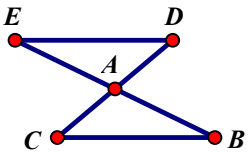
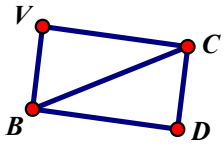
1. Prove the following relationships using SSS, SAS, ASA or AAS.

a) **GIVEN**:
$\angle B \cong \angle E$ & $\overline{CB} \cong \overline{DE}$
PROVE:
$\Delta EAD \cong \Delta BAC$



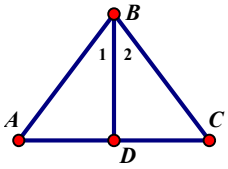
STATEMENT	REASON

b) **GIVEN:**
$\overline{VC} \cong \overline{DB}$ &
$\overline{VB} \cong \overline{DC}$
PROVE:
$\Delta BVC \cong \Delta CDB$



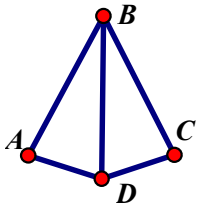
STATEMENT	REASON

c) **GIVEN**:
$\angle 1 \cong \angle 2$ & $\overline{BA} \cong \overline{BC}$
PROVE:
$\Delta ABD \cong \Delta CBD$



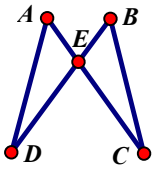
STATEMENT	REASON

d) **GIVEN:**
$\overline{BD}$ bisects $\angle ADC$
$\overline{BD}$ bisects $\angle ABC$
PROVE:
$\Delta DAB \cong \Delta DCB$



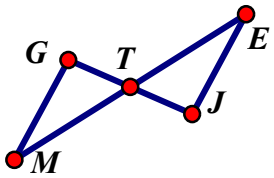
STATEMENT	REASON

e) **GIVEN:**
$\overline{AE} \cong \overline{BE}$ &
$\overline{DE} \cong \overline{CE}$
PROVE:
$\Delta AED \cong \Delta BEC$



STATEMENT	REASON

f) **GIVEN**:
T is midpt of $\overline{ME}$ & $\overline{GJ}$
PROVE:
$\Delta MGT \cong \Delta EJT$

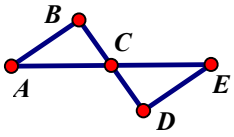


STATEMENT	REASON

2. Prove the following relationships using CPCTC

a) **GIVEN**:
$\overline{BC} \cong \overline{DC}$ & $\overline{AC} \cong \overline{EC}$

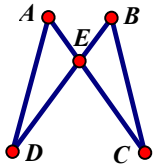
PROVE:
$\angle A \cong \angle E$



STATEMENT	REASON

b) **GIVEN:**
$\angle D \cong \angle C$ & $\overline{DE} \cong \overline{CE}$

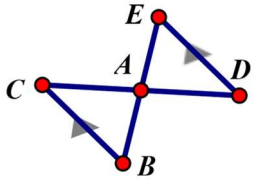
PROVE:
$\overline{AD} \cong \overline{BC}$



STATEMENT	REASON

f) **GIVEN:**
$\overline{CB} \,||\, \overline{ED}$ &
$\overline{CA} \cong \overline{DA}$

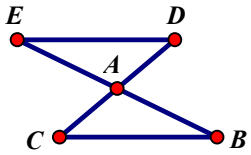
PROVE:
$\overline{BA} \cong \overline{EA}$



STATEMENT	REASON

d) **GIVEN**:
$\angle D \cong \angle C$ & $\overline{CA} \cong \overline{DA}$

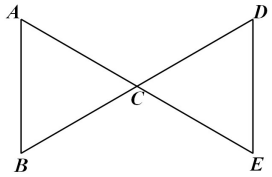
PROVE:
$\overline{EA} \cong \overline{BA}$



STATEMENT	REASON

For the following problems, mark the given information to determine if the triangles are congruent.

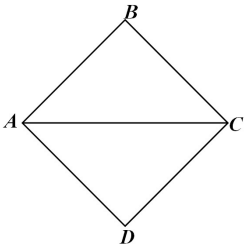
3. $\overline{AC} \cong \overline{DC}$, $\angle A \cong \angle D$



$\Delta CAB \cong \Delta$_____

By _____

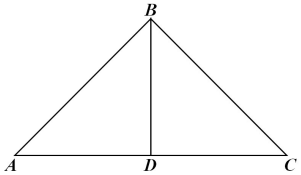
4. $\overline{AC}$ bisects $\angle BCD$ *and* $\angle B \cong \angle D$



$\Delta ACB \cong \Delta$_____

By _____

5. D is midpoint of $\overline{AC}$
$\angle ADB$ *and* $\angle CDB$ *are right angle*



$\Delta ABD \cong \Delta$_____

By _____

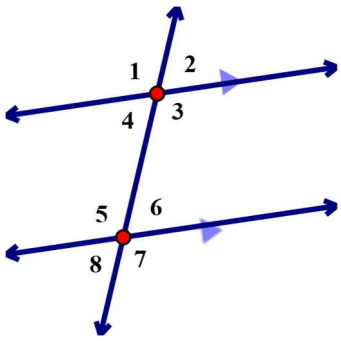
6. Solve the following.

