>$m\angle QAC = 46^\circ$ Find the $m\angle QRS$.</p>	
<p>49. _____</p>	<p>Write an inequality representing the sides of the triangle in order from shortest to longest.</p>	
<p>50. _____</p>	<p>Write and solve an inequality for the possible values of x.</p>	

Mixed-up Answers

46°	$BC < BA < CA$	7
4	11	$\frac{3}{5} < x < \frac{23}{5}$
$8\sqrt{2}$	Supplementary	12
1	Right angle	5
TQR (or any 3 non-collinear points in \mathcal{R})	135°	65°
R	\overrightarrow{RT}	$\frac{1}{2}$
If a number is not divisible by 6, then it is not divisible by 3.	58	$\angle NTP$
\overline{XR} or \overline{RU} or \overline{XU}	55	4
$\overline{BD} \cong \overline{ZT}$	$x^3 = -1 \text{ iff } x = -1$	37°
69	$\left(-8, \frac{15}{2}\right)$	Obtuse
1	Symmetric Property	80°
-12, 15	53°	Addition Property
$\angle 1$ & $\angle 8$ or $\angle 2$ & $\angle 7$	\overline{DR}	2
$\frac{-1}{3}$	45°	$\frac{-1}{3}$
Division property	If a number is divisible by 3, then it is divisible by 6.	$\angle 3$ & $\angle 6$ or $\angle 4$ & $\angle 5$
$\angle NTR$ or $\angle PTS$	12	$\left(\frac{-1}{2}, -1\right)$
\overline{AE} or \overline{DR}	$\angle ABD$ & $\angle DBC$	24
12	$m\angle 1$ & $m\angle 2 = 90^\circ$	$\angle BDA \cong \angle CDA$