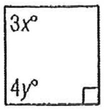
NAME ~~Key~~ DATE ______ PERIOD ____

6-2 Study Guide and Intervention *(continued)*

Exercises

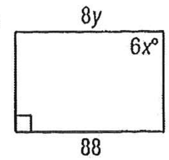
Find x and y in each parallelogram.

$x = 30$
$y = 22.5$

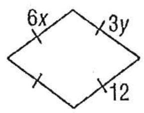
1. 

$3x = 90$
$x = 30$

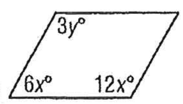
$x = 15$
$y = 11$

2. 

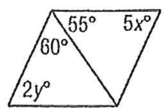
$x = 2$
$y = 4$

3. 

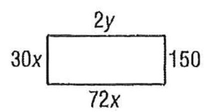
$x = 10$
$y = 40$

4. 

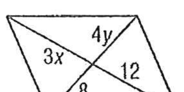
$x = 13$
$y = 32.5$

5. 

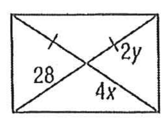
$x = 5$
$y = 150$

6. 

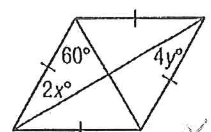
Find x and y in each parallelogram.

1. 

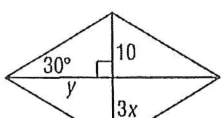
$x = 4, y = 2$

2. 

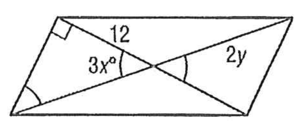
$x = 7, y = 14$

3. 

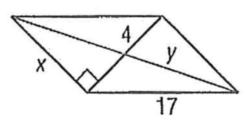
$x = 15$
$y = 7.5$

4. 

$x = 3\frac{1}{3}, y = 10\sqrt{3}$

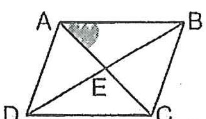
5. 

$x = 15, y = 6\sqrt{2}$

6. 

$x = 15$
$y = \sqrt{241}$

Complete each statement about $\square ABCD$. Justify your answer.



7. $\angle BAC \cong \angle DCA$ alt int ∠s are ≅

8. $\overline{DE} \cong$ EB diagonals of para bisect each other

9. $\triangle ADC \cong \triangle CBA$ diagonals of paras form ≅ △

10. $\overline{AD} \parallel \overline{DC}$ opp. sides of a parallelogram are ∥.

See Next Page for Proofs!

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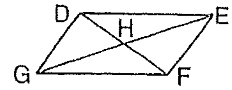
6-2 Skills Practice

Parallelograms

Complete each statement about ▱$DEFG$. Justify your answer.



1. $\overline{DG} \parallel$ __?__ EF, opp. sides of a parallelogram are ∥

2. $\overline{DE} \cong$ __?__ GF, opp. sides of a para are ≅

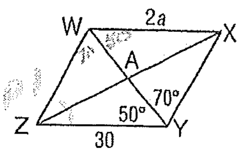
3. $\overline{GH} \cong$ __?__ EH, diagonals of a parallelogram bisect each other.

4. $\angle DEF \cong$ __?__ ∠FGD, opposite ∠s of a para are ≅

5. $\angle EFG$ is supplementary to __?__. ∠DEF or ∠FGD, con. int ∠s are suppl.

6. $\triangle DGE \cong$ __?__ △FEG diagonals ÷ into 2 ≅ △s
Have students skip for regular Geo.

ALGEBRA **Use ▱$WXYZ$ to find each measure or value.**



7. $m\angle XYZ =$ 50+70 = 120° angle addition

8. $m\angle WZY =$ 60° con. int ∠s suppl

9. $m\angle WXY =$ 60 opp. ∠s of a parallelogram

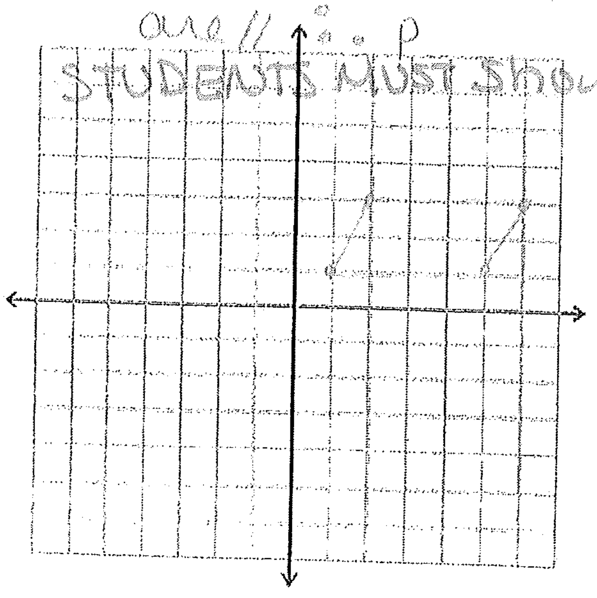
10. $a =$ 15 2a = 30 op. sides of a para are ≅