a) if m∠7 = 100°, find m∠3 = _____ b) if m∠7 = 95°, find m∠6 = _____

c) if m∠1 = 120°, find m∠5 = _____ d) if m∠4 = 20°, find m∠7 = _____

e) if m∠3 = 140°, find m∠5 = _____ f) if m∠4 = 30°, find m∠1 = _____

g) if m∠4 = 40°, find m∠2 = _____ h) if m∠3 = 125°, find m∠8 = _____



7. Using the image above, state the name of the angle relationship:

a) ∠4 & ∠6 b) ∠7 & ∠3 c) ∠5 & ∠4 d) ∠8 & ∠2

e) ∠1 & ∠5 f) ∠1 & ∠4 g) ∠8 & ∠6 h) ∠3 & ∠6

8. Solve

a) m∠ 6 = _____

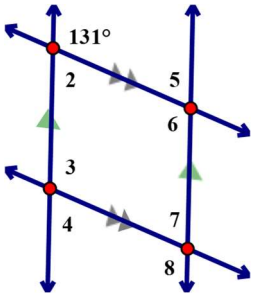
b) m∠ 7 = _____

c) m∠ 4 = _____

d) m∠ 2 = _____

e) m∠ 5 = _____

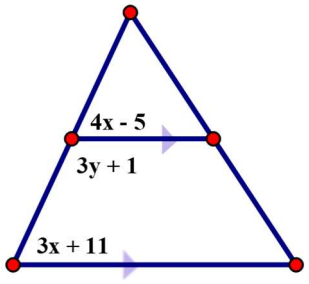
f) m∠ 8 = _____



9. Solve for x & y

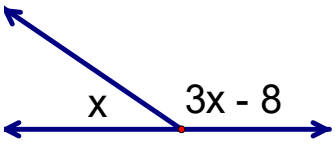
x = _____

y = _____

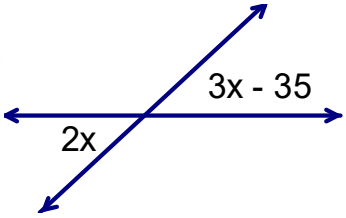


10. Solve for x and state the name of the angle relationship

a)



b)



11. Find the slope of each line

a) Line A contains the points (-4, -1) and (2, 2).

b) Line B contains the points (0, -3) and (3, -1).

c) Line C contains the points (-3, 3) and (0, -3).

d) Line D contains the points (0, 1) and (2, 2).

e) Are Lines A and B parallel? Give a reason for your answer.

f) Are Lines C and D perpendicular? Give a reason for your answer.

12. Identify the slope of each line:

a) $2y = 8x + 10$

b) $y + 2 = -3x$

c) $4x - 5y = 3$

13. Give the slope of each line described:

a) Parallel to $y = 3x + 2$: m = _____

b) Perpendicular to $y = -5x - 1$: m = _____

c) Perpendicular to $4x + 2y = 1$: m = _____

14. Write the equation of the line described:

a) Parallel to $y = 5x + 2$ that passes through (3, 13)

equation: _____

b) Perpendicular to $y = 4x + 1$ that passes through (-8, 6)

equation: _____

c) Perpendicular to $y = -\frac{3}{2}x - 12$ that passes through (-6, 1)

equation: _____

d) Parallel to $y = \frac{1}{2}x$ that passes through (5, 2)

equation: _____

15. Complete the Algebraic Proofs:

a) **GIVEN**: $3x - 2 = x + 6$
PROVE: $x = 4$

STATEMENT	REASON

b) **GIVEN:** $2(5 - x) = 5x + 3$
PROVE: $x = 1$

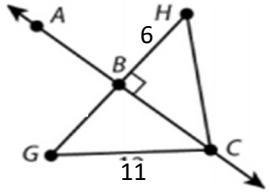
STATEMENT	REASON

16. Use the diagram below in which $\overleftrightarrow{AC}$ is a perpendicular bisector of $\overline{GH}$. Find the unknown value. Round to 1 decimal place when appropriate.

a) $GH =$

b) $CH =$

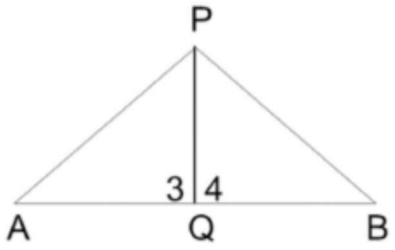
c) $BC =$



17. Fill in the blanks to complete the proof

a)

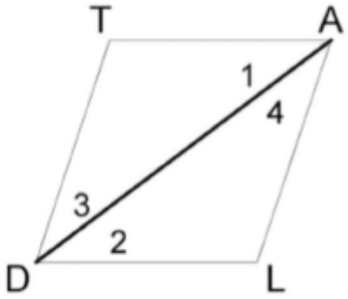
GIVEN: $\angle 3 \cong \angle 4$, $\overline{PQ}$ bisects $\angle APB$
PROVE: $\Delta APQ \cong \Delta BPQ$



STATEMENT	REASON
1. $\angle 3 \cong \angle 4$, $\overline{PQ}$ bisects $\angle APB$	1.
2. $\angle APQ \cong \angle BPQ$	2.
3.	3.
4. $\Delta APQ \cong \Delta BPQ$	4.

b)

GIVEN: $\overline{TA} \parallel \overline{LD}, \overline{TD} \parallel \overline{LA}$
PROVE: $\overline{TA} \cong \overline{LD}$



STATEMENT	REASON
1. $\overline{TA} \parallel \overline{LD}, \overline{TD} \parallel \overline{LA}$	1.
2. $\angle 1 \cong \angle 2, \angle 3 \cong \angle 4$	2.
3.	3.
4. $\Delta ATD \cong \Delta DLA$	4.
5. $\overline{TA} \cong \overline{LD}$	5.