

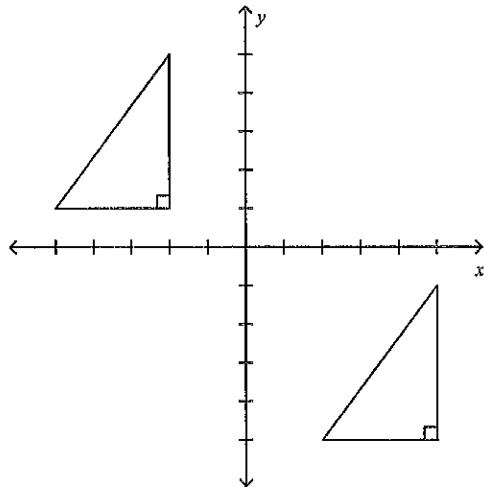
Geometry - Chapter 4 Practice Test

Multiple Choice

Identify the choice that best completes the statement or answers the question.

Identify the type of congruence transformation.

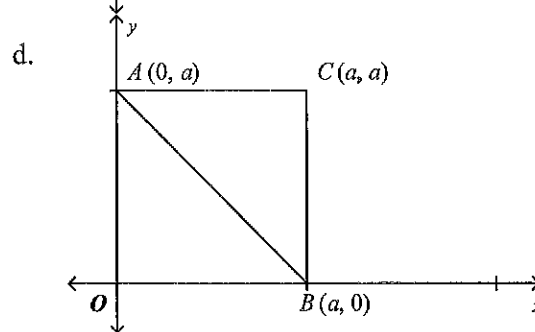
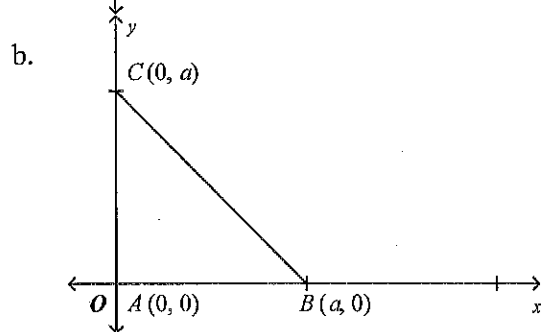
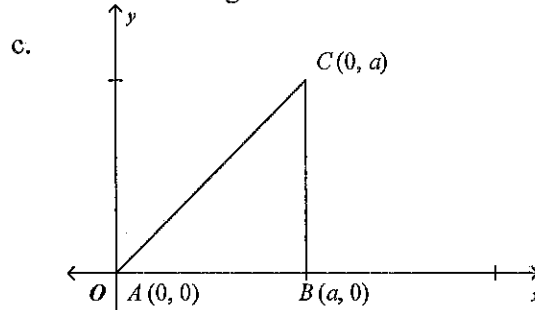
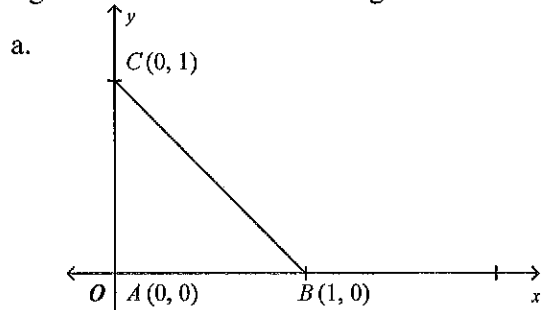
_____ 1.



