Geometry Morning Quiz Review Quadrilaterals/Polygons

1) What is the measure of each interior angle of a regular octagon?

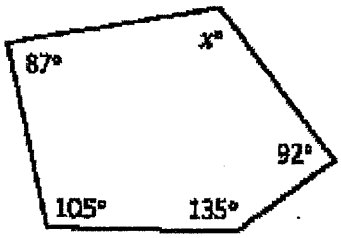
2) What is the measure of each interior angle of a regular 20-gon?

3) The sum of the interior angles of a polygon is 3960°. How many sides does the polygon have?

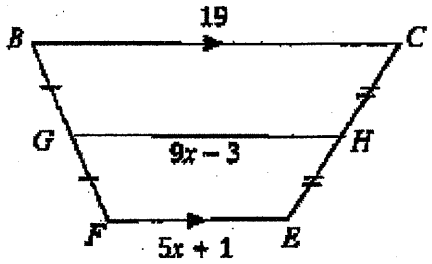
4) What is the sum of the measures of the exterior angles of a nonagon?

5) What is the measure of each exterior angle of a 20-gon?

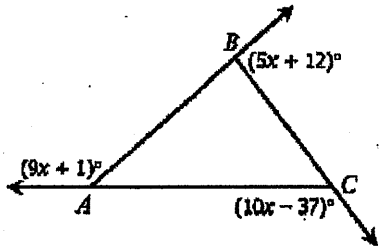
6) Find the value of x.



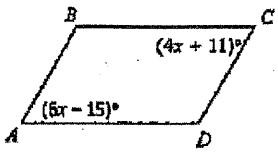
7) Find GH.



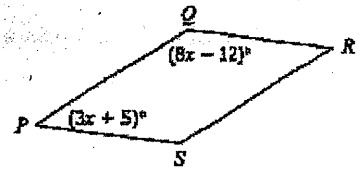
8) Find $m\angle BCA$.



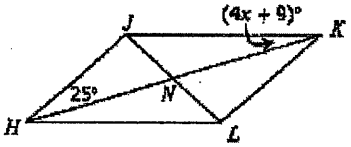
9) Find $m\angle B$.



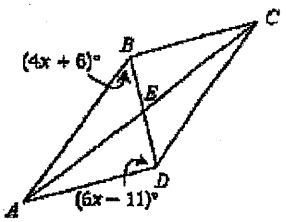
10) Find $m\angle R$.



11) If $m\angle KLH = 134°$, solve for x.

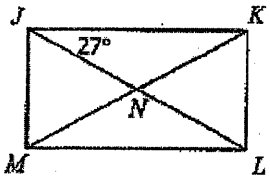


12) If $m\angle ABC = 115°$, find $m\angle ADB$.



Given Rectangle

13)



$m\angle MJK =$ _____

$m\angle MJL =$ _____

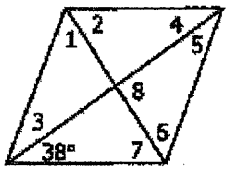
$m\angle JLK =$ _____

$m\angle KML =$ _____

$m\angle MNL =$ _____

Given Rhombus

14)



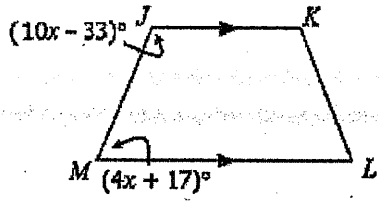
$m\angle 1 =$ _____ $m\angle 5 =$ _____

$m\angle 2 =$ _____ $m\angle 6 =$ _____

$m\angle 3 =$ _____ $m\angle 7 =$ _____

$m\angle 4 =$ _____ $m\angle 8 =$ _____

15) If $JKLM$ is an isosceles trapezoid, find each missing angle.



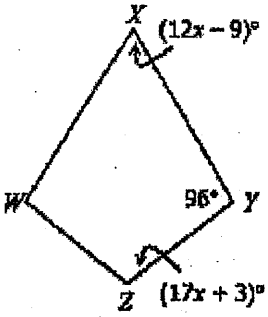
$m\angle J =$ _____

$m\angle K =$ _____

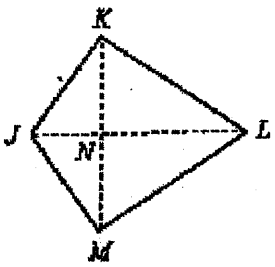
$m\angle L =$ _____

$m\angle M =$ _____

16) Solve for x



17) If $KM = 52$ and $NL = 33$, find LM.