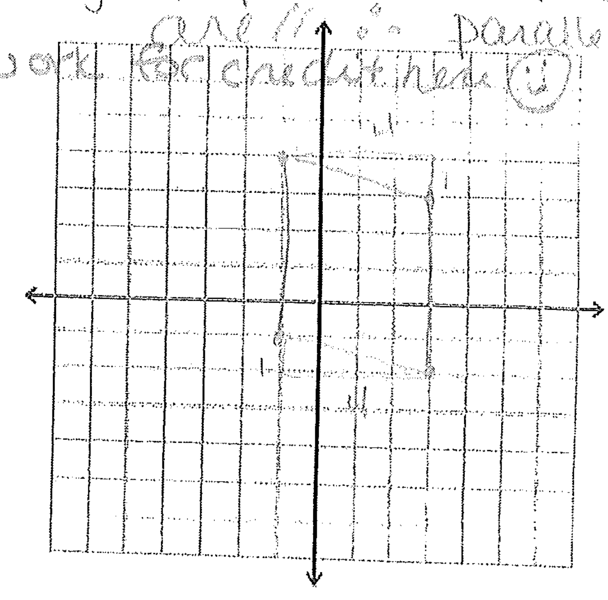
COORDINATE GEOMETRY **Find the coordinates of the intersection of the diagonals of parallelogram $HJKL$ given each set of vertices.**

11. $H(1, 1)$, $J(2, 3)$, $K(6, 3)$, $L(5, 1)$
Yes, opp. side slopes are ∥ ∴ p

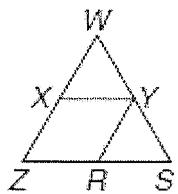
12. $H(-1, 4)$, $J(3, 3)$, $K(3, -2)$, $L(-1, -1)$
yes, op. side slopes are ∥ ∴ parallelogram

STUDENTS MUST show work for credit here ☺



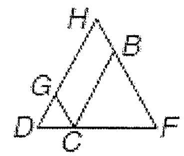


Given: $\square XYRZ$, $\overline{WZ} \cong \overline{WS}$
Prove: $\angle XYR \cong \angle S$



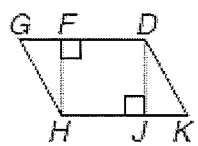
Proof:
Opposite angles of a parallelogram are congruent, so $\angle Z \cong \angle XYR$. By the Isosceles Triangle Theorem, since $\overline{WZ} \cong \overline{WS}$, $\angle Z \cong \angle S$. By the Transitive Property, $\angle XYR \cong \angle S$.

Given: $\square BCGH$, $\overline{HD} \cong \overline{FD}$
Prove: $\angle F \cong \angle GCB$



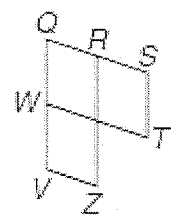
Proof:
<u>**Statements (Reasons)**</u>
1. $\square BCGH$, $\overline{HD} \cong \overline{FD}$ (Given)
2. $\angle F \cong \angle H$ (Isosceles $\triangle$ Thm.)
3. $\angle H \cong \angle GCB$ (Opp. $\angle$s of $\square \cong$.)
4. $\angle F \cong \angle GCB$ (Congruence of $\angle$s is transitive.)

Given: $\square DGHK$, $\overline{FH} \perp \overline{GD}$, $\overline{DJ} \perp \overline{HK}$
Prove: $\triangle DJK \cong \triangle HFG$



Proof:
<u>**Statements (Reasons)**</u>
1. $\square DGHK$, $\overline{FH} \perp \overline{GD}$, $\overline{DJ} \perp \overline{HK}$ (Given)
2. $\angle G \cong \angle K$ (Opp. $\angle$s of $\square \cong$.)
3. $\overline{GH} \cong \overline{DK}$ (Opp. sides of $\square \cong$.)
4. $\angle HFG$ and $\angle DJK$ are rt. $\angle$s. ($\perp$ lines form four rt. $\angle$s.)
5. $\triangle HFG$ and $\triangle DJK$ are rt. $\triangle$s. (Def. of rt. $\triangle$s)
6. $\triangle HFG \cong \triangle DJK$ (HA)

Given: $\square VZRQ$ and $\square WQST$
Prove: $\angle Z \cong \angle T$



Proof:
<u>**Statements (Reasons)**</u>
1. $\square VZRQ$ and $\square WQST$ (Given)
2. $\angle Z \cong \angle Q$, $\angle Q \cong \angle T$ (Opp. $\angle$s of a $\square$ are $\cong$.)
3. $\angle Z \cong \angle T$ (Transitive Prop.)