Parallelograms and *Rectangles*   it out.
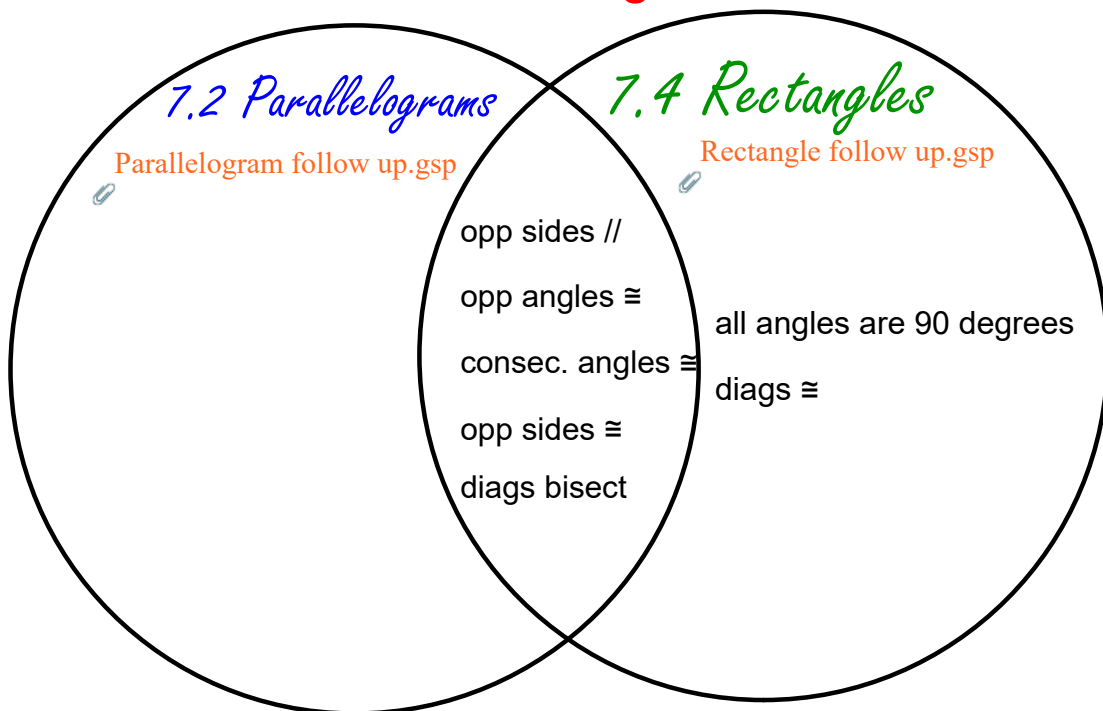
Jan 26-12:26 PM

Warm up: Complete the following Venn Diagram

7.2 Parallelograms

Parallelogram follow up.gsp

7.4 Rectangles

Rectangle follow up.gsp

opp sides //

opp angles ≅

consec. angles ≅

opp sides ≅

diags bisect

all angles are 90 degrees

diags ≅

Jan 13-2:48 PM

1

7.3 Conditions for Parallelograms

Both pairs of opposite sides are parallel

Both pairs of opposite sides are congruent

Both pairs of opposite angles are congruent.

One angle is supplementary to both of its consecutive angles.

The diagonals bisect each other.

*To show that a quadrilateral is a parallelogram,
you only have to show that is satisfies <u>one</u> of these sets of conditions*

measure diagonals to prove bisected.

measure sides to make sure congruent

use level to check for parallel
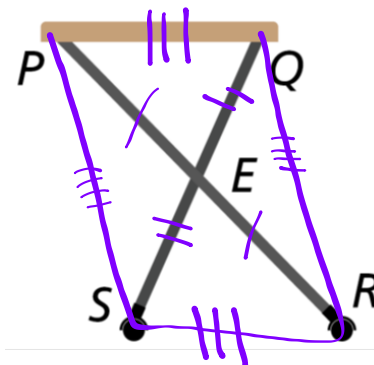
Jan 25-10:16 AM