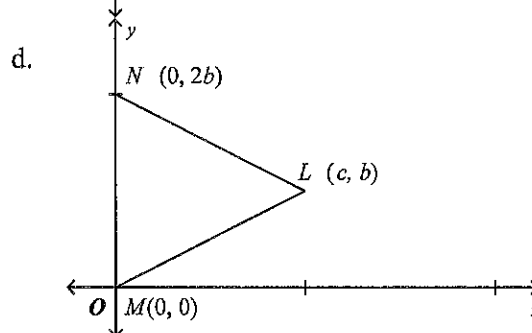
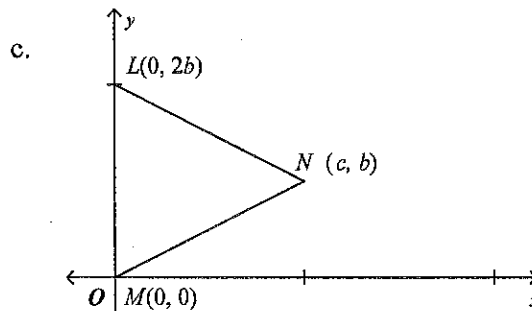
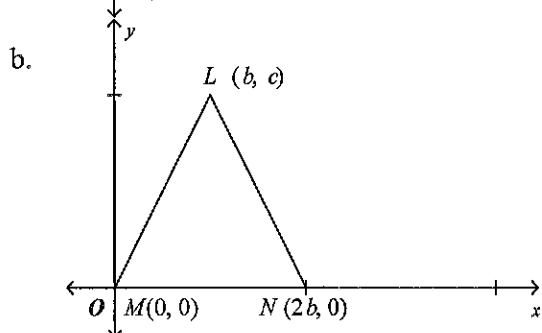
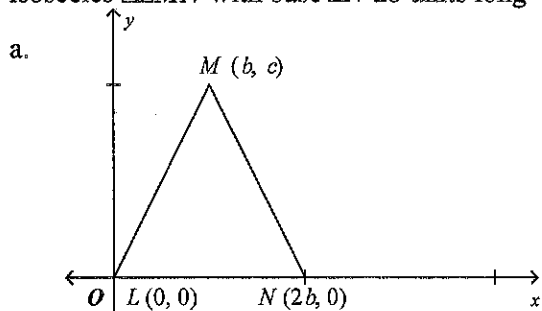
- a. reflection
- b. translation
- c. rotation
- d. not a congruence transformation

Position and label the triangle on the coordinate plane.

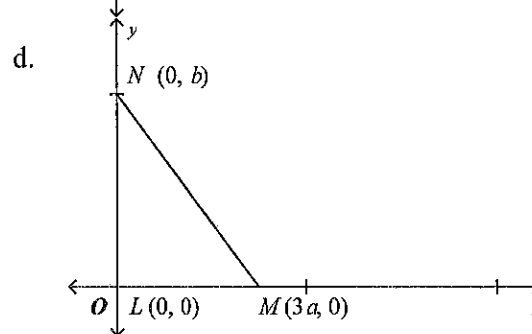
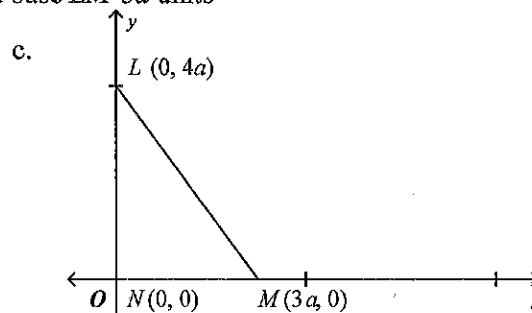
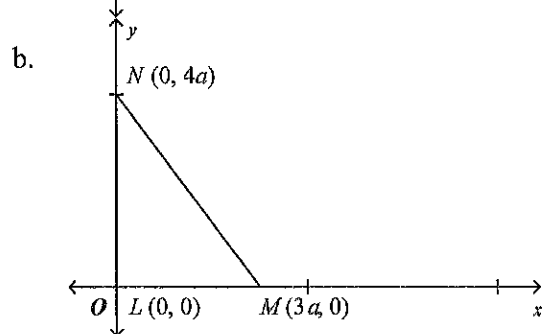
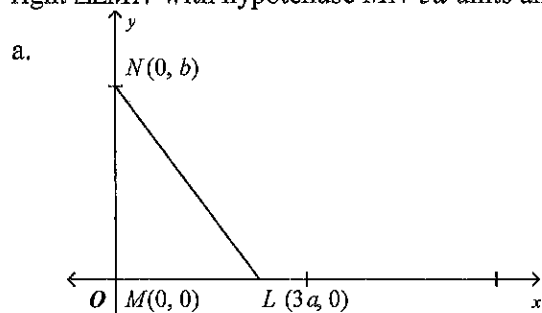
_____ 2. right isosceles $\triangle ABC$ with congruent sides \overline{AB} and \overline{AC} a units long



