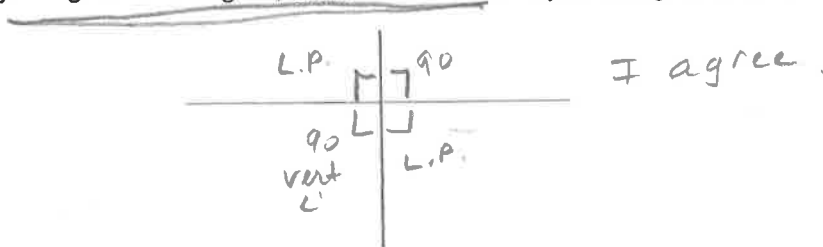


Name Key

Quiz B

21. Miguel claims that if coplanar lines form one right angle, then the other three angles are also right. If you agree with Miguel, draw an instance. If you disagree draw a counterexample.



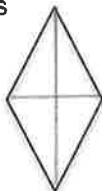
22. For each quadrilateral, draw the diagonals and state ALL the diagonal properties that apply (perpendicular, congruent, bisect each other).

a) Parallelogram



Bisect

b) Rhombus



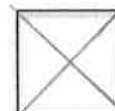
Bisect
Perpendicular

c) Rectangle



Bisect
≅

d) Square

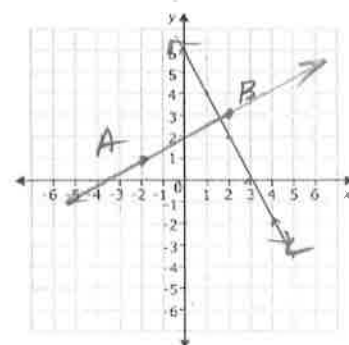


Bisect
Perpendicular
≅

23. Given $A(-2, 1)$, $B(2, 3)$ and $C(4, -2)$, write the equation of the line that is perpendicular to \overline{AB} , through C . Verify by graphing both lines.

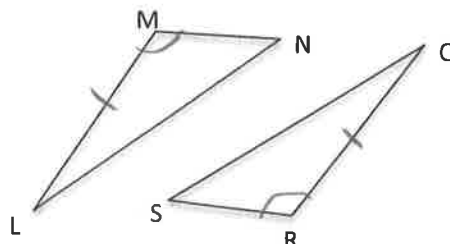
$m_{AB} = \frac{3-1}{2-(-2)} = \frac{2}{4} = \frac{1}{2}$ opp recip is $-\frac{2}{1}$ or -2

$y = m(x - x_1) + y_1$
 $y = -2(x - 4) + -2$
 $y = -2x + 8 - 2$
 $y = -2x + 6$



24. Given $\angle M \cong \angle R$. What other pairs of parts must be congruent to prove $\triangle LMN \cong \triangle QRS$, by...

- a) ASA, $\angle L \cong \angle Q$
- b) ~~SSS~~
- c) SAS, $\overline{MN} \cong \overline{RS}$

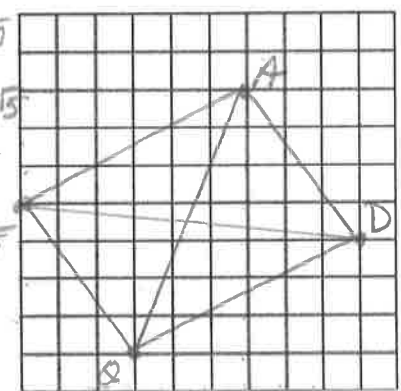


25-26) Given $Q(3, 1)$, $U(0, 5)$, $A(6, 8)$, $D(9, 4)$.

25. Find the perimeter of QUAD,

$10 + 6\sqrt{5}$

$D_{QU} = \sqrt{3^2 + 4^2} = \sqrt{25} = 5$
 $D_{UA} = \sqrt{3^2 + 6^2} = \sqrt{45} = 3\sqrt{5}$
 $D_{AD} = \sqrt{3^2 + 4^2} = \sqrt{25} = 5$
 $D_{DA} = \sqrt{3^2 + 6^2} = \sqrt{45} = 3\sqrt{5}$



26. Prove that Quad is a parallelogram, but not a rectangle.

$m_{QU} = -\frac{4}{3}$ $m_{AD} = -\frac{4}{3}$ & $m_{AU} = \frac{3}{6} = \frac{1}{2}$
 $m_{DQ} = \frac{3}{6} = \frac{1}{2}$

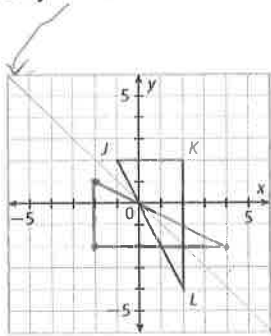
Parallelogram opp sides $\cong \parallel$. However $m_{QU} = -\frac{4}{3}$ & $m_{DQ} = \frac{1}{2}$ are not

