Name: Key 1

6.4-6.5 Parallelograms Review

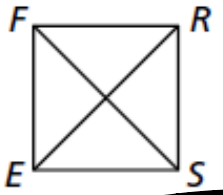
Properties of Parallelograms:

- both pairs of opposite sides are parallel
- both pairs of opposite sides are $\cong$
- both pairs of opposite angles are $\cong$.
- diagonals bisect eachother

Properties of Rectangles:	Properties of squares:	Properties of a rhombus:
→ Properties of Parallelograms ←		
- has 4 right $\angle$s - has 4 $\cong$ $\angle$'s → equiangular - diagonals are $\cong$.	- Both a rect & rhombus - regular quad. - All $\angle$'s $\cong$ - All sides $\cong$	- 4 $\cong$ sides → equilateral - diagonals are $\perp$ - diagonals bisect each pair of opposite $\angle$'s.

Given: EFRS is a quadrilateral.

Prove: EFRS is a square.



- All properties of a parallelogram
- Both a rect & rhombus
- regular quad

Given: EFRS is a parallelogram.

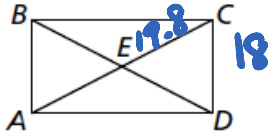
Prove: EFRS is a square.

To prove that a quad is a rect:
→ 4 right $\angle$'s (or all $\angle$'s $\cong$)

To prove that a parallelogram is a rect:
it has at least one right $\angle$.

QR Code Challenge:

1.



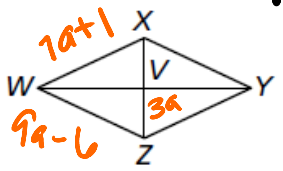
Rectangle

a.) AB = 18

b.) BD = 19.8 + 19.8 = 39.6

Rhombus

Name: _____

2. 

$WZ = 9a-6 = 7a+1$

$2a = 7$

$a = 7/2 \quad a = 3.5$

$9(3.5)-6 = 25.5$

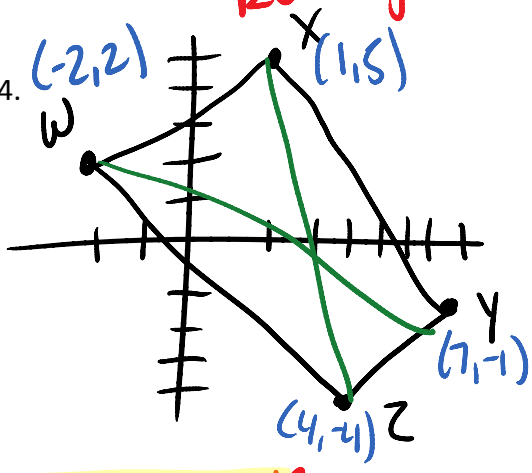
$XV = 3(3.5) = 10.5$

$XZ = 10.5 + 10.5 = 21$

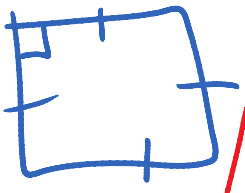
$d = \sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$ distance formula to see that diagonals are $\cong$. Rectangle.

3. Pg. 423 #28

1. EFGH is $\square$. $\overline{EG} \cong \overline{HF}$ 1. Given
2. $\overline{EF} \cong \overline{HG}$ 2. $\square \rightarrow$ opp. sides $\cong$
3. $\overline{EH} \cong \overline{EH}$ 3. Reflex Prop. of $\cong$
4. $\triangle EFH \cong \triangle HGE$ 4. SSS
5. $\angle FEH \cong \angle GHE$ 5. CPCTC
6. $\angle FEH$ & $\angle GHE$ are 6. $\square \rightarrow$ consec. $\angle$'s are $\cong$
7. $\angle FEH$ & $\angle GHE$ are (Supp, rt $\angle$'s) 7. $\cong$ $\angle$ supp $\rightarrow$ rt $\angle$'s
8. EFGH is a rectangle 8. $\square$ w/ 1 rt $\angle \leftrightarrow$ rect

4. 

5. #15 Pg. 423.



1 right $\angle$.

Square

Rhombus Rect

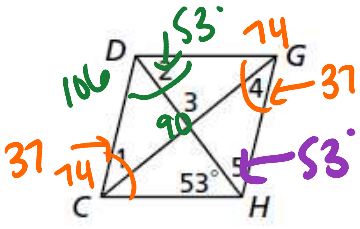
Parallelograms

6. Answers may vary!

→ Find Parrallel. in Room.

Name: _____

7. Find the measures of the numbered angles in the rhombus *CDGH*.



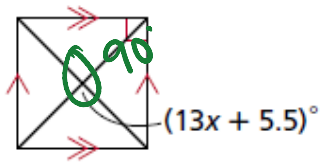
53 + 53 = 106°

180 − 106 = 74

$\frac{106}{2} = 53$

m∠3 = 90°

8. Find the value for x that makes this parallelogram a square.



13x + 5.5 = 90

13x = 84.5

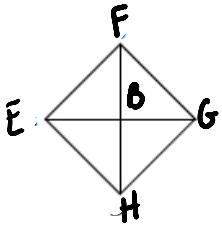
x = 6.5

*Part Rhombus!

For 9-10, Determine if each conclusion is valid. Explain in full detail why it is or is not valid.

9. Given: $\overline{EF} \cong \overline{FG}, \overline{EG}$ is perpendicular to $\overline{FH}$

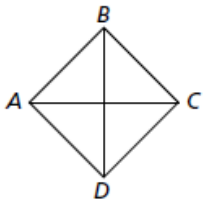
Conclusion: *EFGH* is a rhombus.



NOT valid. You must first know that EFGH is a parallelogram.

10. Given: <ABC is a right angle.

Prove: *ABCD* is a rectangle.



If one ∠ is a right ∠, Then rect., but you need to know that this is a parallelogram.