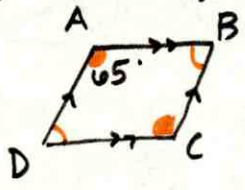


8.2

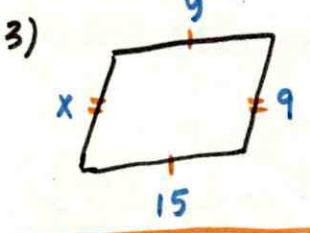
2) $\square ABCD$, $m\angle A = 65^\circ$. Explain how you would find other angles.



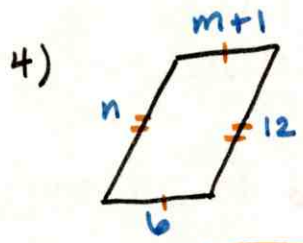
$\angle A \cong \angle C$ opp. \angle s are \cong
 $\boxed{\angle C = 65^\circ}$

$\angle A + \angle B = 180$ cons. \angle s supp.
 $\angle A + \angle D = 180$

$65 + \angle B = 180$
 $\boxed{\angle B = 115^\circ}$ and $\boxed{\angle D = 115^\circ}$



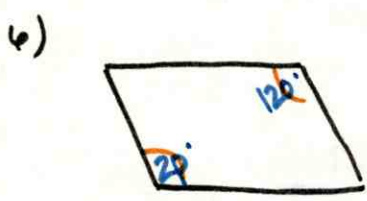
$\boxed{x = 9, y = 15}$
 opp. sides \cong



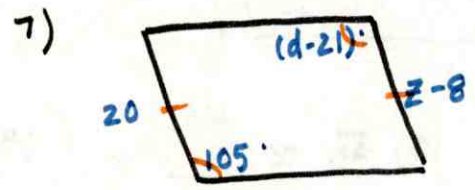
$m+1 = 6$ | $n = 12$
 $\boxed{m = 5}$
 opp. sides \cong



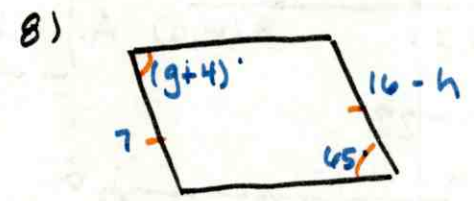
$\boxed{a = 55}$
 opp. \angle s \cong



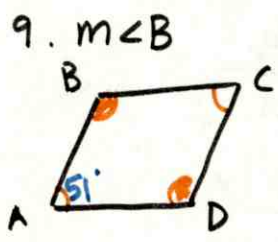
$2p = 120$ opp. \angle s \cong
 $\boxed{p = 60}$



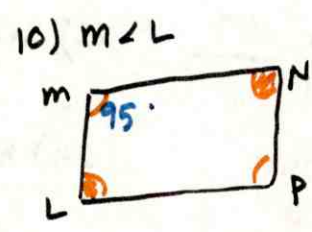
$d-21 = 105$ | $z-8 = 20$
 $\boxed{d = 126}$ | $\boxed{z = 28}$
 opp. \angle s \cong | opp. sides \cong



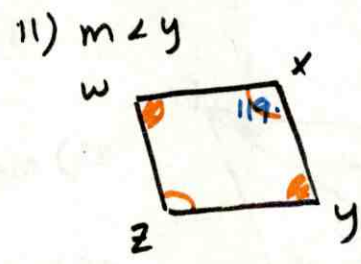
$g+4 = 65$ | $16-h = 7$
 $\boxed{g = 61}$ | $-h = -9$
 opp. \angle s \cong | $\boxed{h = 9}$
 opp. sides \cong



$\angle A + \angle B = 180$
 $51 + \angle B = 180$
 $\boxed{\angle B = 129^\circ}$ cons. \angle s supp.

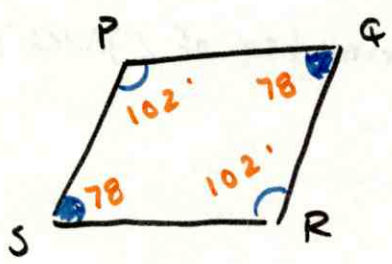


$\angle L + \angle M = 180$
 $\angle L + 95 = 180$
 $\boxed{\angle L = 85^\circ}$ cons. \angle s supp.