Key

Geometry Morning Quiz Review Quadrilaterals/Polygons

1) What is the measure of each interior angle of a regular octagon? $n = 8$

Sum: $S=(n-2)180$

$S=(8-2)\cdot 180$

$S=1080$

Angle $= \frac{1080}{8}$

$= \boxed{135°}$

2) What is the measure of each interior angle of a regular 20-gon? $n=20$

$S=(n-2)180$

$S=(20-2)180$

$S=3240°$

angle $= \frac{3240}{20}$

$= \boxed{162°}$

3) The sum of the interior angles of a polygon is 3960°. How many sides does the polygon have?

Sum

$S=(n-2)180$

$3960=(n-2)180$

$3960=180n-360$

$4320=180n$

$\frac{4320}{180}=n$

$\boxed{n=24 \text{ sides}}$

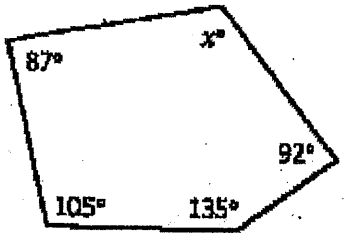
4) What is the sum of the measures of the exterior angles of a nonagon?

Sum Exterior $= \boxed{360°}$

5) What is the measure of each exterior angle of a 20-gon?

$\frac{360}{20} = \boxed{18°}$

6) Find the value of x.



$n=5$ sides

Sum: $S=(n-2)180$

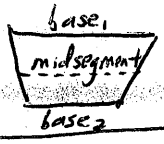
$S=(5-2)180$

$S=540°$

$x+92+135+105+87=540°$

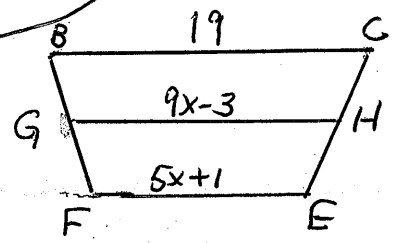
$x+419=540$

$\boxed{x=121°}$



$*\ 2(\text{midsegment}) = \text{base}_1 + \text{base}_2$

7) Find GH



$2(9x-3)=19+5x+1$

$18x-6=19+5x+1$

$13x-6=20$

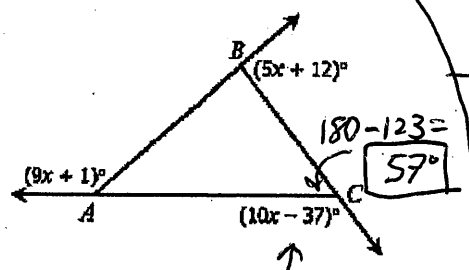
$13x=26$

$x=2$

$GH=9x-3$

$=9(2)-3=\boxed{15}$

8) Find $m\angle BCA$.



$10(16)-37$

$123°$

$180-123=$

$\boxed{57°}$

* Exterior angles always total 360°

$5x+12+10x-37+9x+1=360$

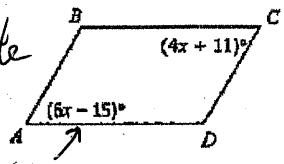
$24x-24=360$

$24x=384$

$\boxed{x=16}$

9) Find $m\angle B$.

*parallelogram opposite angles congruent



$6x-15=4x+11$

$2x=26$

$x=13$

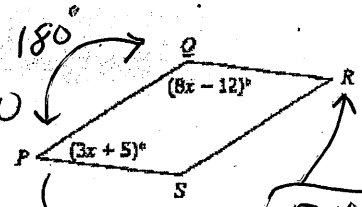
$6(13)-15=63°$

$m\angle B=180-63$

$=\boxed{117°}$

*consecutive angles are supplementary

10) Find $m\angle R$.