3. isosceles $\triangle LMN$ with base \overline{LN} $2b$ units long



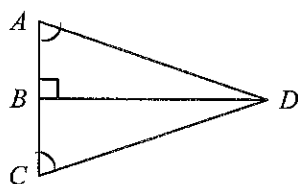
4. right $\triangle LMN$ with hypotenuse \overline{MN} $5a$ units and base \overline{LM} $3a$ units



5. If $\triangle MNO \cong \triangle PQR$, which of the following can you NOT conclude as being true?

- a. $\overline{MN} \cong \overline{PR}$ b. $\angle M \cong \angle P$ c. $\overline{NO} \cong \overline{QR}$ d. $\angle N \cong \angle Q$

- _____ 6. Name the theorem or postulate that lets you immediately conclude $\triangle ABD \cong \triangle CBD$.



- a. AAS b. SAS c. ASA d. none of these

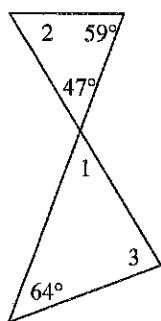
Short Answer

Find the measures of the sides of $\triangle ABC$ and classify the triangle by its sides.

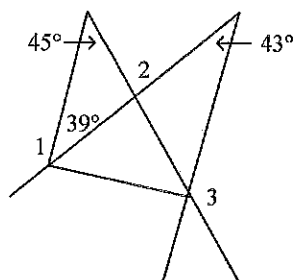
7. $A(3, -3), B(1, 4), C(-1, -1)$

Find each measure.

8. $m\angle 1, m\angle 2, m\angle 3$



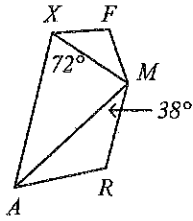
9. $m\angle 1, m\angle 2, m\angle 3$



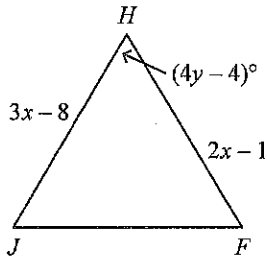
Name the congruent angles and sides for the pair of congruent triangles.

10. $\triangle MGB \cong \triangle WYT$

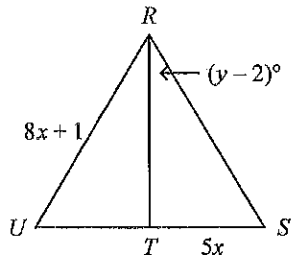
Refer to the figure. $\triangle ARM$, $\triangle MAX$, and $\triangle XFM$ are all isosceles triangles.



11. What is $m\angle RAM$?
12. What is $m\angle AMX$?
13. What is $m\angle MAX$?
14. Triangle FJH is an equilateral triangle. Find x and y .



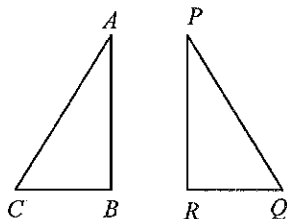
15. Triangle RSU is an equilateral triangle. \overline{RT} bisects \overline{US} . Find x and y .



16. Write a flow proof for the problem.

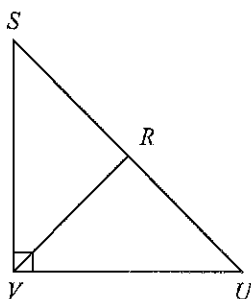
Given: $\angle CAB \cong \angle QPR$; $\overline{AB} \perp \overline{BC}$; $\overline{PR} \perp \overline{RQ}$

Prove: $\angle C \cong \angle Q$



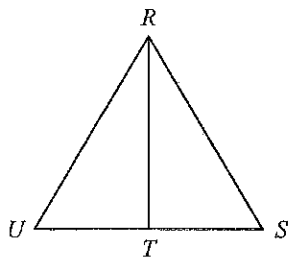
Write a two-column proof.

