



# Geometry Workbook

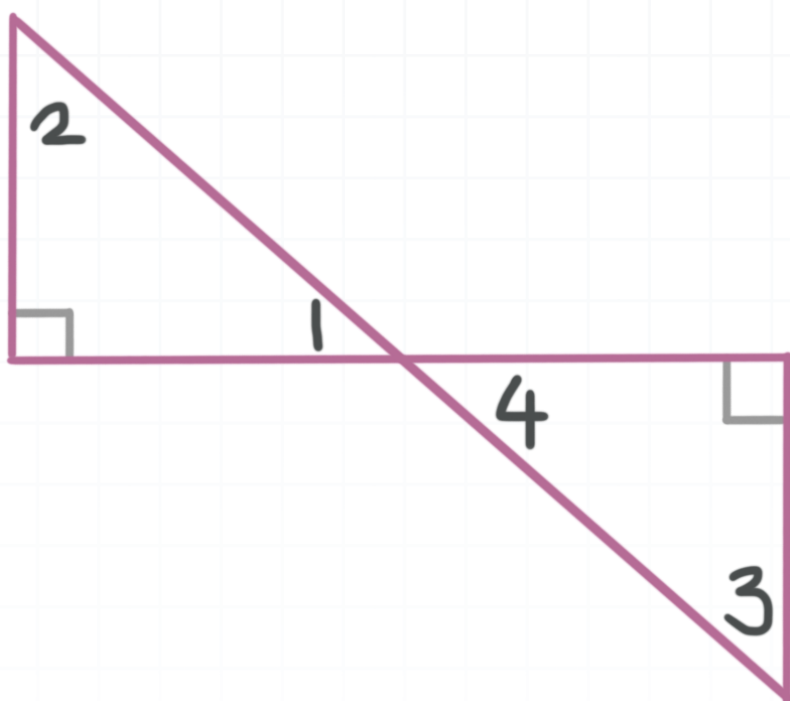
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Congruence

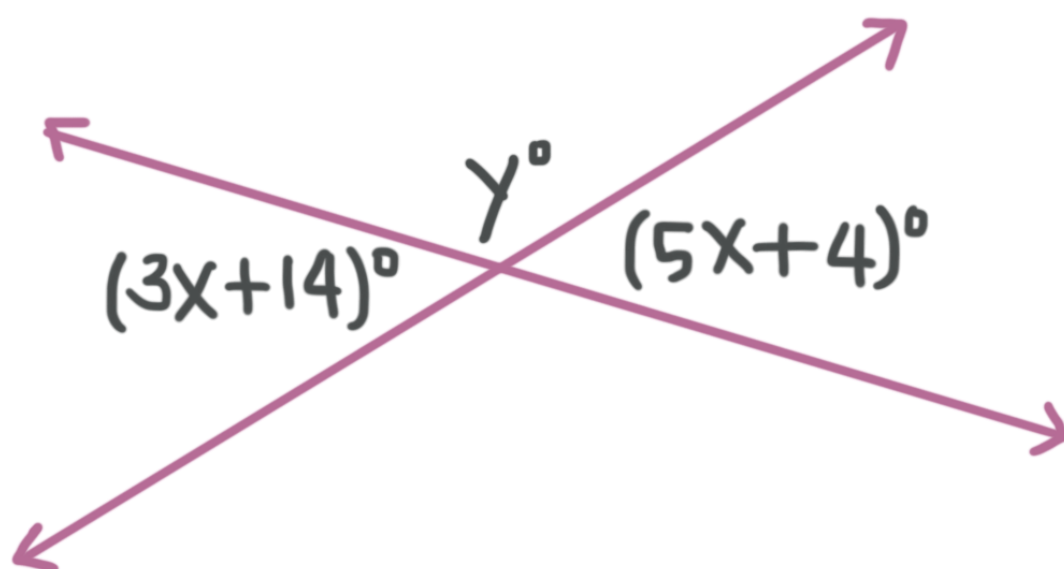
*krista king*  
MATH

# CONGRUENT ANGLES

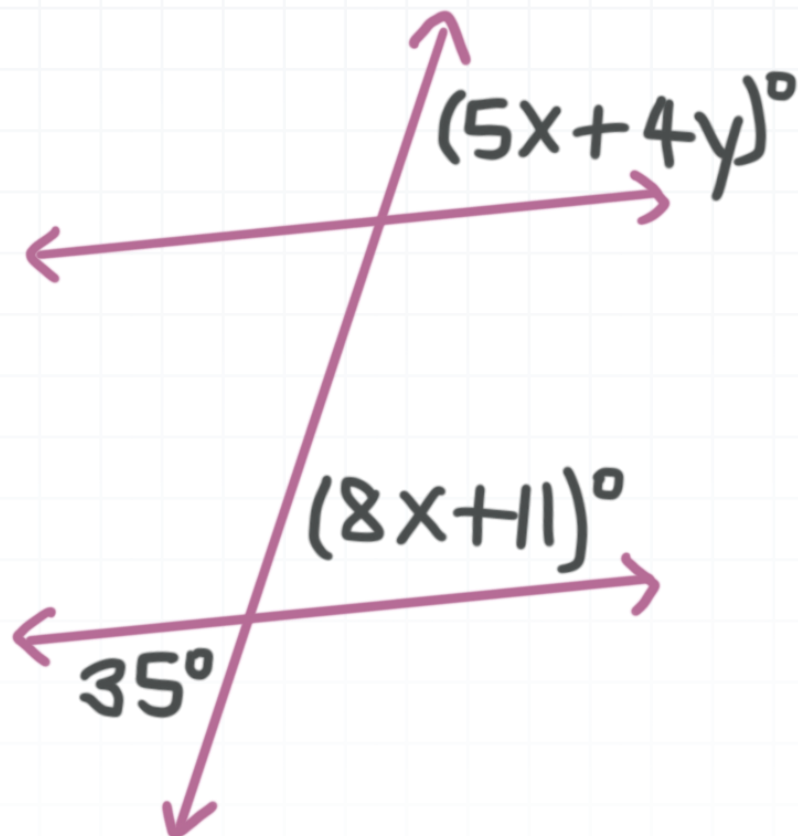
- 1.  $m\angle 3 = 4x - 11$  and  $m\angle 1 = 5x + 2$ . Find  $m\angle 2$ .



