Name Key Date _____ Pd ____

7.3 Proving a Quadrilateral is a Parallelogram DAY TWO CYU

☑ *Use when you get it right all by yourself*

S *Use when you did it all by yourself, but made a silly mistake*

H *Use when you could do it alone with a little help from teacher or peer*

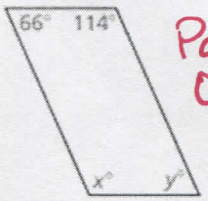
G *Use when you completed the problem in a group*

X *Use when a question was attempted but wrong (get help)*

N *Use when a question was not even attempted*

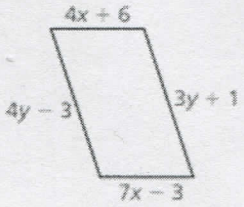
CONCEPTS	BASIC	INTERMEDIATE	ADVANCED

Find the values of x and y that make the quadrilateral a parallelogram.

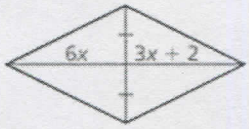
1. 

Parallelogram Opp. ∠'s Thm

$x = 114$ $y = 66$

2. 

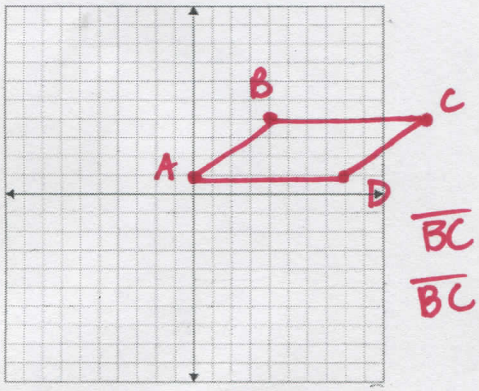
$x = 3, y = 4$

3. 

$x = \frac{2}{3}$

Graph the quadrilateral with the given vertices in a coordinate plane. Then show that the quadrilateral is a parallelogram.

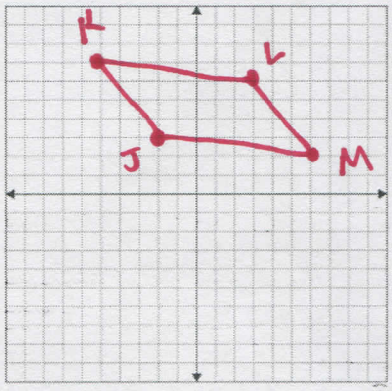
4. A(0, 1), B(4, 4), C(12, 4), & D(8, 1)



$\overline{BC} \parallel \overline{AD}$

$\overline{BC} \cong \overline{AD}$

5. J(- 2, 3), K(- 5, 7), L(3, 6), & M(6, 2)



$m\overline{KL} = -\frac{1}{8}$

$m\overline{JM} = -\frac{1}{8}$

$\overline{JK} \parallel \overline{LM}$

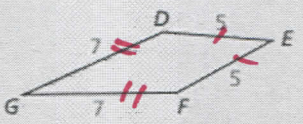
$JK = 5$

$LM = 5$

$\overline{JK} \cong \overline{LM}$

6. Describe and correct the error in identifying a parallelogram.

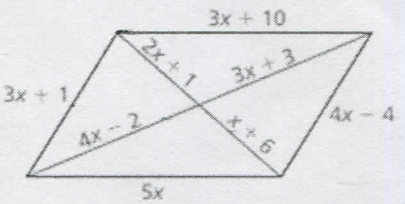
not a parallelogram



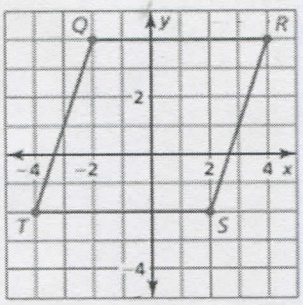
DEFG is a parallelogram by the Parallelogram Opposite Sides Converse (Theorem 7.7).

7. **MATHEMATICAL CONNECTIONS** What value of x makes the quadrilateral a parallelogram? Explain how you found your answer.

$x = 5$; opp. sides need to be $\cong$



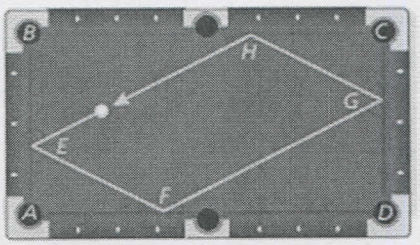
8. **MAKING AN ARGUMENT** Your brother says to show that quadrilateral QRST is a parallelogram, you must show that $\overline{QR} \parallel \overline{TS}$ & $\overline{QT} \parallel \overline{RS}$. Your sister says that you must show that $\overline{QR} \cong \overline{TS}$ & $\overline{QT} \cong \overline{RS}$. Who is correct? Explain your reasoning.



Both; $\overline{QR} \parallel \overline{TS}$ & $\overline{QT} \parallel \overline{RS}$

▱ Opp sides converse

9. **MODELING WITH MATHEMATICS** You shoot a pool ball, and it rolls back to where it started, as shown in the diagram. The ball bounces off each wall at the same angle at which it hits the wall.



a) The ball hits the first wall at an angle of 63°. So m∠AEF = m∠BEH = 63°. What is the m∠AFE? Explain your reasoning.

m∠AFE = 27° complementary ∡'s

b) Explain why m∠FGD = 63°.

∠GDF is Rt ∡ & Complementary ∡'s

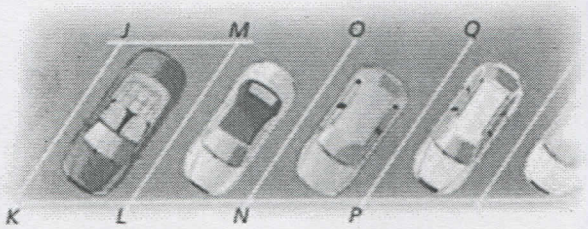
c) What is the m∠GHC? m∠EHB?

27°; 27°

d) Is quadrilateral EFGH a parallelogram? Explain your reasoning.

yes; ∠HEF ≅ ∠HGF ▱EFGH by Parallelogram Opp. ∡'s Converse

10. **MODELING WITH MATHEMATICS** In the diagram of the parking lot shown, m ∠JKL = 60°, JM = LM = 21 feet, and KL = JM = 9 feet.



a) Explain how to show that parking space JKLM is a parallelogram.

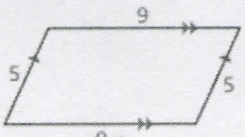
$\overline{JK} \cong \overline{LM}$; $\overline{KL} \cong \overline{JM}$

b) Find m∠ JML, m∠KJM, & m∠KLM.

60°, 120°, 120°

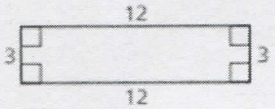
Classify the quadrilateral.

11.



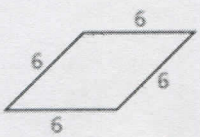
parallelogram

12.



rectangle

13.



rhombus

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

1 2	3 4 5	6 7	8
Basic	Intermediate	Advanced	Solved ALL!