

1. Using the following image, find each missing angle measurement.

<p>$m\angle a = 110^\circ, m\angle f = 42^\circ, m\angle m = 75^\circ$</p>	<p>$m\angle c = 68^\circ$ $m\angle j = 42^\circ$ $m\angle e = 84^\circ$ $m\angle n = 63^\circ$ $m\angle g = 96^\circ$ $m\angle p = 117^\circ$ $m\angle h = 96^\circ$</p>
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2. Using the following figures, solve the needed values.

<p>Exterior Angle = Sum of 2 remote interior angles.</p>	<p>$m\angle SRG$ $56 + 76 = X$ $132 = X$</p> <p>$m\angle TRS$ $180 - 132 = 48^\circ$</p>	<p>$m\angle SRG = 132^\circ$ $m\angle TRS = 48^\circ$</p>
	<p>$17x + 2 + 11x + 1 = 115$ $28x + 3 = 115$ $28x = 112$ $x = 4$</p> <p>$m\angle R$ $11(4) + 1$ $44 + 1$ 45</p>	<p>$x = 4$ $m\angle R = 45$</p>
	<p>$15x - 3 + 43 = 24x + 4$ $15x + 40 = 24x + 4$ $40 = 9x + 4$ $36 = 9x$ $x = 4$</p> <p>$m\angle Q = 15(4) - 3$ $= 60 - 3 = 57$</p> <p>$m\angle PRQ$ $43 + 57 + x = 180$ $100 + x = 180$ $x = 80^\circ$</p>	<p>$x = 4$ $m\angle PRQ = 80^\circ$ $m\angle Q = 57^\circ$</p>
	<p>$6x + 10 + 38 = 11x + 8$ $6x + 48 = 11x + 8$ $48 = 5x + 8$ $40 = 5x$ $8 = x$</p> <p>$m\angle S$ $6(8) + 10 = 58^\circ$</p> <p>$m\angle RQU$ $11(8) + 8 = 96^\circ$</p>	<p>$x = 8$ $m\angle S = 58^\circ$ $m\angle RQU = 96^\circ$</p>

3. Using the Isosceles triangles, solve for the missing information.

	<p>opposite angles of congruent sides are congruent $180 - 114 = 66^\circ$ $180 - 66 - 66 = 48^\circ$</p>	<p>$x = 48^\circ$</p>
<p>$m\angle 2 = 7x - 2$</p>	<p>$72 + 7x - 2 + 7x - 2 = 180$ $68 + 14x = 180$ $14x = 112$ $x = 8$</p>	<p>$m\angle 2$ $7(8) - 2 = 54^\circ$ $m\angle 2 = 54^\circ$</p> <p>$x = 8$ $m\angle 2 = 54^\circ$</p>

4. State whether these triangles are congruent by SSS, SAS, ASA, AAS, HL, or none and **circle the answer**.

Write a Congruence Statement if and only if the triangles are congruent.

	<p>SAS SSS ASA AAS HL NONE</p> <p>Statement: $\triangle ABC \cong \triangle EDC$</p>		<p>SAS SSS ASA AAS HL NONE</p> <p>Statement: n/a</p>
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	<p>SAS SSS ASA AAS HL NONE</p> <p>Statement: $\triangle ABC \cong \triangle CDA$</p>		<p>SAS SSS ASA AAS HL NONE</p> <p>Statement: $\triangle ABD \cong \triangle CBD$</p>
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ALGEBRAIC PROOFS. Fill in the missing information for each algebraic proof.

5. Given: $6 = 10 - 2x + 8$

Prove: $x = 6$

STATEMENT	REASON
$6 = 10 - 2x + 8$	Given
$6 = 18 - 2x$	Combine Like Terms
$-12 = -2x$	Subtraction Property
$6 = x$	Division Property
$x = 6$	Symmetric Property

6. Given: $5x + 34 = -2(1 - 7x)$

Prove: $x = 4$

STATEMENT	REASON
$5x + 34 = -2(1 - 7x)$	Given
$5x + 34 = -2 + 14x$ <small>$-5x$ $-5x$</small>	Distributive Property
$34 = -2 + 9x$ <small>$+2$ $+2$</small>	Subtraction Property
$36 = 9x$	Addition Property
$4 = x$	Division Property
$x = 4$	Symmetric Property

7. Given: $-8(6 + 5x) + 5 = 3x$

Prove: $x = -1$

STATEMENT	REASON
$-8(6+5x)+5=3x$	Given
$-48-40x+5=3x$	Distributive Property
$-43-40x=3x$	Combine like terms
$-43=43x$	Addition Property
$-1=x$	Division Property
$\rightarrow x=-1$	Symmetric Property