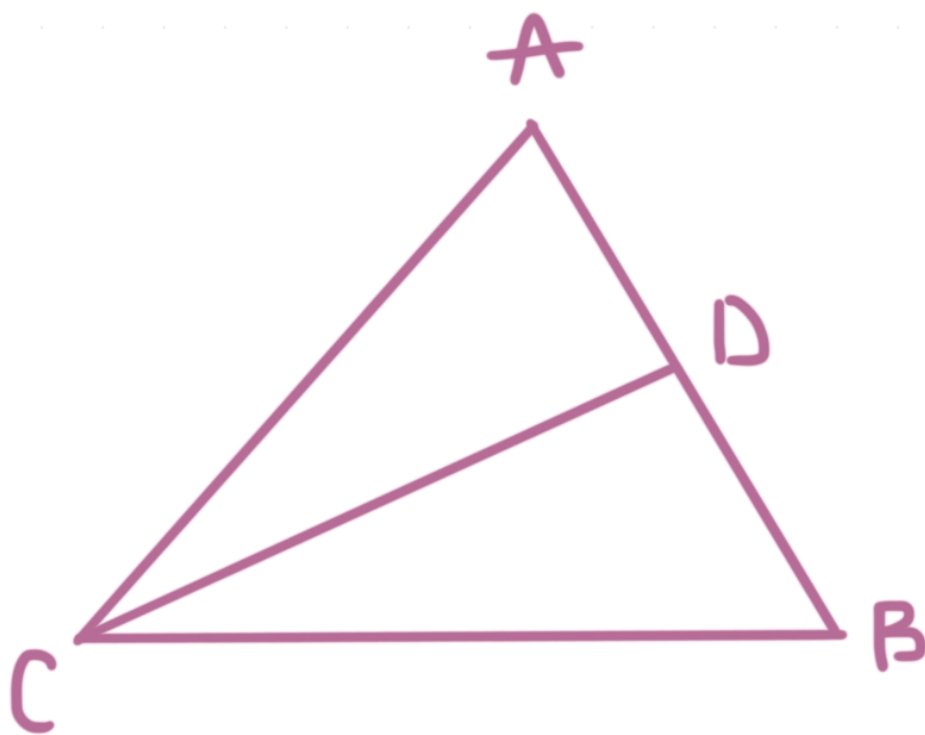
- 2. Find the values of  $x$  and  $y$ .



- 3. Find the value of  $x$  and  $y$ .

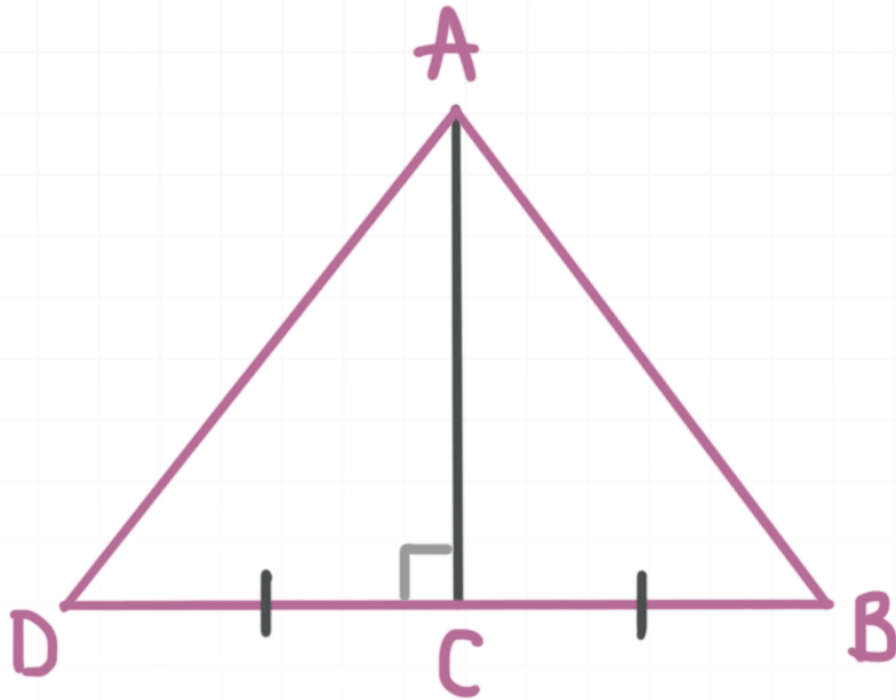


- 4.  $\overline{CD}$  is an angle bisector of the triangle and  $\overline{CD} \perp \overline{AB}$ .  $m\angle CAD = 5x - 10$  and  $m\angle BCD = 25$ . Find  $x$ .