7.2 Example
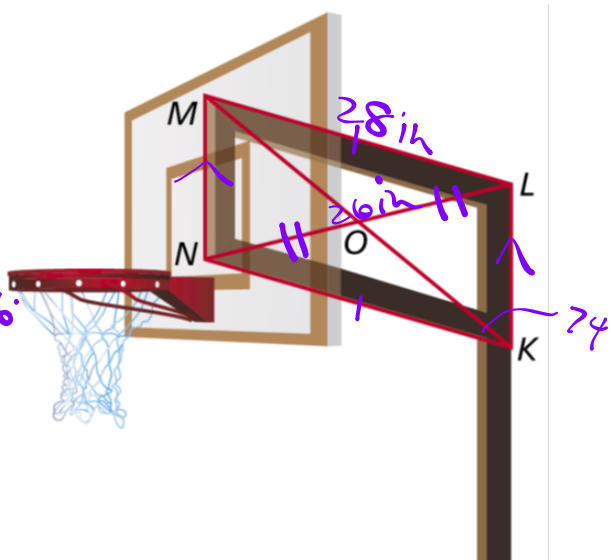
**In parallelogram *KLMN*, *LM* = 28 in.,
LN = 26 in., and m∠*LKN* = 74°.**

KN = __28 in__

m∠*NML* = __74°__

m∠*KNM* = __106°__

180−74=106°

LO = __13 in__

Jan 13-2:12 PM

2
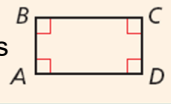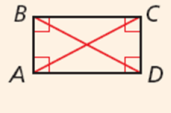
7.4 Theorems — Properties of Rectangles

THEOREM	HYPOTHESIS	CONCLUSION
6. If a quadrilateral is a rectangle, then it is a 90° angles parallelogram. (rect. → ▱)	B, C, A, D	ABCD is a parallelogram.
7. If a parallelogram is a rectangle, then its diagonals are congruent. (rect. → diags. ≅)	B, C, A, D	$\overline{AC} \cong \overline{BD}$

Since a rectangle is a parallelogram, a rectangle "inherits" all the properties of parallelograms.

EX: A manufacture builds a mold for a desktop so that $\overline{AB} \cong \overline{CD}$, $\overline{BC} \cong \overline{DA}$ and m∠ABC = 90°. Why must ABCD be a rectangle?

Both pairs of opposites sides of ABCD are congruent, so ABCD is a parallelogram.
Since m∠ABC = 90°,
ABCD is a rectangle
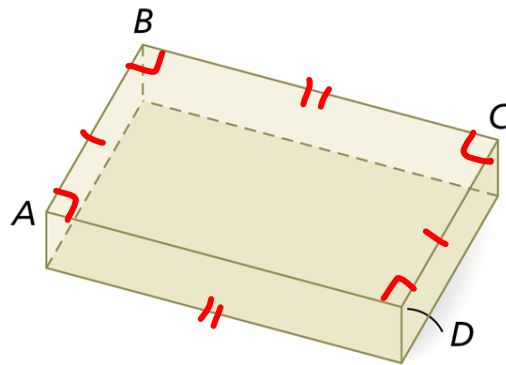
Jan 25-10:24 AM

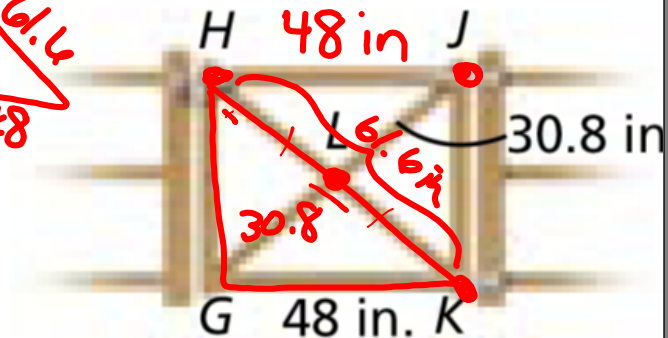
7.4 Example

The rectangular gate has diagonal braces.

