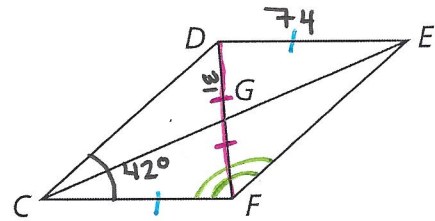


Section 7.1-7.2

1. In $\square CDEF$, $DE = 74$ mm, $DG = 31$ mm, and $m\angle FCD = 42^\circ$.

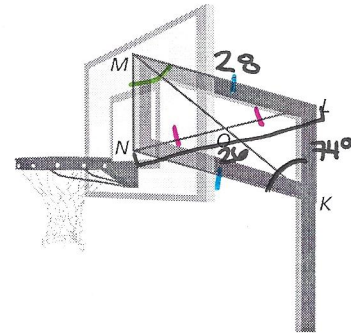
- a) Find CF $\rightarrow DE = CF \rightarrow 74 = CF$
- b) Find $m\angle EFC \rightarrow \angle C + \angle F = 180$
 $42 + \angle F = 180$
 $\angle F = 138^\circ$
- c) Find DF

$DF = DG + GF$
 $DF = 31 + 31 = 62$



2. In $\square KLMN$, $LM = 28$ in., $LN = 26$ in., and $m\angle LKN = 74^\circ$. Find KN .

- a) Find $KN \rightarrow LM = KN \rightarrow 28 = KN$
- b) Find $m\angle NML \rightarrow \angle LKN = \angle NML$
 $74^\circ = \angle NML$
- c) Find LO
 $LO = \frac{LN}{2} \rightarrow LO = \frac{26}{2} \rightarrow LO = 13$

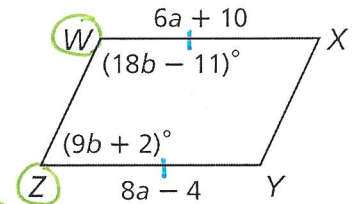


3. $WXYZ$ is a parallelogram.

- a) Find $YZ \rightarrow 8(7) - 4$
 $YZ = 52$
- b) Find $m\angle Z$
 $9(7) + 2 = 65^\circ$

$6a + 10 = 8a - 4$
 $14 = 2a$
 $7 = a$

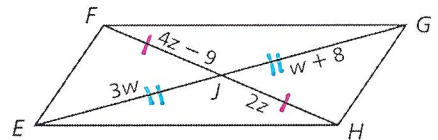
$18b - 11 + 9b + 2 = 180$
 $27b - 9 = 180 \rightarrow 27b = 189$
 $b = 7$



4. $EFGH$ is a parallelogram.

- a) $JG = (4) + 8 = 12$
- b) FH
 $FJ + JH = FH$
 $9 + 9 = FH$
 $18 = FH$

$4z - 9 = 2z$
 $-9 = -2z$
 $4.5 = z$

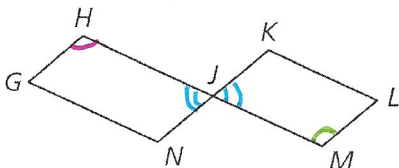


$3w = w + 8$
 $2w = 8$
 $w = 4$

5. Given:

$GHJN$ and $JKLM$ are parallelograms.
 H and M are collinear. (on the same line)
 N and K are collinear. (on the same line)

Prove: $\angle H \cong \angle M$

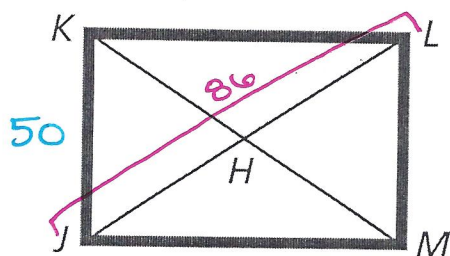


Statement	Reason
1. $GHJN$ and $JKLM$ are parallelograms.	Given
2. $\angle H$ and $\angle HJN$ are supp. $\angle M$ and $\angle MJK$ are supp.	Consecutive LS Supp.
3. $\angle HJN \cong \angle MJK$	Vertical LS
4. $\angle H \cong \angle M$	\cong Supp. Thm.

Options for Proof:

Vertical Angles Theorem, Given, Consecutive Angles Supplementary, Supplementary Angles Congruence Theorem

6. A woodworker constructs a rectangular picture frame so that $JK = 50$ cm and $JL = 86$ cm. Find HM .



*diagonals are congruent

$$JL = KM$$

$$86 = KM$$

$$HM = \frac{KM}{2} = \frac{86}{2} = \boxed{43}$$

7. $TVWX$ is a rhombus.

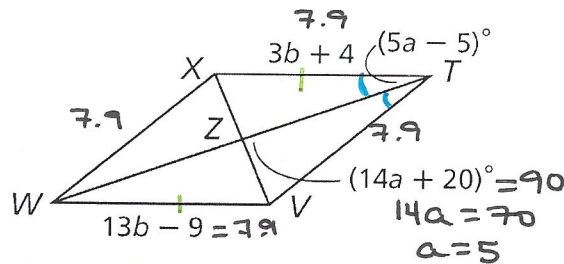
a) Find $TV = \boxed{7.9}$

b) Find $m\angle VTZ = \angle XTZ$

$$\angle VTZ = 5(5) - 5 = \boxed{20^\circ}$$

$$3b + 4 = 13b - 9$$

$$13 = 10b \rightarrow 1.3 = b$$



8. Show that the diagonals of square $EFGH$ are congruent perpendicular bisectors of each other.

$$FH = \sqrt{(-1-0)^2 + (3-(-4))^2} = \sqrt{50} = 5\sqrt{2}$$

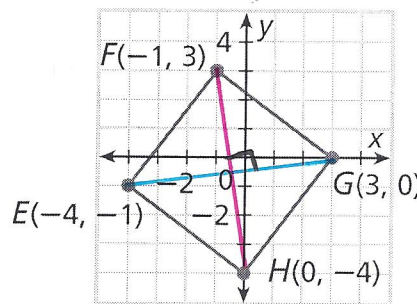
$$EG = \sqrt{(-4-3)^2 + (-1-0)^2} = \sqrt{50} = 5\sqrt{2}$$

Slope of $FH = -7$

Slope of $EG = 1/7$

Midpoint of $FH = \left(\frac{-1+0}{2}, \frac{3+(-4)}{2} \right) = \left(-\frac{1}{2}, -\frac{1}{2} \right)$

Midpoint of $EG = \left(\frac{-4+3}{2}, \frac{-1+0}{2} \right) = \left(-\frac{1}{2}, -\frac{1}{2} \right)$



$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$