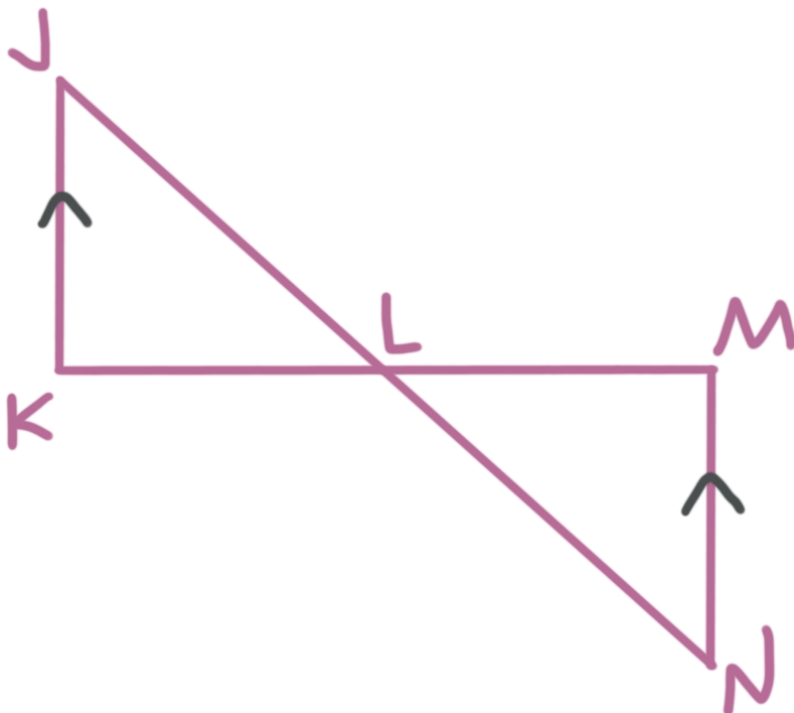


# TRIANGLE CONGRUENCE WITH SSS, ASA, SAS

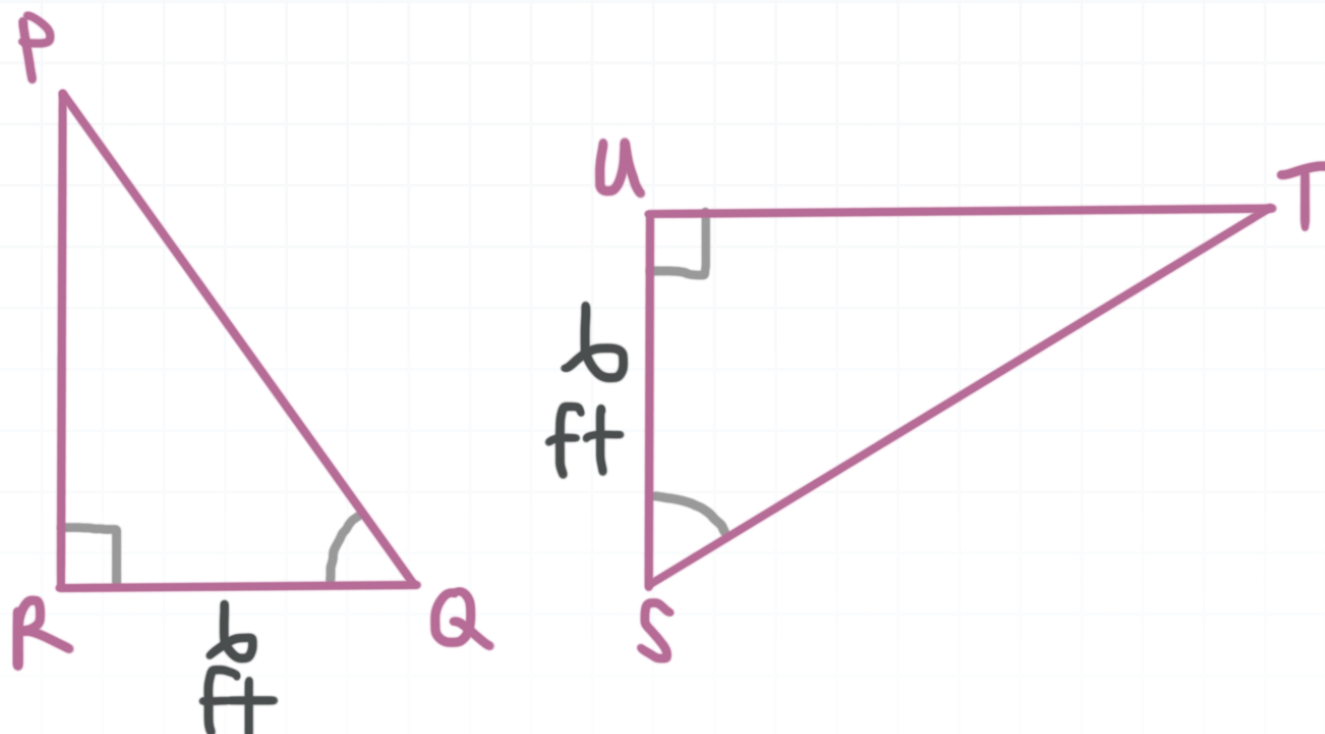
- 1. Fill in the blank.  $\triangle ABC \cong \triangle ADC$  by the \_\_\_\_\_ Theorem.



