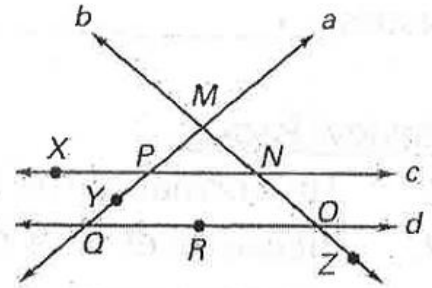


Unit 1 Practice Problems:

1. Use the diagram to for the following questions:
 - a. Name all points that are collinear to points P and Q.
 - b. Name a line.
 - c. Name a ray.
 - d. Name a line segment.



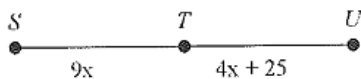
2. Use the diagram to find the length of \overline{OQ} where $MQ = 30$, $MN = 5$, $MN=NO$, and $OP=PQ$.



3. If $EF=2x-12$, $FG=3x-15$, and $EG=23$, find the values of x , EF and FG . The drawing is not to scale.



4. If T is the midpoint of \overline{SU} , find the values of x and SU .

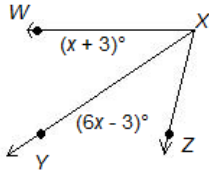


5. The endpoints of two segments are given. Find each segment length. Tell whether the segments are congruent. \overline{EF} : E(1,4), F(5,1) and \overline{GH} : G(-3,1), H(1,6)

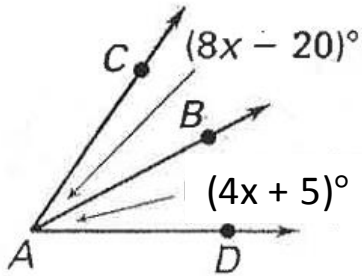
6. Find the midpoint of a segment with endpoints A(-8 , 5) and B(-2 , 7).

7. In segment \overline{AB} , M is the midpoint. Given A(2, 3) and M(5, 7), find the coordinates of the endpoint B.

8. Given $m\angle WXZ = 84^\circ$, find $m\angle YXZ$.

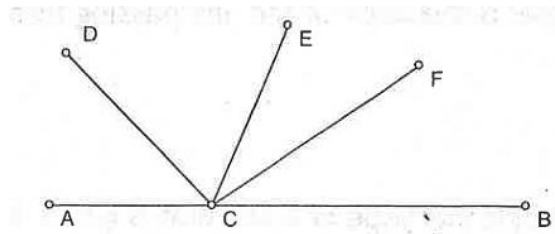


9. \overline{AB} bisects $\angle CAD$. Find the value of x.



10. In the figure below, \overline{CE} bisects $\angle DCB$ and \overline{CF} bisects $\angle ECB$. If $m\angle ECF = 4x + 7$ and $m\angle FCB = 7x - 20$,

a. Solve for x.



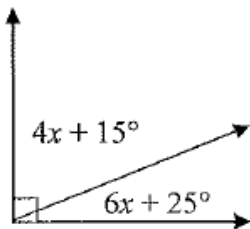
b. Determine the measure of $\angle DCE$.

c. Determine the measure of $\angle DCA$.

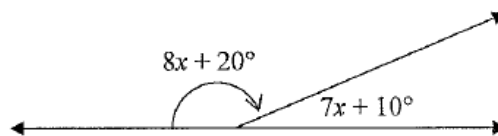
11. $\angle 1$ and $\angle 2$ are complementary. If $m\angle 1 = 27^\circ$, what is $m\angle 2$?

12. $\angle 3$ and $\angle 4$ are supplementary. If $m\angle 4 = 78^\circ$, what is $m\angle 3$?

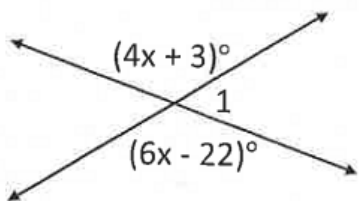
13. Solve for x.



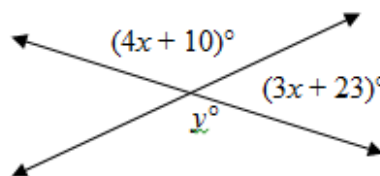
14. Solve for x.



