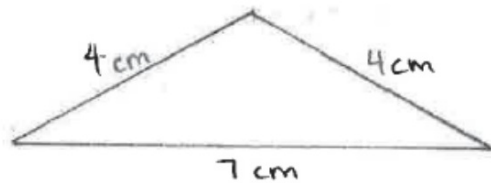


1. $\triangle ABC$ with side lengths of 4 cm, 4 cm, and 7 cm.

a. Draw and label $\triangle ABC$ with ruler and angle ruler/protractor, if possible. If not possible, explain why.



b. Is it possible to draw a different triangle with these same measures? Explain.

No, a combination of SSS will make a unique triangle.

$\triangle DEF$ with side lengths of 2 in, 3 in, and 6 in.

a. Draw and label $\triangle DEF$ with ruler and angle ruler/protractor, if possible. If not possible, explain why.

Not possible.

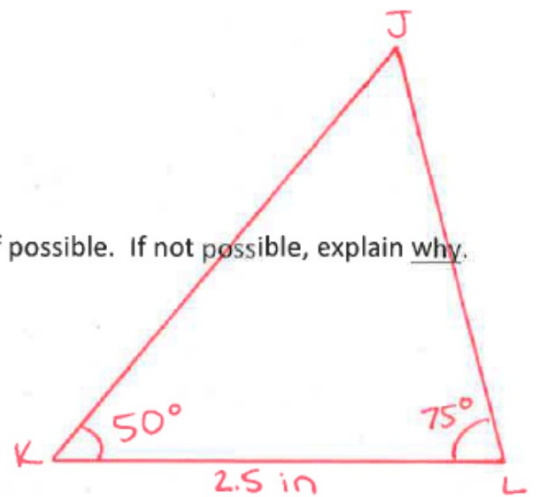
The sum of the 2 shorter sides must be greater than the longest side to form a triangle!

b. Is it possible to draw a different triangle with these same measures? Explain.



3. $\triangle JKL$ with $\angle JKL = 50^\circ$, $\angle KLJ = 75^\circ$, and $\overline{KL} = 2.5$ inches.

a. Draw and label $\triangle JKL$ with ruler and angle ruler/protractor, if possible. If not possible, explain why.

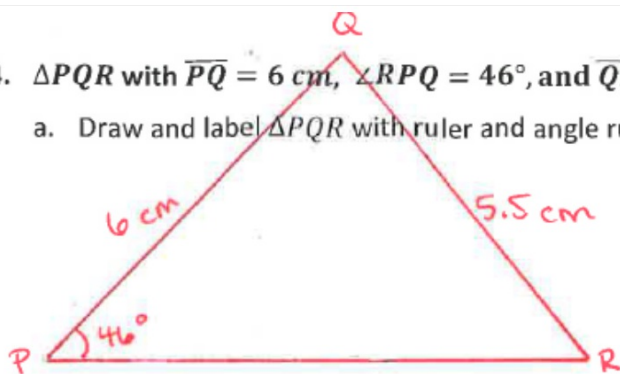


b. Is it possible to draw a different triangle with these same measures? Explain.

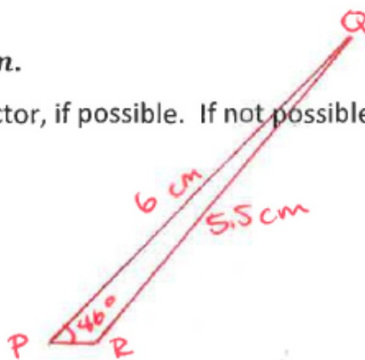
No, a combination of ASA will make a unique triangle.

4. $\triangle PQR$ with $\overline{PQ} = 6 \text{ cm}$, $\angle RPQ = 46^\circ$, and $\overline{QR} = 5.5 \text{ cm}$.

a. Draw and label $\triangle PQR$ with ruler and angle ruler/protractor, if possible. If not possible, explain why.



OR



b. Is it possible to draw a different triangle with these same measures? Explain.

Yes, a combination of SSA will not make a unique triangle.

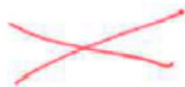
5. $\triangle ABC$ with $\angle ABC = 45^\circ$, $\angle CAB = 55^\circ$ and $\angle BCA = 85^\circ$.

a. Draw and label $\triangle ABC$ with ruler and angle ruler/protractor, if possible. If not possible, explain why.

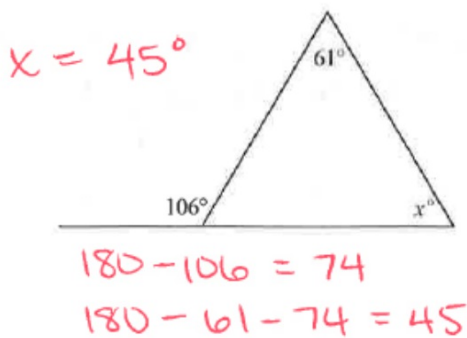
Not possible.