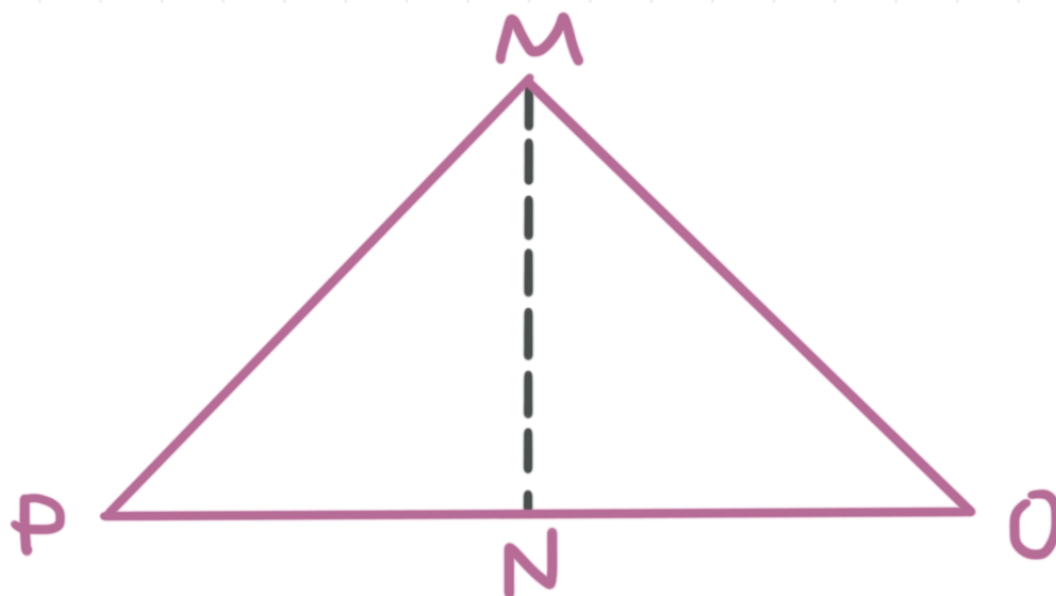
- 2. Fill in the blank.  $L$  is a midpoint of  $\overline{JN}$ .  $\triangle JKL \cong \triangle NML$  by the \_\_\_\_\_ Theorem.



■ 3.  $\triangle PRQ \cong \triangle$  \_\_\_\_\_ by the \_\_\_\_\_ Theorem.

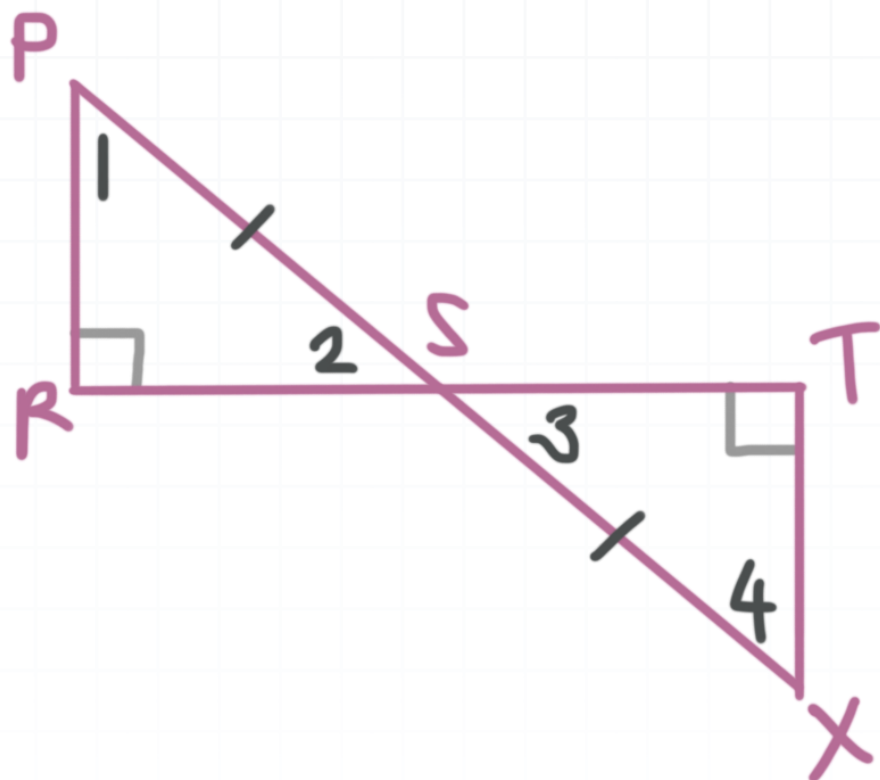


■ 4.  $\triangle PMO$  is an isosceles triangle with vertex angle at  $M$ .  $N$  is a midpoint of  $\overline{PO}$ .  $\triangle PMN \cong \triangle OMN$  by the \_\_\_\_\_ Theorem.



# TRIANGLE CONGRUENCE WITH AAS, HL

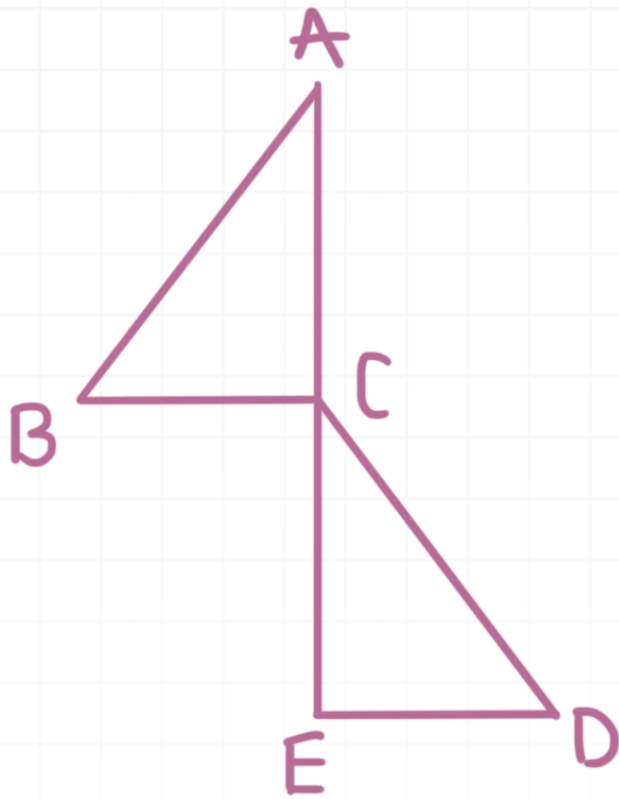
- 1. Which theorem could be used to prove  $\triangle PRS \cong \triangle XTS$ ?