8. Given: $8x + 12 = 9 + 5x$

Prove: $x = -1$

STATEMENT	REASON
$8x+12=9+5x$	Given
$3x+12=9$	Subtraction Property
$3x=-3$	Subtraction Property
$x=-1$	Division Property

9. If $\triangle FUN \cong \triangle DAY$, then:

a. $\angle F \cong \angle D$

b. $\angle U \cong \angle A$

c. $\angle N \cong \angle Y$

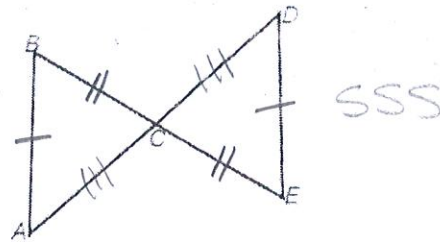
d. $\overline{FU} \cong \overline{DA}$

e. $\overline{UN} \cong \overline{AY}$

f. $\overline{FN} \cong \overline{DY}$

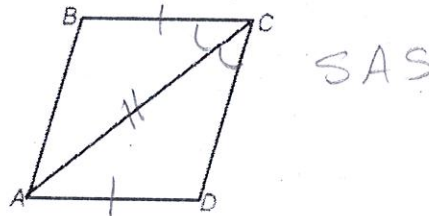
10. Given: $\overline{BA} \cong \overline{ED}$
 C is the midpoint of \overline{BE} and \overline{AD}

Prove: $\triangle ABC \cong \triangle DEC$



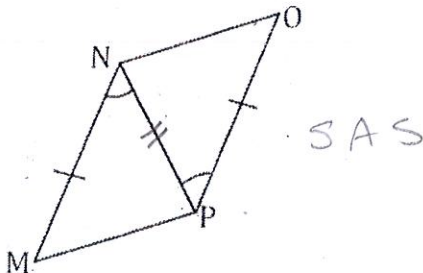
Statement	Reason
1. $\overline{BA} \cong \overline{ED}$	Given
2. C is the midpoint of \overline{BE} and \overline{AD}	Given
3. $\overline{BC} \cong \overline{EC}$	Definition of midpoint
4. $\overline{AC} \cong \overline{DC}$	Definition of midpoint
5. $\triangle ABC \cong \triangle DEC$	SSS

11. Given: $\overline{BC} \cong \overline{DA}$
 \overline{AC} bisects $\angle BCD$
- Prove: $\triangle ABC \cong \triangle CDA$



Statement	Reason
1. $\overline{BC} \cong \overline{DA}$	Given
2. \overline{AC} bisects $\angle BCD$	Given
3. $\angle BCA \cong \angle DCA$	Definition of angle bisector
4. $\overline{AC} \cong \overline{AC}$	Reflexive Property
5. $\triangle ABC \cong \triangle CDA$	SAS

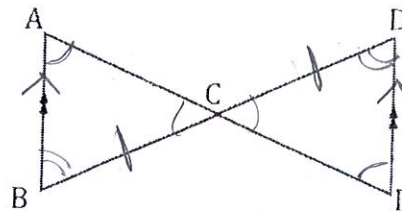
12. Given: $\angle MNP \cong \angle OPN$, and $\overline{MN} \cong \overline{OP}$



Prove: $\overline{MP} \cong \overline{NO}$

Statements	Reasons
1. $\angle MNP \cong \angle OPN$	1. Given
2. $\overline{MN} \cong \overline{OP}$	2. Given
3. $\overline{NP} \cong \overline{NP}$	3. Reflexive Property
4. $\triangle MNP \cong \triangle OPN$	4. SAS
5. $\overline{MP} \cong \overline{NO}$	5. CPCTC

13. Given: $\overline{AB} \parallel \overline{DE}$, \overline{AE} bisects \overline{BD}



Prove: $\overline{AC} \cong \overline{EC}$

Statements	Reasons
1. $\overline{AB} \parallel \overline{DE}$	1. Given
2. \overline{AE} bisects \overline{BD}	2. Given
3. $\angle ABC \cong \angle DEC$	3. Alternate interior angles
4. $\angle ACB \cong \angle DCE$	4. Vertical Angles
5. $\overline{BC} \cong \overline{DC}$	5. Def of Bisect
6. $\triangle ABC \cong \triangle DEC$	6. ASA
7. $\overline{AC} \cong \overline{EC}$	7. CPCTC