

Day 56 Bellwork: Have homework out and then solve the following

1. $15x^2 + 2x + 1 = 0$

2. $3x(x + 1) = x - 5$

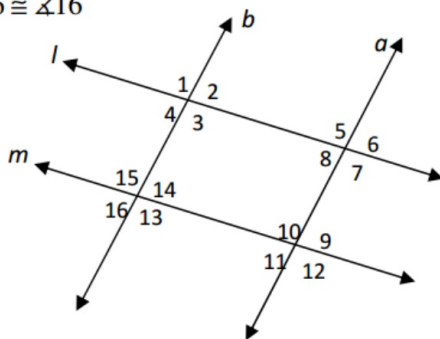


Recall:

1.

Given: $a \parallel b; l \parallel m$

Prove: $\angle 6 \cong \angle 16$



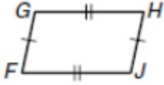
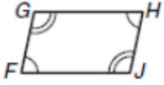

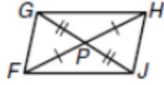
2.

Given: $a \parallel b, l \parallel m$

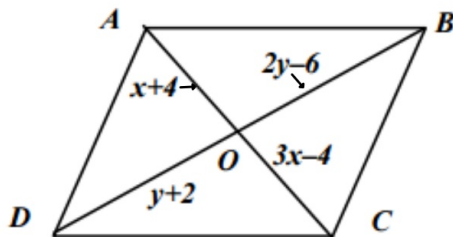
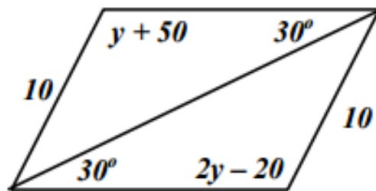
Prove: $\angle 15$ and $\angle 6$ are supplementary

Proving Parallelograms

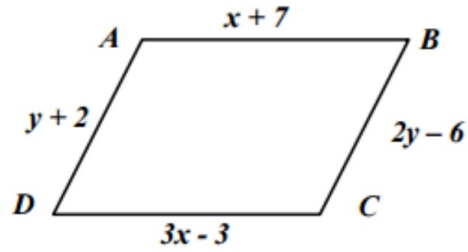
Definition of a parallelogram - two pairs of parallel sides

Properties of Parallelograms	
 <p>Opposite sides are congruent.</p>	$\overline{FG} \cong \overline{HJ}$ $\overline{GH} \cong \overline{JF}$
 <p>Opposite angles are congruent.</p>	$\angle F \cong \angle H$ $\angle G \cong \angle J$
 <p>Consecutive angles are supplementary.</p>	$m\angle F + m\angle G = 180^\circ$ $m\angle G + m\angle H = 180^\circ$ $m\angle H + m\angle J = 180^\circ$ $m\angle J + m\angle F = 180^\circ$
 <p>The diagonals bisect each other.</p>	$\overline{FP} \cong \overline{HP}$ $\overline{GP} \cong \overline{JP}$

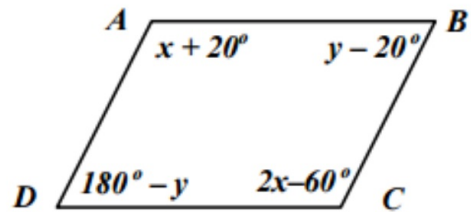
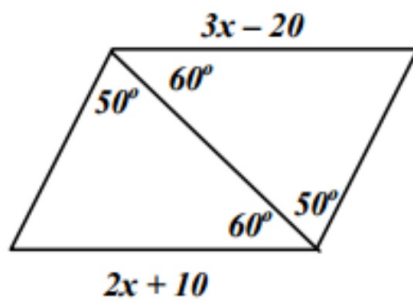
Solve for the following unknown variables:



$ABCD$ is a parallelogram, what's the perimeter of $ABCD$?

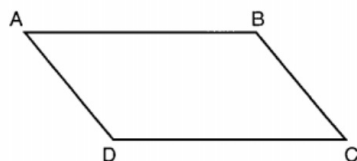


Try these...



Complete the statement and give the reason that justifies the statement.

Given: ABCD is a parallelogram

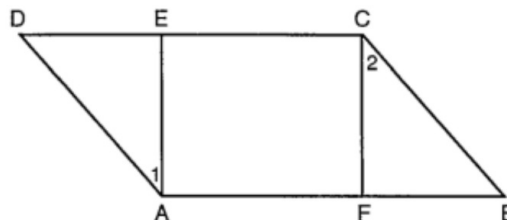


Statements	Reasons
a. $\overline{AB} \cong \underline{\hspace{1cm}}$ and $\overline{AD} \cong \underline{\hspace{1cm}}$	a.
b. $\angle A \cong \underline{\hspace{1cm}}$ and $\angle D \cong \underline{\hspace{1cm}}$	b.
c. $\overline{AB} \parallel \underline{\hspace{1cm}}$ and $\overline{AD} \parallel \underline{\hspace{1cm}}$	c.
d. $\angle A$ <i>suppl.</i> $\underline{\hspace{1cm}}$ and $\underline{\hspace{1cm}}$ $\angle C$ <i>suppl.</i> $\underline{\hspace{1cm}}$ and $\underline{\hspace{1cm}}$	d.
e. Draw \overline{AC} and \overline{BD} . (The lines intersect at E.)	e. Two Points Make a Line.
f. $\angle BAC \cong \underline{\hspace{1cm}}$ and $\angle DAC \cong \underline{\hspace{1cm}}$	f.
g. $\overline{AE} \cong \underline{\hspace{1cm}}$ and $\overline{DE} \cong \underline{\hspace{1cm}}$	g.