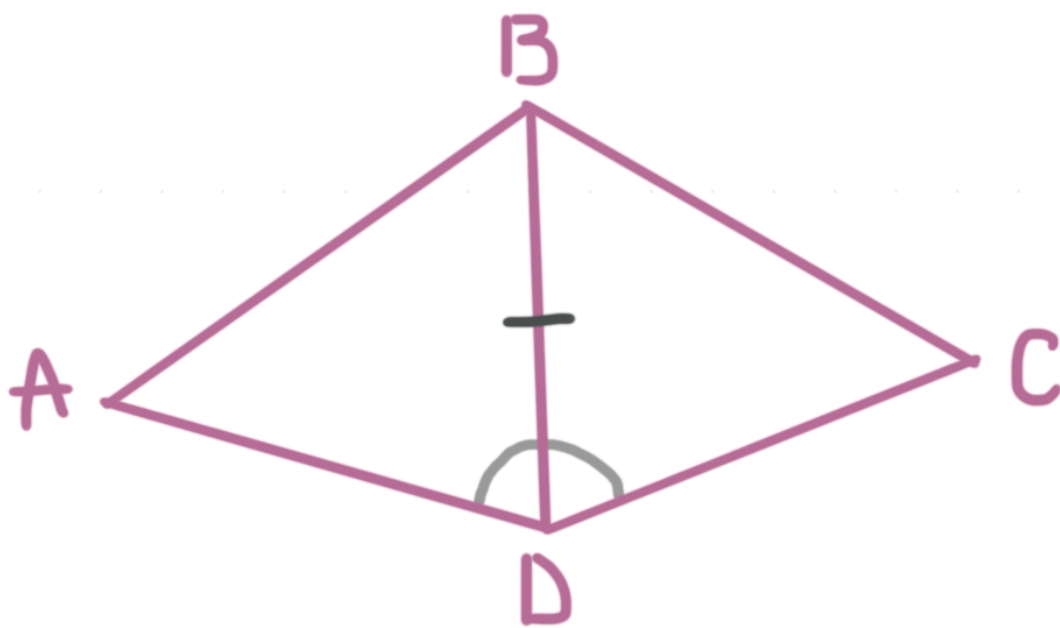
- 2. Which theorem could be used to prove  $\triangle ACB \cong \triangle CED$ ? The following facts are given about the triangles.

$\overline{AE} \perp \overline{BC}$ ,  $BC \parallel DE$ ,  $\overline{AB} \cong \overline{DC}$ , and  $C$  is a midpoint of  $\overline{AE}$



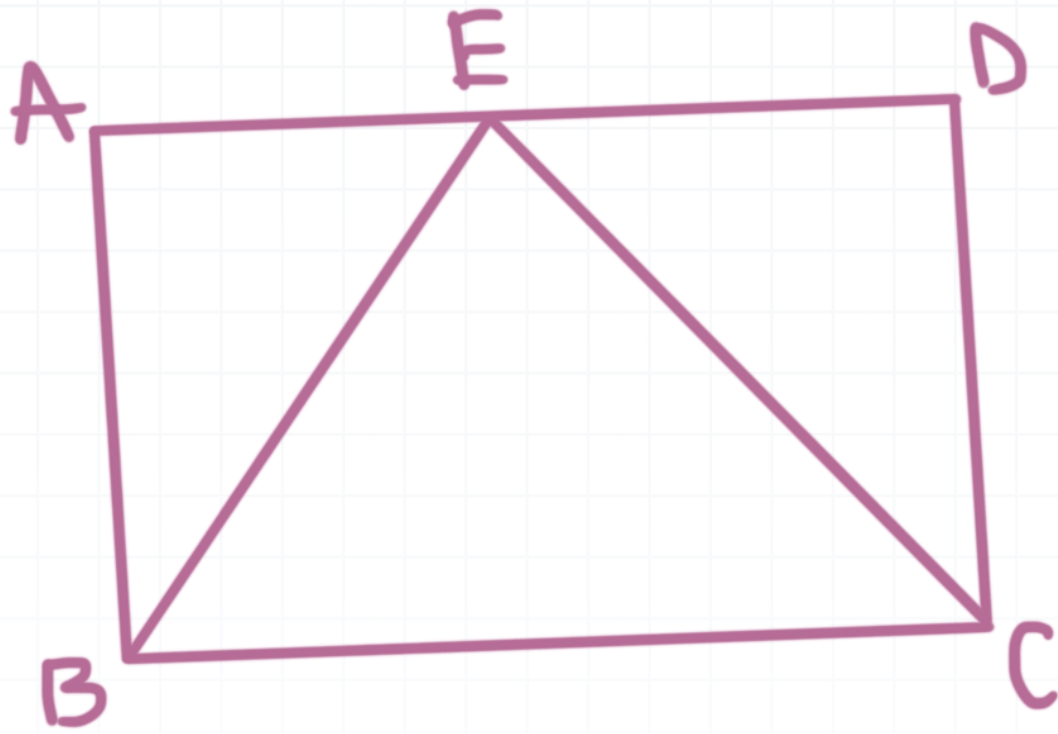


- 3. What additional information would we need to prove these triangles are congruent using *AAS* Theorem?



- 4.  $ABCD$  is a rectangle.  $BEC$  is an isosceles triangle with vertex angle at  $E$ . Write a proof to verify that  $\triangle BAE \cong \triangle CDE$  by the *HL* Theorem.