27. Determine, algebraically, whether or not the diagonals bisect each other.

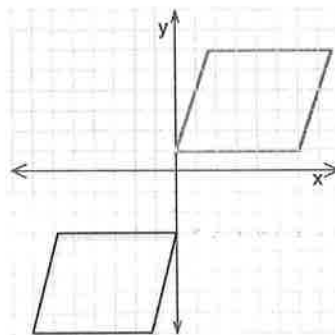
$M_{AQ} = \left(\frac{6+3}{2}, \frac{8+1}{2} \right) \rightarrow \left(\frac{9}{2}, \frac{9}{2} \right)$
 $M_{DU} = \left(\frac{9+0}{2}, \frac{4+5}{2} \right) \rightarrow \left(\frac{9}{2}, \frac{9}{2} \right)$

Yes because opposite Reciprocals so NO 90° L thus NOT a Rectangle. share the same midpoint.

28. Reflect over $y = -x$.



29. Describe three different transformations or sequence of transformations that map one of the congruent rhombi below onto the other.

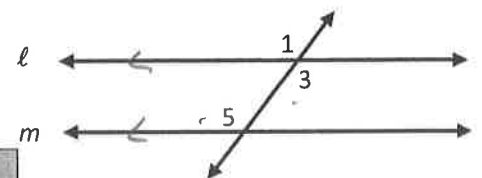


- a) Translation $(x, y) \rightarrow (x+8, y+9)$
- b) Rotate then translate
 $\curvearrowright 180$ c.c.w
- c) Rotate then translate
 $\curvearrowright 180$ c.c.w

30. Prove the Alternate Interior Angle Theorem.

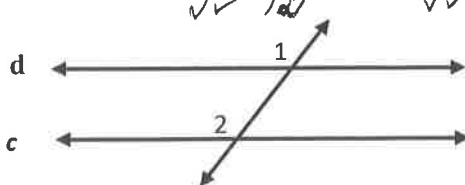
G: $l \parallel m$

P: $\angle 3 \cong \angle 5$



Statements	Reasons
1. $l \parallel m$	1. Given
2. $\angle 1 \cong \angle 3$	2. Vertical \angle 's \cong
3. $\angle 1 \cong \angle 5$	3. Corr. \angle 's \cong
4. $\angle 3 \cong \angle 5$	4. Substitution or Transitive Property

31. Given that $d \parallel c$, $m\angle 1 = 5x - 23$ and $m\angle 2 = 3x + 37$, Solve for $x = 30$.



$\angle 1 = \angle 2$
 $5x - 23 = 3x + 37$
 $-3x + 23 \quad -3x + 23$
 $2x = 60$
 $x = 30$

32. For any parallelogram, list all the properties that are true (by theorem or definition) for the ...

Opposite sides are ...



Opposite angles are ...



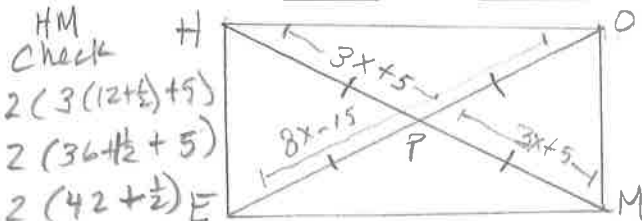
adjacent angles are ...



Diagonals ...

Bisect each other.

33. For rectangle HOME, diagonals HM and OE intersect at P, and $HP = 3x + 5$ & $OE = 8x - 15$, find $HM = 85$ & $OE = 85$.



work

$$3x + 5 + 3x + 5 = 8x - 15$$

$$6x + 10 = 8x - 15$$

$$-6x + 15 = -6x + 15$$

$$25 = 2x$$

$$x = 12\frac{1}{2}$$

OE check

$$OE = 8(12\frac{1}{2}) - 15$$

$$8(12 + \frac{1}{2}) - 15$$

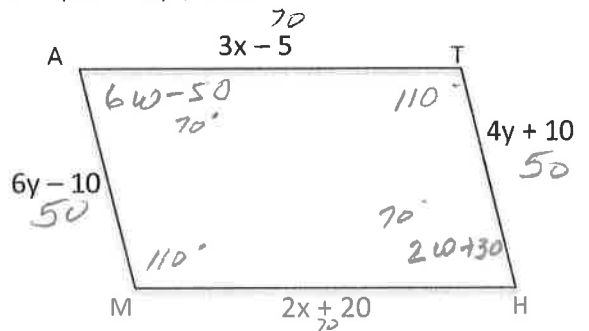
$$96 + 4 - 15$$

$$100 - 15$$

$$85$$

34. Given parallelogram MATH, with $m\angle H = (2w + 30)^\circ$ and $m\angle A = (6w - 50)^\circ$, find:

- 85
- a) $m\angle A = 70^\circ$
 - b) $m\angle M = 110^\circ$
 - c) the perimeter of MATH = 240 units



