Lesson 4

Name: Key

Date: _____ Per: _____

Geometry

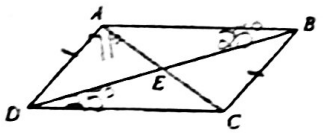
1. Which quadrilaterals always have opposite angles that are congruent?

- ☑ Parallelograms
- ☑ Rectangles
- ☑ Rhombi
- ☑ Squares

2. Which quadrilaterals always have diagonals that bisect opposite angles?

- ☐ Parallelograms
- ☐ Rectangles
- ☑ Rhombi
- ☑ Squares

3. If $ABCD$ is a parallelogram, $AD = 14$, $EC = 11$, $m\angle ABC = 64°$, $m\angle DAC = 71°$, and $m\angle BDC = 25°$, find each measure.



a) $BC =$ 14

b) $AC =$ 11+11=22

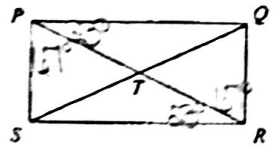
c) $m\angle DAB =$ 71+64 = 135

d) $m\angle ABD =$ 25°

e) $m\angle ACD =$ 116-71=45°

f) $m\angle ADB =$ 121-25=39°

4. If $PQRS$ is a rectangle, $ST = 12$, and $m\angle PRS = 23°$, find each measure.



a) $SQ =$ 2(12)=24

b) $PR =$ 24

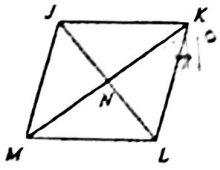
c) $m\angle QPR =$ 23°

d) $m\angle PSR =$ 90°

e) $m\angle SQR =$ 67°

f) $m\angle PTQ =$ 180-2(23) = 134°

5. If $JKLM$ is a rhombus, $MK = 30$, $NL = 13$, and $m\angle MKL = 41°$, find each measure.



a) $NK =$ 30/2=15

b) $JL =$ 2(13)=26

c) $KL =$ 19.85

d) $m\angle JKM =$ 41°

e) $m\angle JML =$ 2(41)=82°

f) $m\angle MLK =$ 180-82=98°

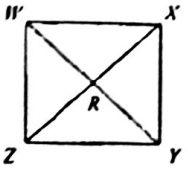
g) $m\angle MNL =$ 90°

h) $m\angle KJL =$ 98/2 = 49°

$12^2+15^2=KL^2$

$369 = KL$

6. If $WXYZ$ is a square with $WZ = 27$, find each measure.



a) $ZY =$ 27

b) $WY =$ 38.18

c) $RX =$ 38.18/2 = 19.09

d) $m\angle WRZ =$ 90°

e) $m\angle XYZ =$ 90°

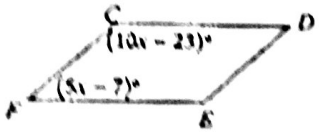
f) $m\angle ZWY =$ 45°

$27^2+27^2=WY^2$

$1458 = WY^2$

7. If $CDEF$ is a parallelogram, find $m\angle FCD$.

7. 117°

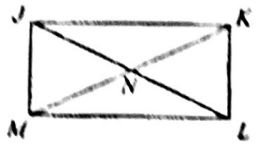


Consecutive ∠'s are Supplementary
$10x-23+5x-7=180$
$15x-30=180$
$x=14$

$m\angle FCD = 10x-23$
$= 10(14)-23$
$= 117°$

8. If $JKLM$ is a rectangle, $JL = 2x + 5$, and $MK = 7x - 40$, find MK.

8. 23

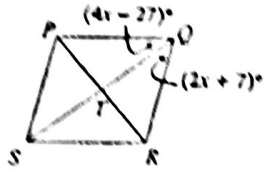


Diagonals are ≅
$2x+5=7x-40$
$9=x$

$MK=7x-40$
$=7(9)-40$
$=23$

9. If $PQRS$ is a rhombus, find $m\angle PQR$.

9. 82°



Diagonals bisect ∠'s
$4x-27=2x+7$
$x=17$

$m\angle PQR = 4x-27+2x+7$
$= 6x-20$
$= 6(17)-20$
$= 82°$

10. Quadrilateral $BCDE$ has vertices $B(-1, -1)$, $C(6, -2)$, $D(5, -9)$, and $D(-2, -8)$. Determine the most precise classification of $BCDE$: a parallelogram, rectangle, rhombus, or square. Use the distance formula to justify your answer.

10. $BCDE$ is a _____