15. Use the diagram. Find the value of x and $m\angle 1$.

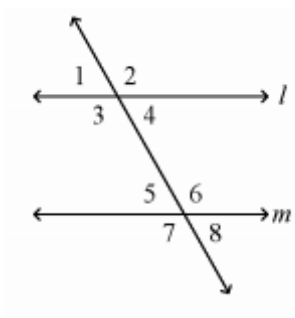


16. Please solve for x and y.



Unit 2: Practice Problems

17. Find the value of the variable if $m \parallel l$, $m\angle 1 = 2x + 44$ and $m\angle 5 = 5x + 38$. The diagram is not to scale. Justify your work with a theorem or postulate.



18. If $m\angle 3 = 135^\circ$, then $m\angle 7 =$ _____

Name the angle pair! _____

19. If $m\angle 6 = 60^\circ$ and $m\angle 8 = 5x^\circ$, then $x =$ _____

Name the angle pair! _____

20. If $m\angle 2 = 78^\circ$, then $m\angle 8 =$ _____

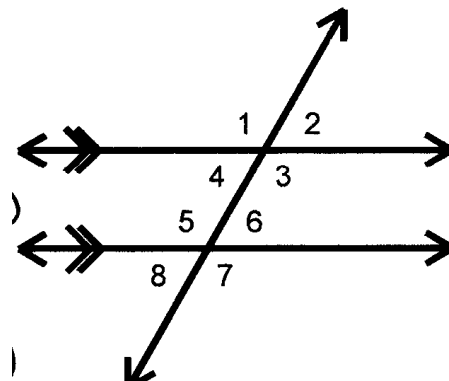
Name the angle pair! _____

21. If $m\angle 4 = 4x+7$ and $m\angle 5 = 5x + 11$, then $x =$ _____

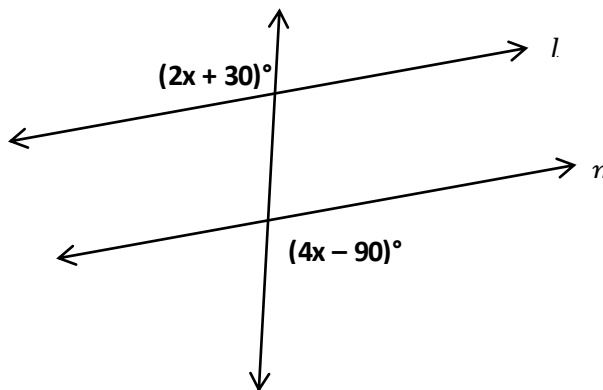
Name the angle pair! _____

22. If $m\angle 3 = 7x+8$ and $m\angle 5 = 8x-6$, then $x =$ _____

Name the angle pair! _____



23. Which value of x will make lines l and m parallel?



24. What is the slope of the line passing through the points $(-8, 1)$ and $(-5, -8)$?

25. Decide whether the lines with the given equations are perpendicular, parallel, or neither.

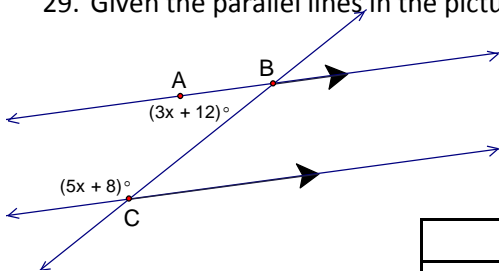
$$y = \frac{1}{2}x + 3 \quad \text{and} \quad y = \frac{1}{2}x - 3$$

26. Determine whether \overline{WX} and \overline{YZ} are parallel, perpendicular, or neither given the following points:
 $W(-2, -1)$, $X(4, 1)$, $Y(-2, 1)$ and $Z(-5, 2)$.

27. Find the equation of a line which contains the point (2 , 5) and is parallel to the line $y = 3x + 5$.

28. Find the equation of a line which contains the point (4 , -5) and is perpendicular to the line $y = 2x+3$.

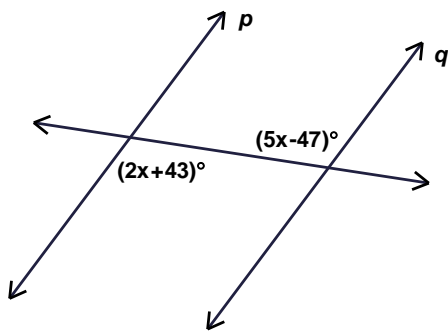
29. Given the parallel lines in the picture, please prove that the $m\angle ABC = 72^\circ$.