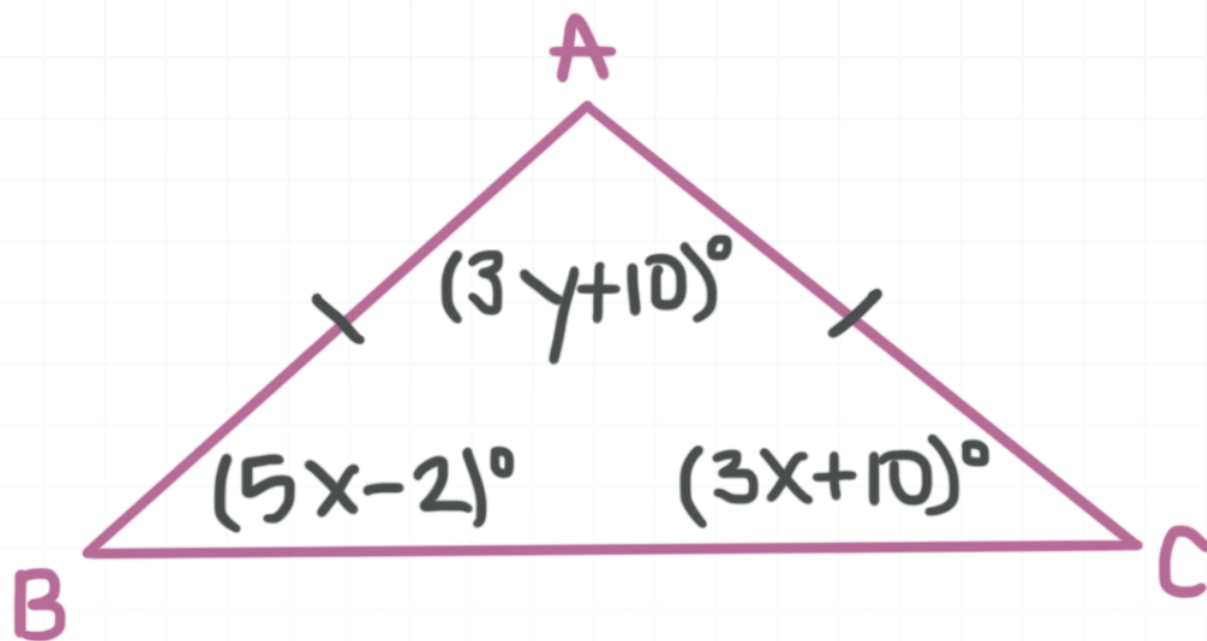






## ISOSCELES TRIANGLE THEOREM

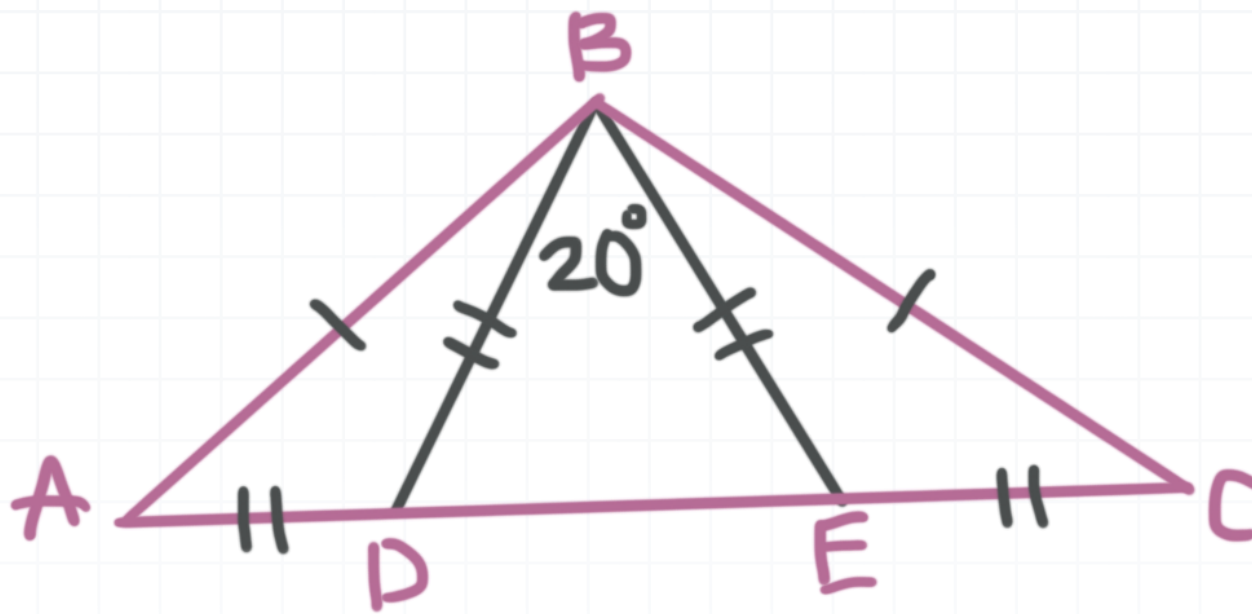
- 1. Find the values of  $x$  and  $y$ .