$\angle y + \angle x = 180$
 $\angle y + 119 = 180$
 $\boxed{\angle y = 61^\circ}$ cons. \angle s supp.

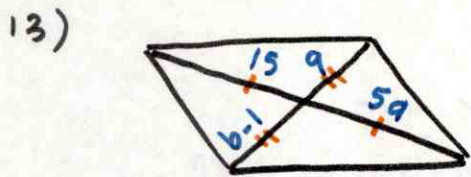
12) In $\square PQRS$, $m\angle R$ is 24 degrees more than $m\angle S$.



$\angle R = 24 + \angle S$
 $\boxed{\angle R} + \angle S = 180$

$24 + \angle S + \angle S = 180$
 $2(\angle S) + 24 = 180$
 $2(\angle S) = 156$
 $\boxed{\angle S = 78^\circ}$

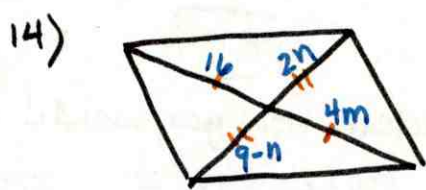
$\angle R = 78 + 24$
 or
 $\angle R = 180 - 78$
 $\boxed{= 102^\circ}$



$$5a = 15 \quad b - 1 = 9$$

$$\boxed{a = 3} \quad \boxed{b = 10}$$

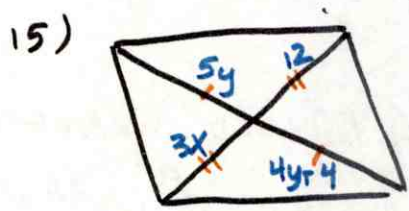
Diagonals bisect



$$4m = 16 \quad 2n = 9 - n$$

$$\boxed{m = 4} \quad \boxed{n = 3}$$

Diagonals bisect

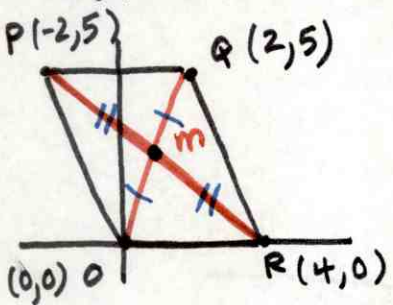


$$3x = 12 \quad 5y = 4y + 4$$

$$\boxed{x = 4} \quad \boxed{y = 4}$$

Diagonals bisect

14) Diagonals intersect at point m. What are the coordinates of m?



m is the mp of \overline{PR} and $\overline{QO} \rightarrow m = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

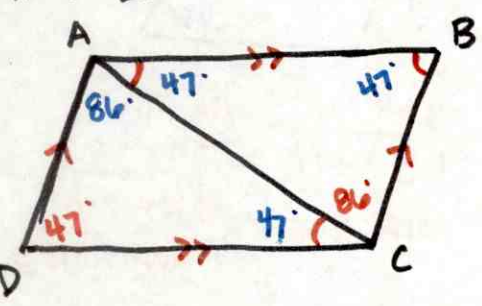
O(0,0) Q(2,5) $\rightarrow m = \left(\frac{0+2}{2}, \frac{0+5}{2} \right)$