Statements	Reasons
1. Diagram w/values	1.
2. $(3x + 12) + (5x + 8) = 180$	2.
3.	3.
4.	4.
5.	5.
6. $m\angle ABC = 3(20) + 12$	6.
7. $m\angle ABC =$	7.

30. Given that $p \parallel q$, please solve for x.

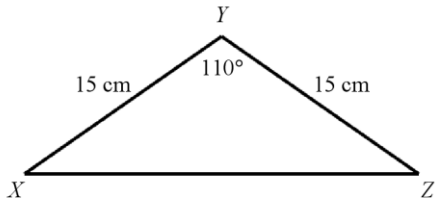
Justify **every** step using the same “proof” strategy.



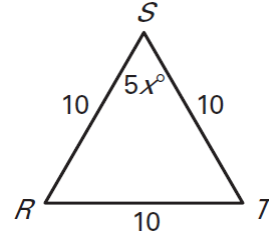
Statements	Reasons
1. Diagram w/values	1.
2.	2.
3.	3.
4.	4.
5.	5.

Unit 3: Practice Problems

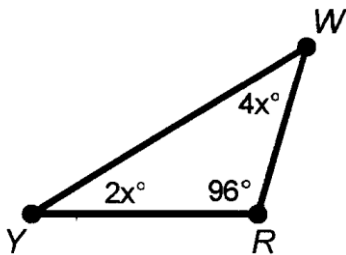
31. Classify $\triangle XYZ$ according to its angle measures and side lengths.



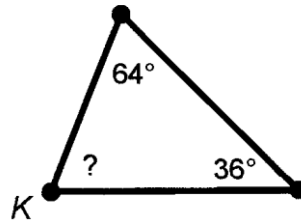
32. Classify $\triangle RST$ according to its side lengths and find value of x .



33. Find the measure of $\angle YWR$.

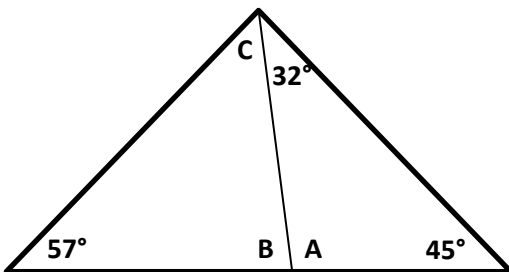


34. Find the measure of $\angle K$.



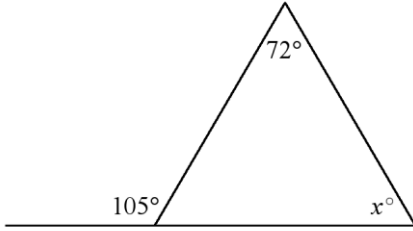
35. The three angles of a triangle are $(x + 30)^\circ$, $(4x + 30)^\circ$ and $(10x - 30)^\circ$. Classify the triangle by its angle measures.

36. Find the measures of angles A, B, and C.

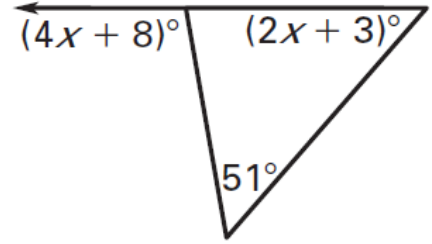


For examples #42-43, find the value of x . The diagrams are not drawn to scale.

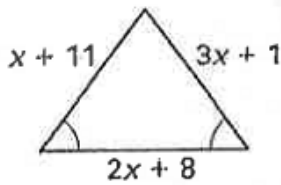
37.



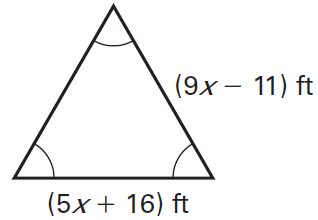
38.



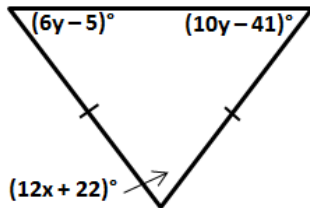
39. Please find the value of x and all of the side lengths.