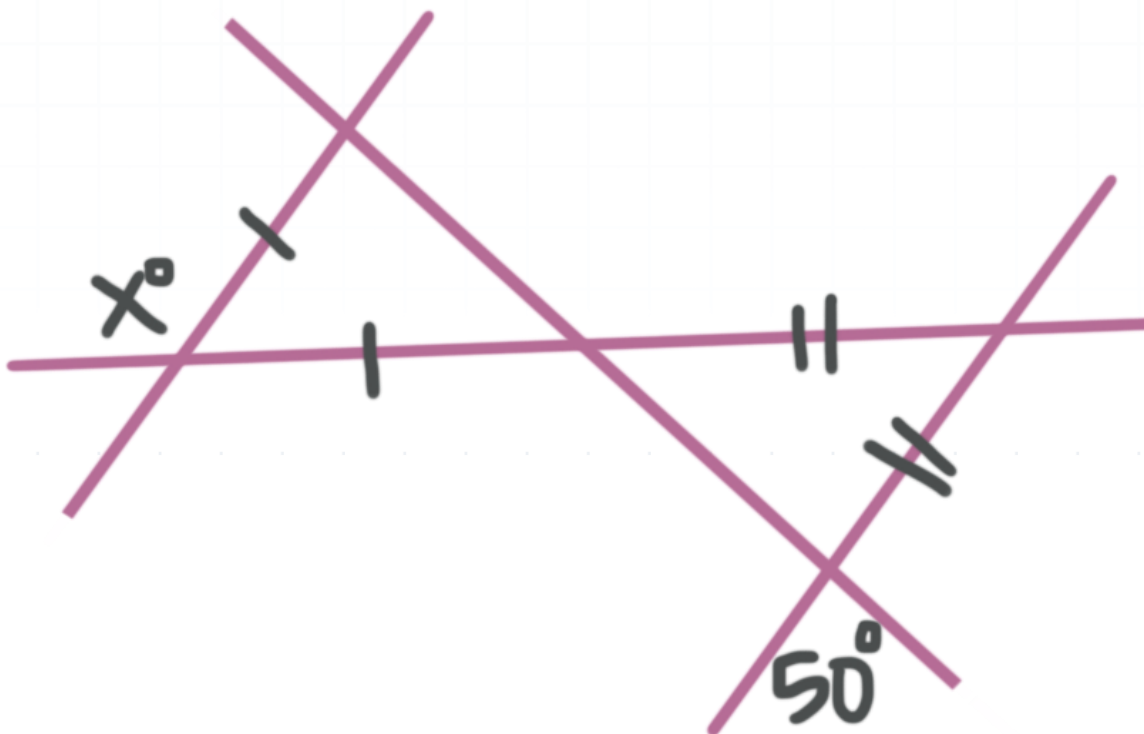
- 2.  $\triangle JKL$  is isosceles with vertex angle  $K$ .  $JK = 4x - 5$ ,  $LK = 3x + 8$ , and  $m\angle J = 2x + 4$ . Find  $m\angle L$ .

- 3. Find  $m\angle ABC$ .