180°

$3x+5+8x-12=180$

$11x-7=180$

$11x=187$

$x=17$

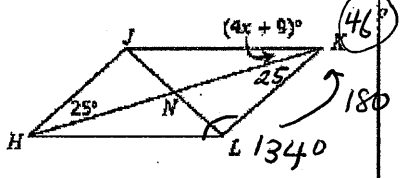
$3(17)+5$

$=\boxed{56°}$

$\boxed{56°}$

11) If $m\angle KLH = 134°$, solve for x.

parallelogram

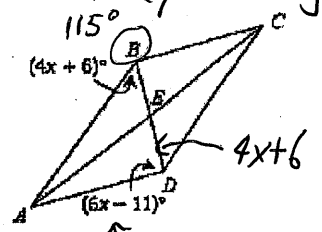


$4x+9+25=46$

$4x+34=46$

$4x=12$ $\boxed{x=3}$

12) If $m\angle ABC = 115°$, find $m\angle ADB$. (parallelogram)



$6x-11+4x+6=115$

$10x-5=115$

$10x=120$

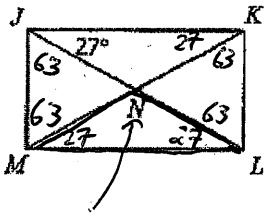
$x=12$

4x+6

6(12)−11

$\boxed{m\angle ADB=61°}$

13) Given Rectangle



$m\angle MJK =$ 90°

$m\angle MJL =$ 63°

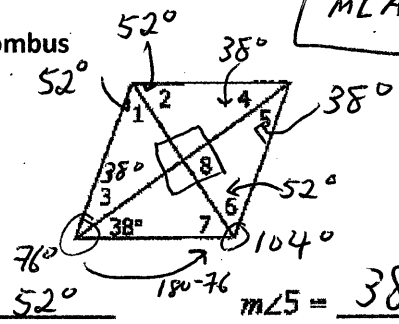
$m\angle JLK =$ 63°

$m\angle KML =$ 27°

$m\angle MNL =$ 126°

$180-27-27=126°$

14) Given Rhombus



$\angle 8=180-38-52$

$=90°$

$m\angle 1 =$ 52°

$m\angle 2 =$ 52°

$m\angle 3 =$ 38°

$m\angle 4 =$ 38°

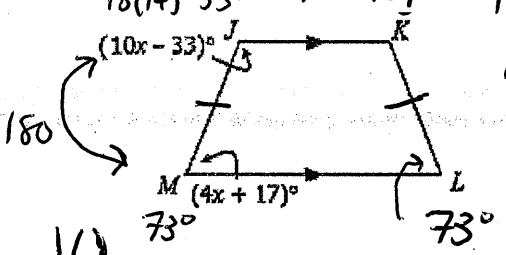
$m\angle 5 =$ 38°

$m\angle 6 =$ 52°

$m\angle 7 =$ 52°

$m\angle 8 =$ 90°

15) If $JKLM$ is an isosceles trapezoid, find each missing angle.



$10(14)-33=107°$ 107°

$10x-33+4x+17=180$

$14x-16=180$

$14x=196$

$x=14$

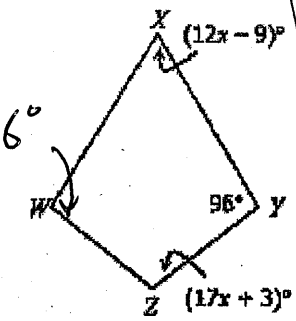
$m\angle J =$ 107°

$m\angle K =$ 107°

$m\angle L =$ 73°

$m\angle M =$ 73°

16) Solve for x



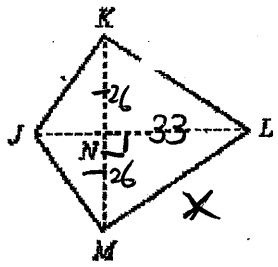
$96+96+12x-9+17x+3=360$

$29x+186=360$

$29x=174$

$\boxed{x=6}$

17) If $KM = 52$ and $NL = 33$, find LM.



$26^2+33^2=x^2$

$1765=x^2$

$\boxed{x=42.01}$

$LM=42.01$