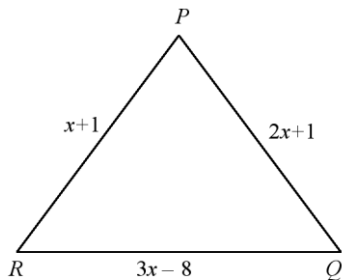
40. Please find the value of x and classify by the side lengths.



41. Find the value of x and y , then classify the triangle by its angles.



42. Find the value of x and the perimeter of $\triangle PQR$ if $\triangle PQR$ is an isosceles triangle where $\overline{PQ} \cong \overline{QR}$, $PR = x + 1$, $PQ = 2x + 1$, and $RQ = 3x - 8$.



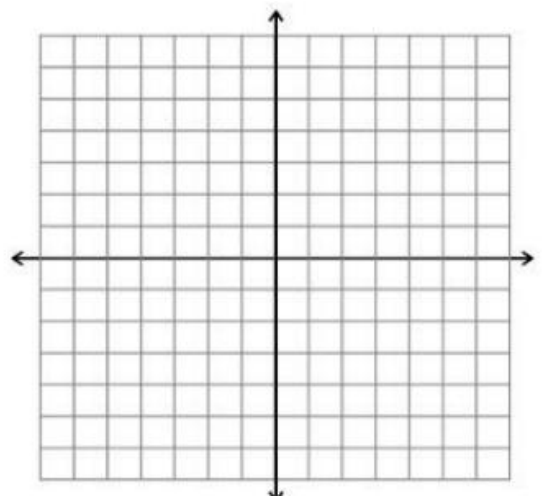
For questions #43-46, use $\triangle ABC$ with coordinates $A(1, 7)$, $B(5, 2)$ and $C(0, -2)$.

43. Draw the triangle in the coordinate plane.

44. Find the slopes of each side.

45. Find the length of each side.

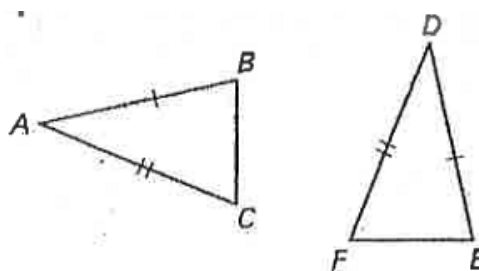
46. Prove that $\triangle ABC$ is an isosceles right triangle.



47. Use the diagram. Which additional congruence is needed to prove $\triangle ABC \cong \triangle DEF$?

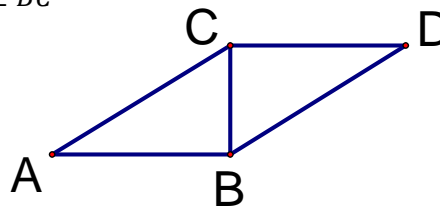
a.) By SSS

b.) By SAS



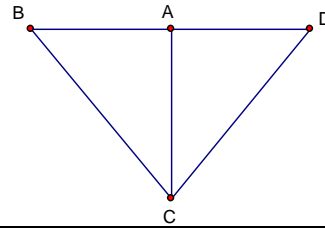
48. Given : $\overline{AC} \cong \overline{DB}$, $\overline{AB} \perp \overline{CB}$, $\overline{DC} \perp \overline{BC}$

Prove : $\angle CAB \cong \angle BDC$



Statements	Reasons
1. $\overline{AC} \cong \overline{DB}$, $\overline{AB} \perp \overline{CB}$, $\overline{DC} \perp \overline{BC}$	1. Given
2. $\angle CBA$ and $\angle BCD$ are right angles	2.
3. $\triangle CBA$ and $\triangle BCD$ are right triangles	3.
4.	4.
5.	5.
6. $\angle CAB \cong \angle BDC$	6.

49. Given : A is the midpoint of \overline{BD} , $\overline{BC} \cong \overline{DC}$
Prove : $\triangle ABC \cong \triangle ADC$



Statements	Reasons
1. A is the midpoint of \overline{BD} , $\overline{BC} \cong \overline{DC}$	1.
2.	2. Reflexive Property
3.	3.
4. $\triangle ABC \cong \triangle ADC$	4.

