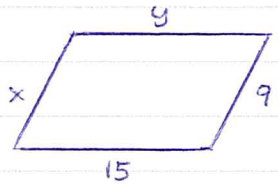
Geometry Ch 8-2 Exer, pg 512 #2-11, 13-16, 23-28

2. In parallelogram ABCD, $m\angle A = 65°$. How would you find the other angle measures?

Polygons are named by the order of their vertices. Thus $\angle B$ and $\angle D$ are adjacent to $\angle A$. By definition of a parallelogram, these two angles have a supplementary relationship with $\angle A$. Since $m\angle A = 65°$, $m\angle B$ and $m\angle D$ is 115°. Again, by using the name of the parallelogram, $\angle C$ is opposite $\angle A$, and by definition must be congruent. Thus $\angle C$ is 65°.

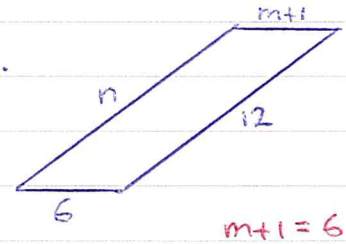
<u>ALGEBRA</u>: Find the variable value in the parallelogram.

3.



$x = 9$; $y = 15$

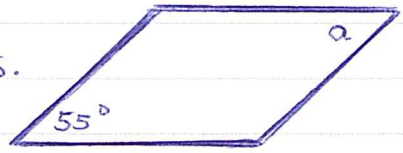
4.



$m+1 = 6$

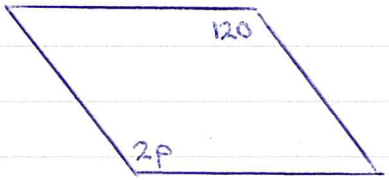
$m = 5$ $n = 12$

5.



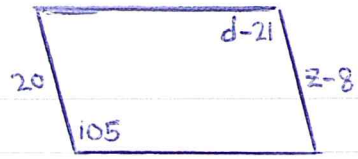
$a = 55$

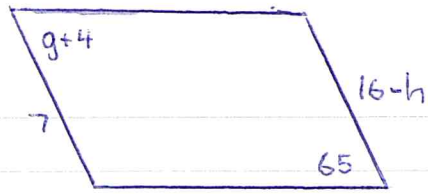
6.



$2p = 120$

$p = 60$

7. 

8. 

$d-21=105$
$d=126$

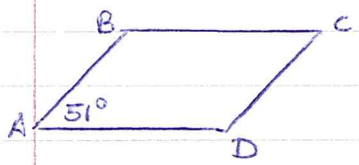
$z-8=20$
$z=28$

$g+4=65$
$g=61$

$16-h=7$
$-h=-9$
$h=9$

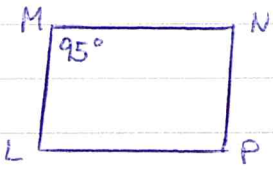
Find the measure of the indicated angle in the parallelogram.

9. Find $m\angle B$



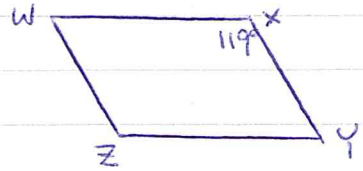
$\angle A+\angle B=180$
$51+\angle B=180$
$\angle B=129°$

10. Find $m\angle L$



$\angle L+\angle M=180$
$\angle L+95=180$
$\angle L=85$

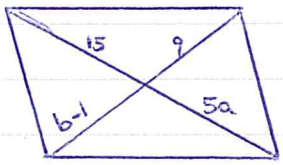
11. Find $m\angle Y$



$\angle X+\angle Y=180$
$119+\angle Y=180$
$\angle Y=61$

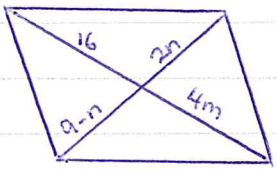
Find the value of each variable in the parallelogram.

Diagonals of a parallelogram bisect each other

13. 

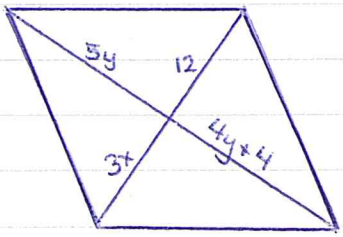
$15=5a$
$3=a$

$b-1=9$
$b=10$

14. 

$16=4m$
$4=m$

$a-n=2n$
$a=3n$
$3=n$

15. 

$3x=12$
$x=4$

$5y=4y+4$
$y=4$

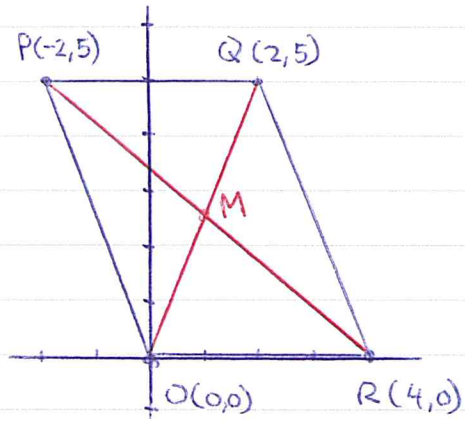
16. The diagonals of a parallelogram OPQR intersect at point M. What are the coordinates of M?