$$6w - 50 = 2w + 30$$

$$-2w + 50 = -2w + 50$$

$$4w = 80$$

$$w = 20$$

$$6y - 10 = 4y + 10$$

$$-4y + 10 = -4y + 10$$

$$2y = 20$$

$$y = 10$$

$$m\angle A = 6(20) - 50 = 70$$

$$m\angle M = 2(20) + 30 = 70$$

$$AM = 6(10) - 10 = 50$$

$$TH = 4(10) + 10 = 50$$

$$3x - 5 = 2x + 20$$

$$-2x + 5 = -2x + 5$$

$$x = 25$$

$$MH = 2(25) + 20 = 70$$

$$AT = 3(25) - 5 = 70$$

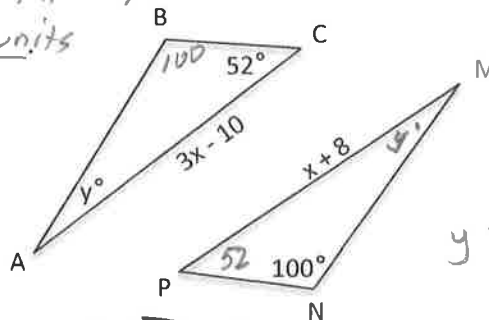
35. $\triangle ABC \cong \triangle MNP$. Find $AC = 17$ units

$$3x - 10 = x + 8$$

$$-x + 10 = -x + 10$$

$$2x = 18$$

$$x = 9$$



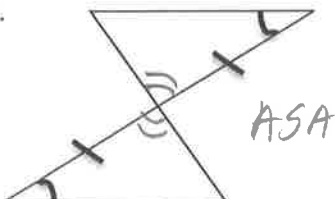
$$y = 28$$

$$AC = 3(9) - 10 = 17$$

$$PM = 9 + 8 = 17$$

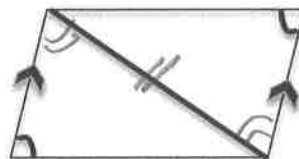
36-37) Which triangle congruency theorem or postulate (SSS, SAS, ASA, AAS), may be used to prove that the triangles are congruent. (More than one may apply.) Justify your answer.

36.



ASA

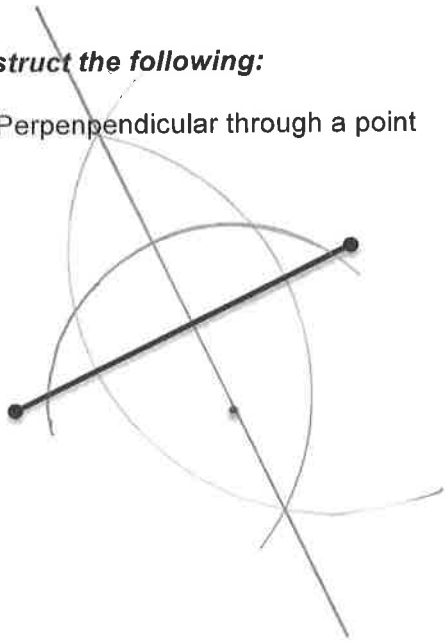
37.



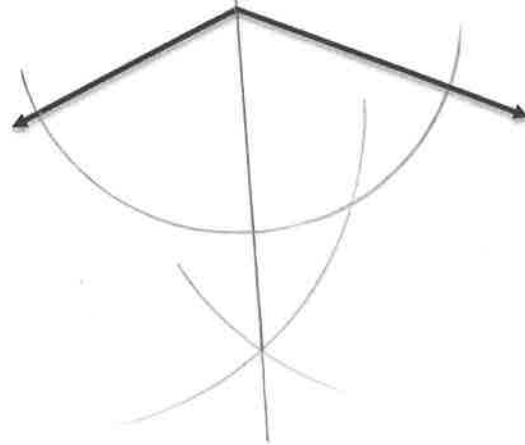
AAS

38-39) Construct the following:

38. Perpendicular through a point



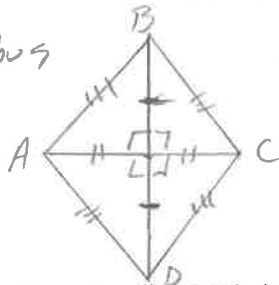
39. Bisect an angle



40. For a given quadrilateral, all sides are congruent, but the diagonals may not be. Draw, label and identify this quadrilateral.

Rhombus or Square → Rhombus NOT Square

a Rhombus



41. Draw square MAST and its diagonals intersecting at Q. Identify all parts that are congruent to ...

a) MA: AS ST TM

b) AT: MS

c) MQ: SQ AQ TQ

d) $\angle STM$: $\angle TMA \angle MAS \angle AST$