Unit 4 Review: See Unit 4 Test Review Packet

ANSWER KEY

Unit 1 Review:

1. (a) Y, M (b) Line $a, \overleftrightarrow{XN}, \overleftrightarrow{NM}, \overleftrightarrow{RO}, \overleftrightarrow{PQ}$, etc. (c) $\overleftrightarrow{MP}, \overleftrightarrow{RQ}, \overleftrightarrow{NM}, \overleftrightarrow{XN}$, etc. (d) $\overleftrightarrow{PN}, \overleftrightarrow{QR}, \overleftrightarrow{PX}$, etc.
 2. $OQ = 20$ 3. $x = 10, EF = 8, FG = 15$ 4. $x = 5, SU = 90$ 5. $EF = 5, GH = 6.4$, No
 6. $(-5, 6)$ 7. $(8, 11)$ 8. 69° 9. $x = \frac{25}{4}$
 10. (a) $x = 9$ (b) 86° (c) 8° 11. 63° 12. 102°
 13. $x = 5$ 14. $x = 10$ 15. $x = 12.5, m\angle 1 = 127^\circ$ 16. $x = 21, y = 94$

Unit 2 Review:

17. $x = 2$, Corresponding angles converse 18. 135° , Corresponding 19. $x = 12$, Vertical
 20. 78° , Alt Exterior 21. $x=18$, Consecutive Interior 22. $x = 14$, Alt Interior
 23. $x = 60$, Alt Exterior Angles Converse 24. $m = -3$ 25. Parallel, same slope
 26. Neither 27. $y = 3x - 1$ 28. $y = -\frac{1}{2}x - 3$
 29.

Statements	Reasons
1. Diagram w/values	1. GIVEN
2. $(3x + 12) + (5x + 8) = 180$	2. CONSECUTIVE INTERIOR ANGLES THM
3. $8x + 20 = 180$	3. COMBINE LIKE TERMS
4. $8x = 160$	4. SUBTRACTION PROPERTY
5. $x = 20$	5. DIVISION PROPERTY
6. $m\angle ABC = 3(20) + 12$	6. SUBSTITUTION
7. $m\angle ABC = 72^\circ$	7. SIMPLIFICATION/COMBINE LIKE TERMS

30.

Statements	Reasons
1. Diagram w/values	1. GIVEN
2. $2x + 43 = 5x - 47$	2. ALTERNATE INTERIOR ANGLES THM
3. $43 = 3x - 47$	3. SUBTRACTION PROPERTY
4. $90 = 3x$	4. ADDITION PROPERTY
5. $x = 30$	5. DIVISION PROPERTY

Unit 3 Review:

31. Obtuse Isosceles 32. Equilateral, $x = 12$ 33. 56° 34. 80° 35. $x = 10$, Acute
 36. $m\angle A = 103^\circ$, $m\angle B = 77^\circ$, $m\angle C = 46^\circ$ 37. $x = 33$ 38. $x = 23$ 39. $x = 5, 16, 16, 18$
 40. $x = 6.75$, Equilateral 41. $x = 5, y = 9$, Acute 42. $x = 9$, $P = 48$ units
 43. Plot points 44. $m_{\overline{AC}} = 9, m_{\overline{CB}} = \frac{4}{5}, m_{\overline{AB}} = -\frac{5}{4}$ 45. $AC = 9.1, AB = 6.4, CB = 6.4$
 46. Slopes of \overline{AB} and \overline{CB} are opposite reciprocals so there is a right angle, $\overline{AB} \cong \overline{CB}$ so it is isosceles
 47. a. $\overline{BC} \cong \overline{EF}$ b. $\angle BAC \cong \angle EDF$
 48.

Statements	Reasons
1. $\overline{AC} \cong \overline{DB}, \overline{AB} \perp \overline{CB}, \overline{DC} \perp \overline{BC}$	1. Given
2. $\angle CBA$ and $\angle BCD$ are right angles	2. DEFINITION OF PERPENDICULAR LINES
3. $\triangle CBA$ and $\triangle BCD$ are right triangles	3. DEFINITION OF RIGHT TRIANGLES
3. $\overline{BC} \cong \overline{BC}$	3. REFLEXIVE PROPERTY
4. $\triangle ABC \cong \triangle DCB$	4. HL
5. $\angle CAB \cong \angle BDC$	5. CPCTC

49.

Statements	Reasons
1. A is the midpoint of $\overline{BD}, \overline{BC} \cong \overline{DC}$	1. GIVEN
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive Property
3. $\overline{BA} \cong \overline{DA}$	3. DEFINITION OF MIDPOINT
4. $\triangle ABC \cong \triangle ADC$	4. SSS