17. **Given:** R is the midpoint of \overline{SU} ; $\overline{SV} \cong \overline{UV}$.
Prove: $\triangle RSV \cong \triangle RUU$



Write a two-column proof.

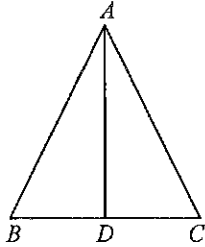
18. **Given:** $\triangle RSU$ is equilateral; \overline{RT} bisects $\angle R$.
Prove: T is the midpoint of \overline{US} .



19. Write a two-column proof for the problem.

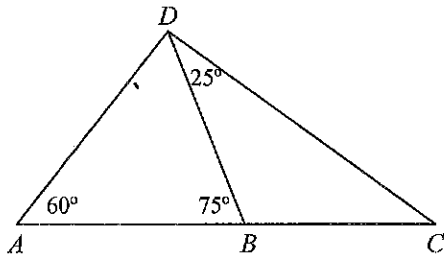
Given: $\overline{AD} \perp \overline{BC}$; \overline{AD} bisects $\angle A$.

Prove: $\angle B \cong \angle C$



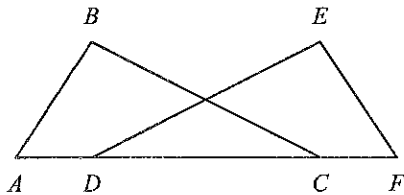
20. John and Nyle are playing in the playground. They mark a point on the ground. John moves 3 feet west of the point and then moves 4 feet north. Nyle moves 3 feet east of the point and then moves 3 feet to the north. Find the distance between John and Nyle.

21. Classify $\triangle DBC$ by its angle measures, given $m\angle DAB = 60^\circ$, $m\angle ABD = 75^\circ$, and $m\angle BDC = 25^\circ$.

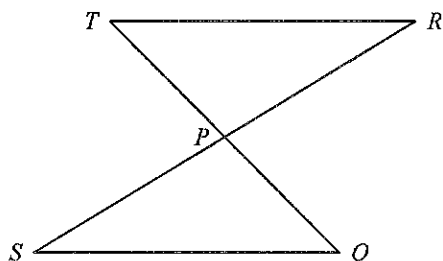


22. One of the acute angles in a right triangle has a measure of 34.6° . What is the measure of the other acute angle?

23. Find $m\angle DCB$, given $\angle A \cong \angle F$, $\angle B \cong \angle E$, and $m\angle CDE = 46^\circ$.



24. **Given:** P is the midpoint of \overline{TQ} and \overline{RS} .
Prove: $\triangle TPR \cong \triangle QPS$

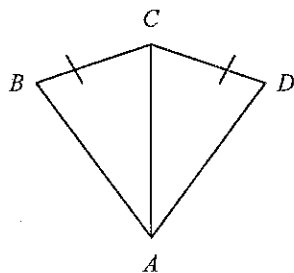


Complete the proof.

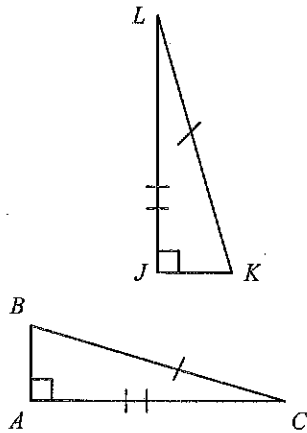
Proof:

Statements	Reasons
1. P is the midpoint of \overline{TQ} and \overline{RS} .	1. Given
2. $\overline{TP} \cong \overline{QP}$, $\overline{RP} \cong \overline{SP}$	2. [1]
3. [2]	3. Vertical Angles Theorem
4. $\triangle TPR \cong \triangle QPS$	4. [3]