Proofs

Given: $\square ABCD$
 $\overline{DE} \cong \overline{FB}$

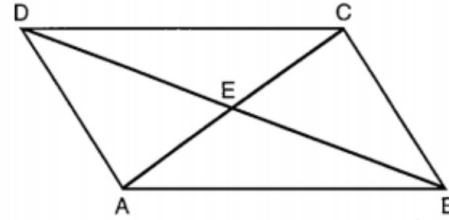
Prove: a) $\triangle DEA \cong \triangle BFC$
b) $\angle 1 \cong \angle 2$



STATEMENT	REASONS
1. Parallelogram ABCD	1. Given
2. $\overline{AD} \cong \underline{\hspace{1cm}}$	2.
3. $\angle D \cong \underline{\hspace{1cm}}$	3.
4. $\overline{DE} \cong \overline{FB}$	4. Given
5.	5.
6.	6.

Given: $\square ABCD$

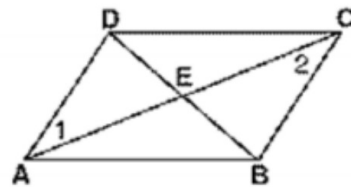
Prove: $\triangle AEB \cong \triangle CED$



STATEMENT	REASONS
1. Parallelogram ABCD	1. Given
2. $\overline{AB} \cong \underline{\hspace{1cm}}$	2.
3. $\overline{AB} \parallel \underline{\hspace{1cm}}$	3.
4. $\angle CAB \cong \underline{\hspace{1cm}}$	4.
5. $\angle AEB \cong \underline{\hspace{1cm}}$	5.
6.	6.

Given: \overline{DB} bisects \overline{AC}
 $\angle 1 \cong \angle 2$

Prove: ABCD is a parallelogram



Statements	Reasons

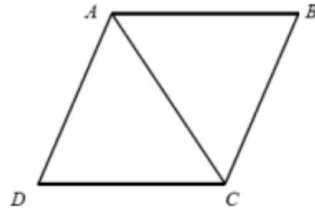
Definition of a parallelogram - two pairs of parallel sides

You Try It!

Given: $\square ABCD$

Prove: $\triangle DAC \cong \triangle BCA$

(At most 6 steps! You may not need all 6!!!)

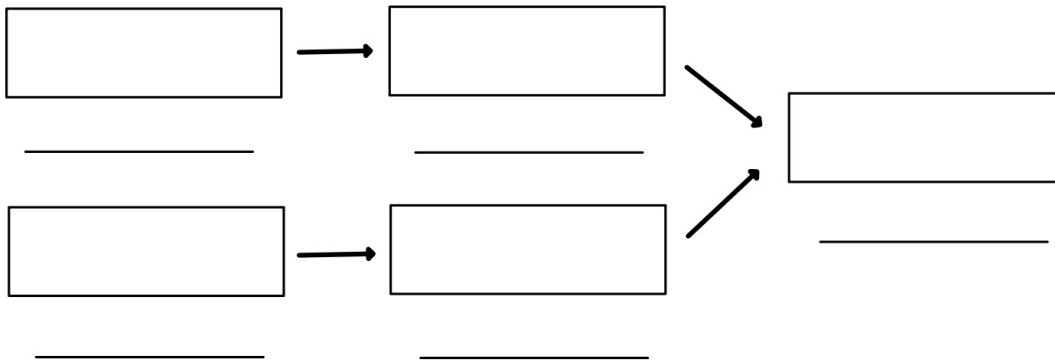
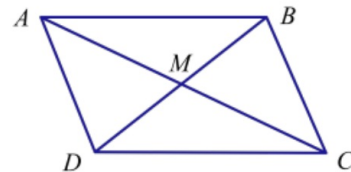


Statements	Reasons
1	1
2	2
3	3
4	4
5	5
6	6

Create a Flow Proof for the following:

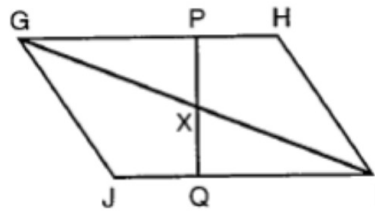
Given: M is the midpoint of DB and AC

Prove: $ABCD$ is a parallelogram



Given: \square GHIJ

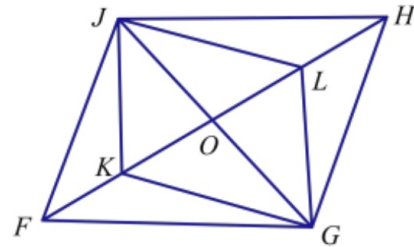
Prove: $\overline{PX} \cong \overline{QX}$



Statements	Reasons
1	1
2 $JI \cong HG$	2
3	3 Diagonals bisect each other
4	4
5	5 Alternate interior angles
6	6 Vertical angles
7	7
8	8

Challenge Question

4. **Given:** FGHI is a parallelogram; $FK = HL$
Prove: KGLJ is a parallelogram



Statements	Reasons
1. FGHI is a parallelogram	1.
2. \overline{JG} and \overline{FH} bisect each other	2.
3. O is the midpoint of \overline{JG} and \overline{FH}	3.
4. $FO = OH$	4.
5. $FO = FK + KO$; $OH =$ _____	5.
6.	6. Substitution
7. $FK = HL$	7. Given
8. $KO = OL$	8.
9. O is the midpoint of \overline{KL}	9.
10.	10. Def. of segment bisector
11.	11.