$x_1, y_1 \quad x_2, y_2$

$m \left(\frac{2}{2}, \frac{5}{2} \right)$

A. $\boxed{m \left(1, \frac{5}{2} \right)}$

#17-22



17) $\overline{AD} \cong \overline{BC}$
opp. sides \cong

18) $\angle DAB \cong \angle DCB$
opp. \angle s \cong

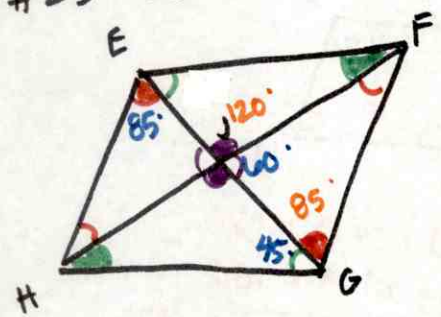
19) $\angle BCA \cong \angle DAC$
A1

20) $m\angle ABC = \underline{47}$
opp. \angle s \cong

21) $m\angle CAB = \underline{47}$
A1

22) $m\angle CAD = \underline{86}$
A1

#23-28



23) $m\angle EGF = 180 - 60$
 $\boxed{= 120}$ LP

24) $m\angle EGF = \boxed{85}$ A1

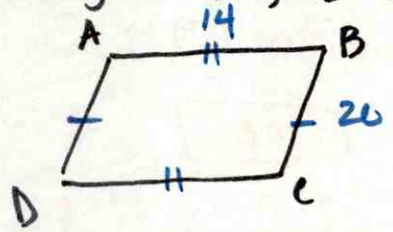
25) $m\angle HFG = 180 - (85 + 60)$
 $\boxed{= 35}$ Δ sum

26) $m\angle GEF = \boxed{45}$ A1

27) $m\angle HGF = 45 + 85$
 $\boxed{= 130}$ \angle add. post.

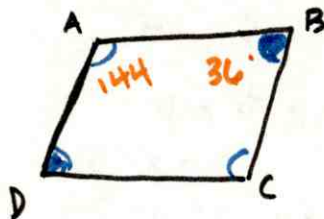
28) $m\angle EHG = 180 - 130$
 $\boxed{= 50}$ cons. es supp.

29) In \parallel -gram ABCD, AB=14 in and BC=20 in. What is the perimeter of \square ABCD?



$P = 2(14) + 2(20)$
 $P = 28 + 40$
 $\boxed{P = 68 \text{ in}}$

30) The measure of one interior angle is .25 times the measure of the other.



$$\angle B = .25(\angle A)$$

$$\angle A + \angle B = 180$$

$$\angle A + \frac{1}{4}(\angle A) = 180$$

$$\frac{5}{4}(\angle A) = 180$$

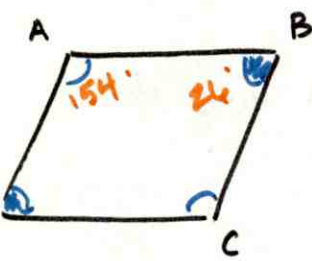
$$5(\angle A) = 720$$

$$\boxed{m\angle A = 144}$$

$$\angle B = \frac{1}{4}(144) \text{ or } 180 - 144$$

$$\boxed{\angle B = 36}$$

31) The measure of one interior \angle of a // -gram is 50 degrees more than 4 times the measure of the other.



$$\angle A = 50 + 4(\angle B)$$

$$\angle A + \angle B = 180$$

$$50 + 4(\angle B) + \angle B = 180$$

$$50 + 5(\angle B) = 180$$

$$5(\angle B) = 130$$

$$\boxed{\angle B = 26}$$

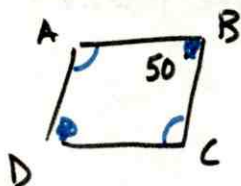
$$\angle A = 180 - 26$$

$$\angle A = 50 + 4(26)$$

$$\boxed{\angle A = 154}$$

$$50 + 104$$

32) In $\square ABCD$, $m\angle B = 50$. A student says that $\angle A = 50$; why is this incorrect?

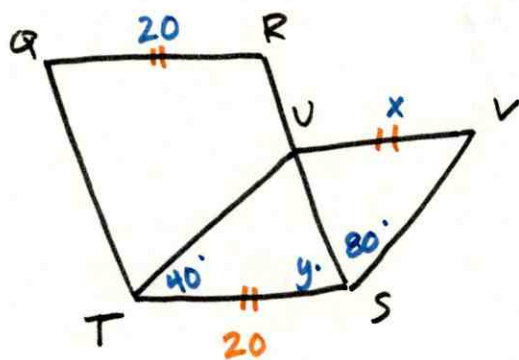


$\angle A$ and $\angle B$ are supplementary.

$$\angle A + 50 = 180$$

$$\boxed{\angle A = 130}$$

33) $QRST$ and $STUV$ are // -grams. Find the values of x and y . Explain.



$$\boxed{x = 20}$$

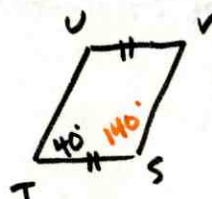
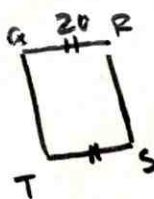
opp. sides \cong

$$40 + (y + 80) = 180$$

$$y + 120 = 180$$

$$\boxed{y = 60}$$

cons. \angle s supp.