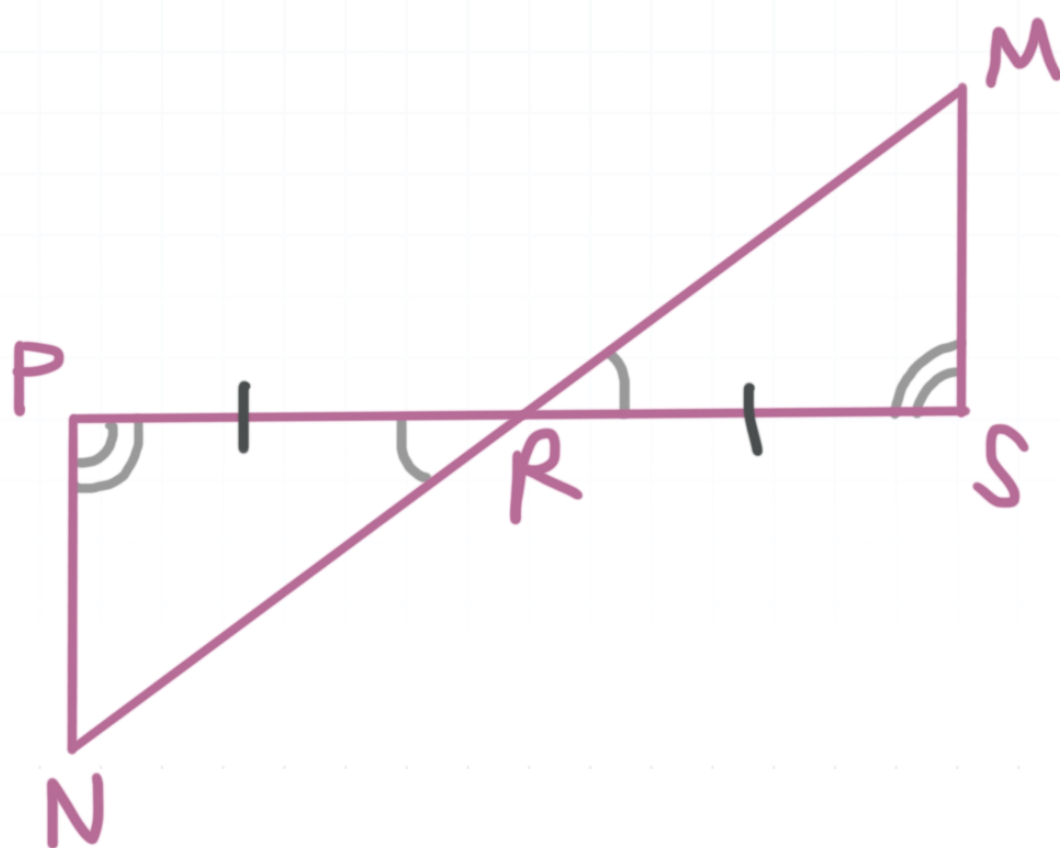


4. Find  $x$ .



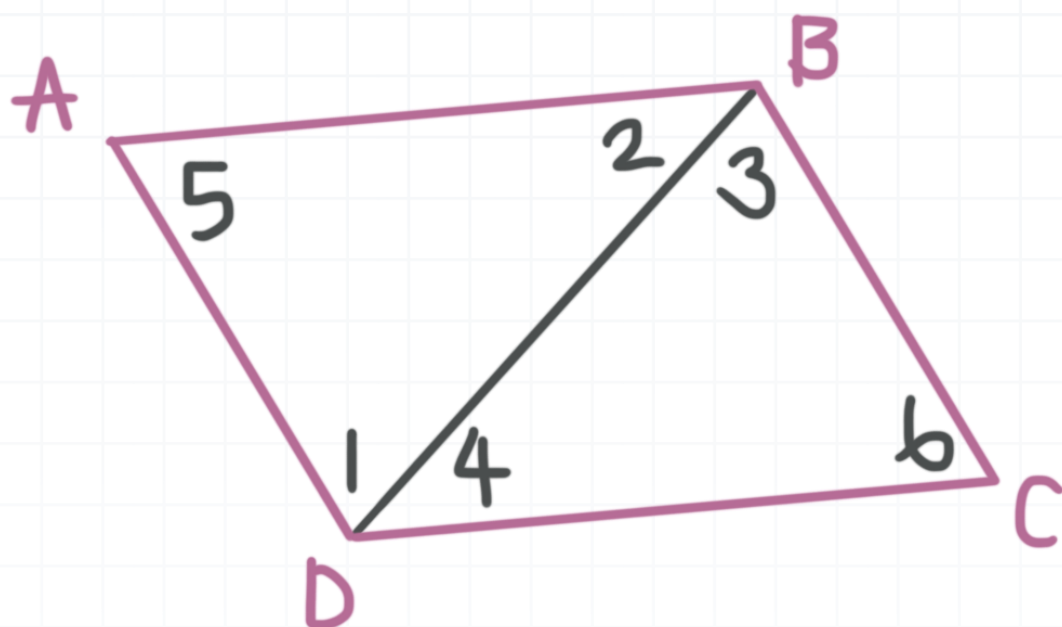
# CPCTC

- 1. Fill in the blank. Given  $\triangle LMO \cong \triangle SQR$ ,  $\overline{LO} \cong$  \_\_\_\_\_.
- 2. Determine whether  $\angle M \cong \angle N$ . Justify your answer.

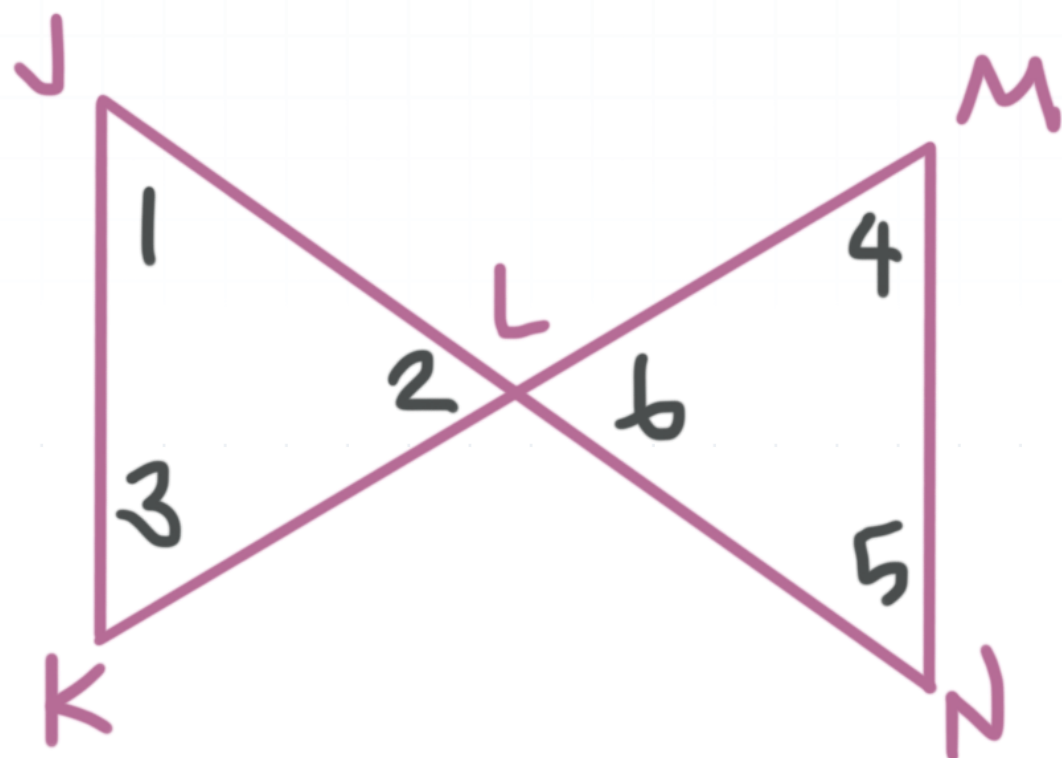


- 3.  $\triangle DOG \cong \triangle TCA$  by  $SSS$ . What three conclusions can be drawn by CPCTC?
- 4. Given  $\angle 1 \cong \angle 3$  and  $\angle 2 \cong \angle 4$ , prove  $\overline{AB} \cong \overline{CD}$ .





- 5. Given that  $L$  is the midpoint of  $\overline{JN}$  and  $\overline{KM}$ , prove  $\overline{JK} \cong \overline{NM}$ .



- 6. Given that  $\triangle CAB$  is an isosceles triangle, that  $D$  is the midpoint of  $\overline{CE}$ , and that  $E$  is the midpoint of  $\overline{BD}$ , prove that  $\triangle DAE$  is isosceles.