HK = __61.6 in__

HG = __38.6 in__

m∠GHK = __TRIG__

m∠GLK = __TRIG__

H 48 in J

30.8 in

G 48 in. K

x, 61.6, 48

```
48
            2304
3794.56-2304
          1490.56
√Ans
        38.60777124
■
```

Hint: Check answers by moving picture!!

Jan 25-10:24 AM

3

7.2 Parallelogram

ROAC is a parallelogram, $m\angle ROA = 76°$
$m\angle ARC = 58°$, $m\angle OCA = 37°$, $RH = 4$, $CH = 5$
$RC = 6$, $RO = 7$

$m\angle RCA = \underline{76°}$, $m\angle CRO = \underline{104°}$

$m\angle RCH = \underline{39°}$, $m\angle RHC = \underline{95°}$

$m\angle CHA = \underline{85°}$, $m\angle HAC = \underline{58°}$

$OA = \underline{6}$, $CA = \underline{7}$

$OH = \underline{5}$, $HA = \underline{4}$
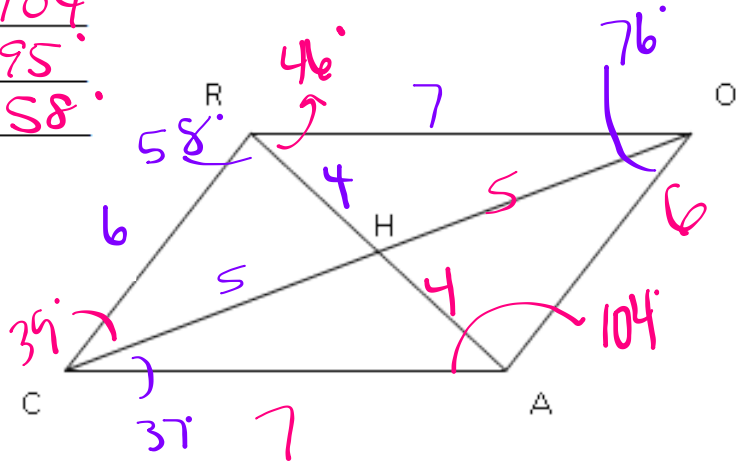
Jan 13-2:20 PM

7.4 Rectangle

QUAD is a rectangle, $m\angle SDA = 30°$,
$UA = 8$

$m\angle DUA = \underline{60°}$, $m\angle SAU = \underline{60°}$

$m\angle QUS = \underline{30°}$, $m\angle QDA = \underline{90°}$

$m\angle QSU = \underline{120°}$, $m\angle QSD = \underline{60°}$

$UD = \underline{16}$, $QA = \underline{16}$

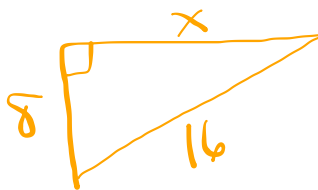$SA = \underline{8}$, $QU = \underline{13.856}$
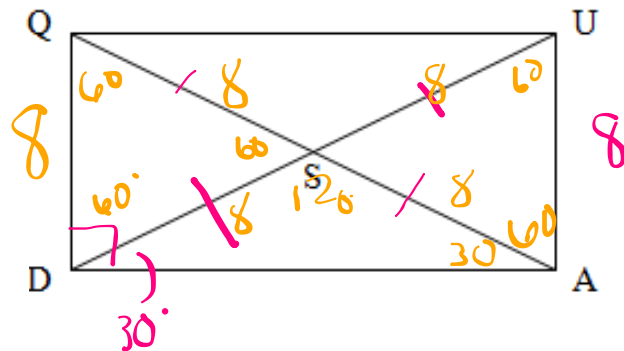
$16^2 - 8^2$

192

$\sqrt{192}$

13.85640646

$8^2 + x^2 = 16^2$

Jan 13-2:44 PM

4

Attachments

Christopher Le and Hunter Lockwood Rhombus.pptx

Rhombus follow up.gsp

Square follow up.gsp

Get on the RhomBUS! 2nd per.pptx

Squares 4th period.docx

The Square 4th per.pptx

Parallelogram follow up.gsp

Rectangle follow up.gsp