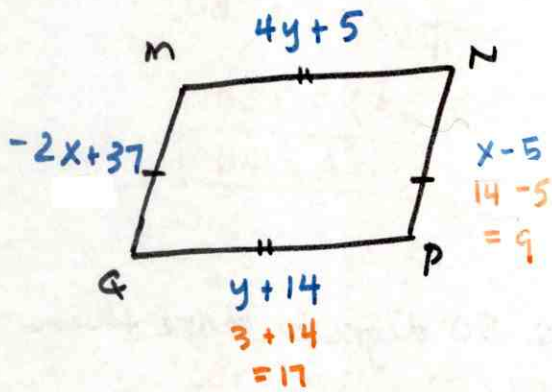
34) Find the perimeter of $\square MNPQ$.

$$MQ = -2x + 37$$

$$QP = y + 14$$

$$NP = x - 5$$

$$MN = 4y + 5$$

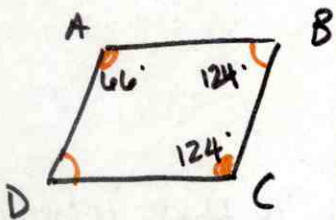


$$\begin{aligned} MN &\cong NP \\ 4y + 5 &= y + 14 \\ 3y + 5 &= 14 \\ 3y &= 9 \\ y &= 3 \end{aligned}$$

$$\begin{aligned} MQ &\cong NP \\ -2x + 37 &= x - 5 \\ -3x + 37 &= -5 \\ -3x &= -42 \\ x &= 14 \end{aligned}$$

$$\begin{aligned} P &= 2(17) + 2(9) \\ &= 34 + 18 \\ \boxed{P} &= \boxed{52} \end{aligned}$$

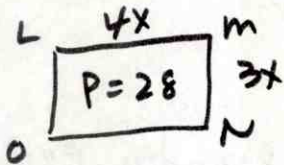
35) In ABCD, $m\angle B = 124^\circ$, $m\angle A = 66^\circ$ and $m\angle C = 124^\circ$. Explain why it ABCD is not a \parallel -gram.



$$\begin{aligned} \angle A + \angle B &= 180 \\ 66 + 124 &\neq 180 \\ \text{cons. } \angle\text{s are supp.} \\ 66 + 124 &= 190 \end{aligned}$$

$$\begin{aligned} \angle A &\cong \angle C \\ 66 &\neq 124 \\ \text{opp. } \angle\text{s} &\cong \end{aligned}$$

40) In $\square LMNO$, the ratio of LM to MN is 4:3. Find LM if the $P = 28$.



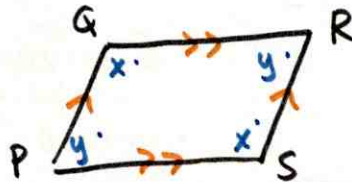
$$LM : MN = 4 : 3$$

$$\begin{aligned} LM &= 4(2) \\ \boxed{LM} &= \boxed{8} \end{aligned}$$

$$\begin{aligned} 28 &= 2(4x) + 2(3x) \\ 28 &= 8x + 6x \\ 28 &= 14x \\ \boxed{x} &= \boxed{2} \end{aligned}$$

43) Given: PQRS is \parallel -gram

Prove: $x + y = 180^\circ$



Statements	Reasons
1. PQRS is a \parallel -gram	1. Given
2. $\overline{QR} \parallel \overline{PS}$ and $\overline{QP} \parallel \overline{RS}$	2. Def. of \parallel -gram
3. $\angle Q$ and $\angle P$ are supp.	3. CI
4. $\angle Q + \angle P = 180^\circ$	4. Def. of supplementary
5. $x + y = 180^\circ$	5. substitution