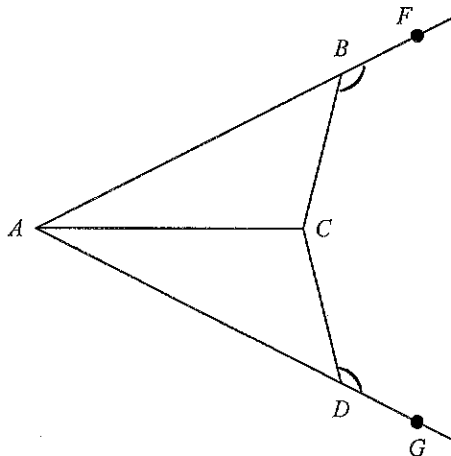
25. What additional information do you need to prove $\triangle ABC \cong \triangle ADC$ by the SAS Postulate?



26. For these triangles, select the triangle congruence statement and the postulate or theorem that supports it.

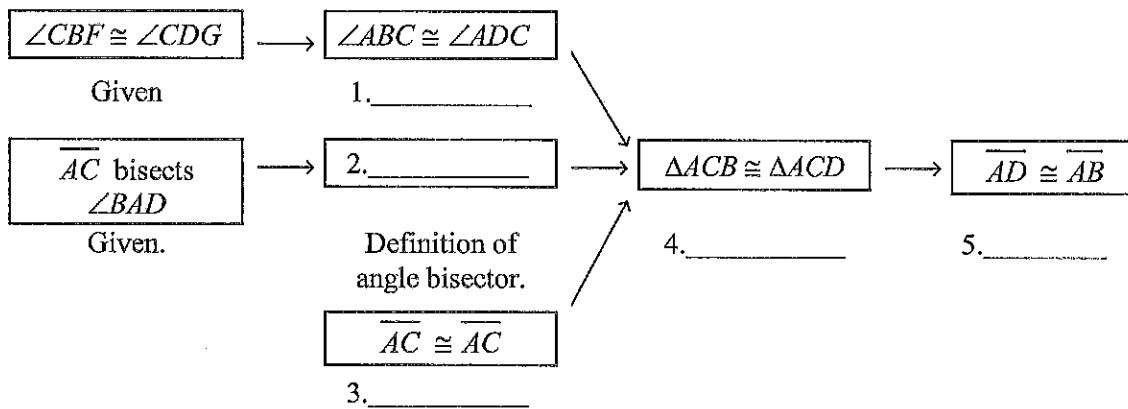


27. **Given:** $\angle CBF \cong \angle CDG$, \overline{AC} bisects $\angle BAD$
Prove: $\overline{AD} \cong \overline{AB}$

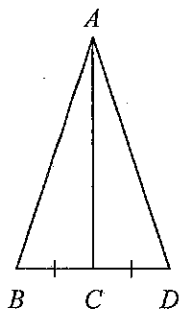


Complete the flowchart proof.

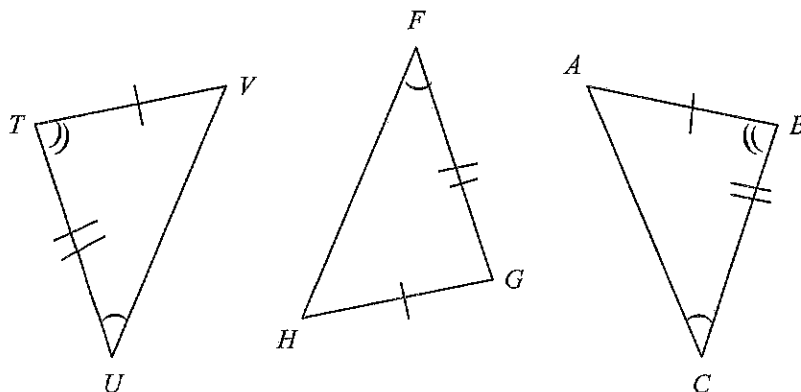
Proof:



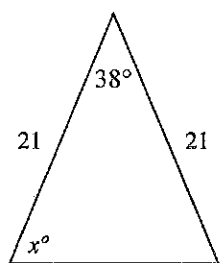
28. Given $\triangle ABC \cong \triangle PQR$, $m\angle B = 3v + 4$, and $m\angle Q = 8v - 6$, find $m\angle B$ and $m\angle Q$.
29. What other information do you need in order to prove the triangles congruent using the SAS Congruence Postulate?