A. $(1, \frac{5}{2})$

B. $(2, \frac{5}{2})$

C. $(1, \frac{3}{2})$

D. $(2, \frac{3}{2})$



Since OPQR is a parallelogram, point M is at the midpoint of either diagonal.

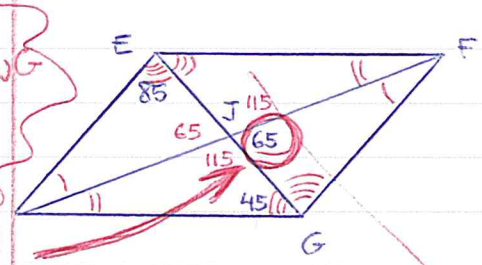
Midpoint of PR: $\left(\frac{-2+4}{2}, \frac{5+0}{2}\right)$ $\left(\frac{2}{2}, \frac{5}{2}\right)$ $\left(1, \frac{5}{2}\right)$

Midpt of OQ: $\left(\frac{0+2}{2}, \frac{0+5}{2}\right)$ $\left(\frac{2}{2}, \frac{5}{2}\right)$ $\left(1, \frac{5}{2}\right)$

Find the indicated measure in parallelogram EFGH.

ALL WRONG DUE TO TYPO ON MY PART

Sorry



The Inner Angles:

$\angle HJE \cong \angle FJG$, Vertical Angles

$\boxed{\angle HJE = 65°}$

$\angle EJF + \angle FJG = 180$, Linear Pair

$\boxed{\angle EJF = 115}$

$\angle HJG \cong \angle EJF$, Vertical Angles

$\boxed{\angle HJG = 115}$

The Outer Angles:

$\angle EHJ + 65° + 85° = 180°$

$\boxed{\angle EHJ = 30°}$

$\angle GFJ \cong \angle JHE$, Alt Int.

$\boxed{\angle GFJ = 30°}$

$\angle JHG + 115 + 45 = 180$

$\boxed{\angle JHG = 20}$

$\angle JFE \cong \angle JHG$, Alt Int

$\boxed{\angle JFE = 20}$

$\angle JGF \cong \angle JEF$, Alt Int

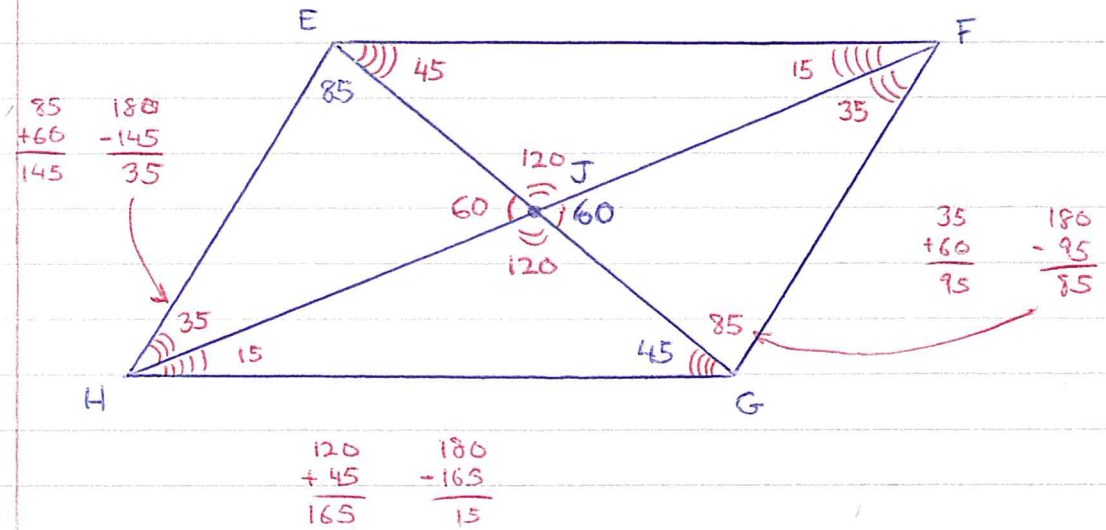
$\boxed{\angle JGF = 85}$

$\angle JEF \cong \angle JGH$, Alt Int

$\boxed{\angle JEF = 45}$

23. $\angle EJF = 115$
24. $\angle EGF = 85$
25. $\angle HFG = 30$
26. $\angle GEF = 45$
27. $\angle HGF = 45 + 85 = 130$
28. $\angle EHG = 30 + 20 = 50$

Find the indicated measure in ▱EFGH.



23. $\angle EJF =$ 120°

24. $\angle EGF =$ 85°

25. $\angle HFG =$ 35°

26. $\angle GEF =$ 45°

27. $\angle HGF =$ 45 + 85 = 130°

28. $\angle EHG =$ 35 + 15 = 50°