30. Which triangles are congruent by ASA?



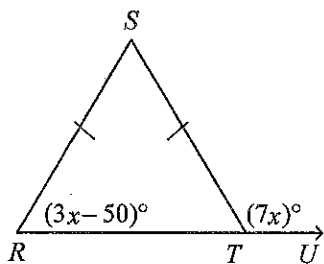
31. What is the value of x ?



Drawing not to scale

32. The legs of an isosceles triangle have lengths $2x + 4$ and $x + 8$. The base has length $5x - 2$. What is the length of the base?

33. Find the value of x . The diagram is not to scale.



**Geometry - Chapter 4 Practice Test
Answer Section****MULTIPLE CHOICE**

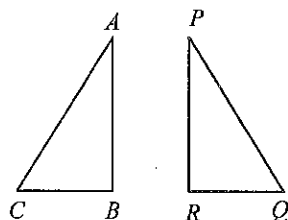
1. B
2. B
3. A
4. B
5. A
6. A

SHORT ANSWER

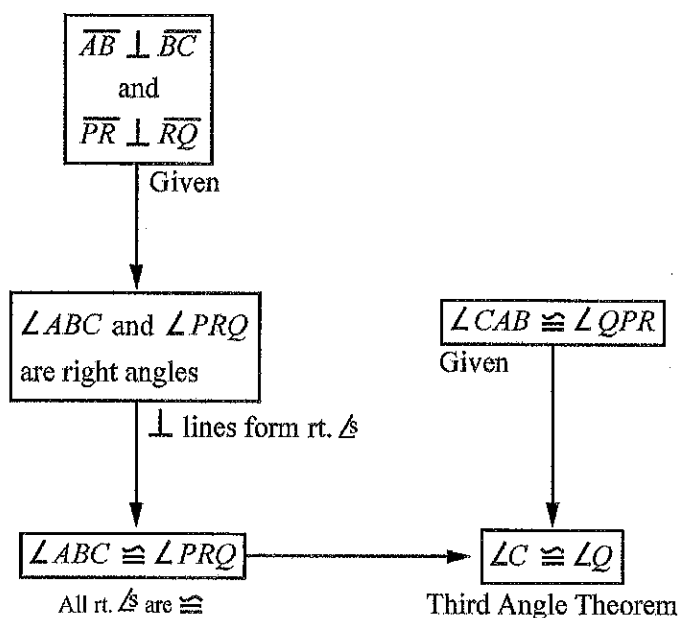
7. scalene
8. $m\angle 1 = 47$, $m\angle 2 = 74$, $m\angle 3 = 69$
9. $m\angle 1 = 141$, $m\angle 2 = 84$, $m\angle 3 = 139$
10. $\angle M \cong \angle W$, $\angle G \cong \angle Y$, $\angle B \cong \angle T$, $\overline{MG} \cong \overline{WY}$, $\overline{GB} \cong \overline{YT}$, $\overline{MB} \cong \overline{WT}$
11. 38
12. 72
13. 36
14. $x = 7$, $y = 16$
15. $x = \frac{1}{2}$, $y = 32$

16. **Given:** $\angle CAB \cong \angle QPR$; $\overline{AB} \perp \overline{BC}$; $\overline{PR} \perp \overline{RQ}$

Prove: $\angle C \cong \angle Q$



Proof:



A flow proof organizes a series of statements in logical order, starting with the given statements. Each statement is written in a box with the reason verifying the statement written below the box. Arrows are used to indicate how the statements relate to each other.

If two angles of one triangle are congruent to two angles of a second triangle, then the third angles of the triangles are congruent.

17. Sample:

Given: R is the midpoint of \overline{SU} ; $\overline{SV} \cong \overline{UV}$.

Prove: $\triangle RSV \cong \triangle RUV$

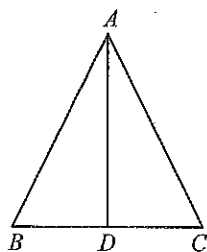
Proof:

Statements	Reasons
1. R is the midpoint of \overline{SU} .	1. Given
2. $\overline{RS} \cong \overline{RU}$	2. Midpoint Theorem
3. $\overline{SV} \cong \overline{UV}$	3. Given
4. $\overline{RV} \cong \overline{RV}$	4. Reflexive Property
5. $\triangle RSV \cong \triangle RUV$	5. SSS Postulate

18. Sample:

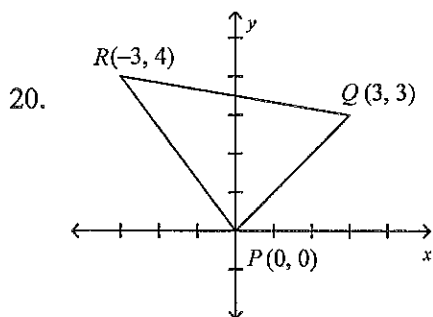
Given: $\triangle RSU$ is equilateral; \overline{RT} bisects $\angle R$.**Prove:** T is the midpoint of \overline{US} .**Proof:**

Statements	Reasons
1. $\triangle RSU$ is equilateral.	1. Given
2. $\angle U \cong \angle S$	2. Equilateral triangles are equiangular.
3. $\overline{RU} \cong \overline{RS}$	3. Definition of equilateral triangle
4. \overline{RT} bisects $\angle R$.	4. Given
5. $\angle URT \cong \angle SRT$	5. Definition of angle bisector
6. $\triangle URT \cong \triangle SRT$	6. ASA Postulate
7. $\overline{UT} \cong \overline{ST}$	7. CPCTC
8. $UT = ST$	8. Definition of congruence
9. T is the midpoint of \overline{US}	9. Definition of midpoint

19. **Given:** $AD \perp BC$; AD bisects $\angle A$.**Prove:** $\angle B \cong \angle C$ **Proof:**

Statements	Reasons
1. $AD \perp BC$	1. Given
2. $\angle ADB$ and $\angle ADC$ are right angles.	2. Definition of perpendicular
3. $\angle ADB \cong \angle ADC$	3. All right angles are congruent.
4. $\angle BAD \cong \angle CAD$	4. Definition of angle bisector
5. $AD \cong AD$	5. Reflexive Property
6. $\triangle ABD \cong \triangle ACD$	6. ASA
7. $AB \cong AC$	7. CPCTC
8. $\angle B \cong \angle C$	8. Isosceles Triangle Theorem

A two-column proof is a deductive argument that contains statements and reasons organized in two columns. If two sides of a triangle are congruent, then the angles opposite those sides are congruent.



$$RQ = \sqrt{(3+3)^2 + (3-4)^2} = \sqrt{36+1} \text{ or } \sqrt{37} \text{ ft.}$$

Coordinate proof uses figures in the coordinate plane and algebra to prove geometric concepts. The first step in a coordinate proof is placing the figure on the coordinate plane.

Use the Distance Formula to find the distance.

21. obtuse triangle
22. 55.4°
23. $m\angle DCB = 46^\circ$
24. [1]. Definition of midpoint
[2] $\angle TPR \cong \angle QPS$
[3] SAS
25. $\angle ACB \cong \angle ACD$
26. $\triangle ABC \cong \triangle JKL$, HL
27. 1. Congruent Supplements Theorem
2. $\angle CAB \cong \angle CAD$
3. Reflexive Property of Congruence
4. AAS
5. CPCTC
28. 10
29. $\overline{AC} \perp \overline{BD}$
30. $\triangle VTU$ and $\triangle ABC$
31. 71°
32. 18
33. $x = 23$