The angles of a triangle must add up to 180° , and these add up to 185° .

b. Is it possible to draw a different triangle with these same measures? Explain.



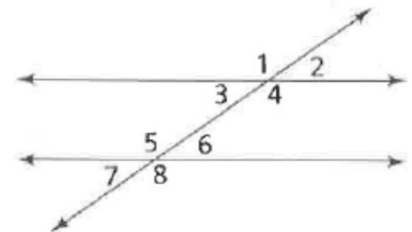
6. Find the value of x . Show your work and explain your thinking in words.



The other missing interior angle is supplementary with the exterior angle, and the interior angles of a triangle add to 180° .

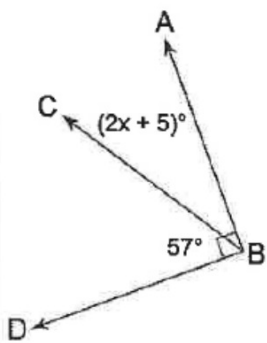
7. The figure below shows parallel lines that are crossed by a transversal. The measure of $\angle 2 = 45^\circ$. Find the measures of angles 3, 6, and 7. Name the angle relationship that helped you find each measure.

- a. The measure of $\angle 3 = 45^\circ$
because $\angle 2$ and $\angle 3$ are vertical angles.
- b. The measure of $\angle 6 = 45^\circ$
because $\angle 2$ and $\angle 6$ are corresponding angles AND
because $\angle 3$ and $\angle 6$ are alternate interior angles.
- c. The measure of $\angle 7 = 45^\circ$
because $\angle 2$ and $\angle 7$ are alternate exterior angles.



8. The following problems use your understanding of supplementary, complimentary, vertical and adjacent angles. For each problem, write and solve an equation to find the value of x . Then, use that value to find the measure of $\angle ABC$. The diagrams are not to scale.

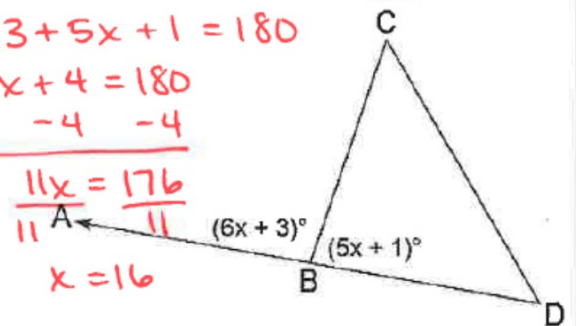
a. $\angle ABC = \underline{33^\circ}$ $x = \underline{14^\circ}$



$$\begin{aligned} 57 + 2x + 5 &= 90 \\ 2x + 62 &= 90 \\ -62 \quad -62 & \\ \hline 2x &= 28 \\ \frac{2x}{2} &= \frac{28}{2} \\ x &= 14 \end{aligned}$$

$$\angle ABC = 2(14) + 5 = 33$$

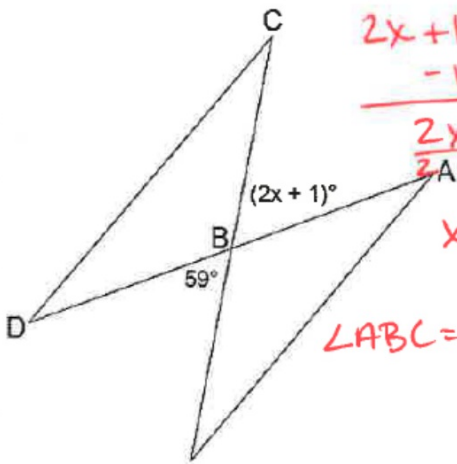
b. $\angle ABC = \underline{99^\circ}$ $x = \underline{16^\circ}$



$$\begin{aligned} 6x + 3 + 5x + 1 &= 180 \\ 11x + 4 &= 180 \\ -4 \quad -4 & \\ \hline 11x &= 176 \\ \frac{11x}{11} &= \frac{176}{11} \\ x &= 16 \end{aligned}$$

$$\angle ABC = 6(16) + 3 = 99$$

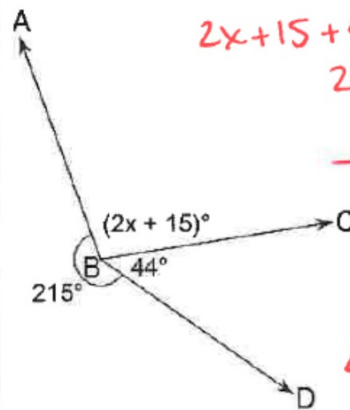
c. $\angle ABC = \underline{59^\circ}$ $x = \underline{29^\circ}$



$$\begin{aligned} 2x + 1 &= 59 \\ -1 &\quad -1 \\ \hline 2x &= 58 \\ \frac{2x}{2} &= \frac{58}{2} \\ x &= 29 \end{aligned}$$

$$\angle ABC = 2(29) + 1 = 59$$

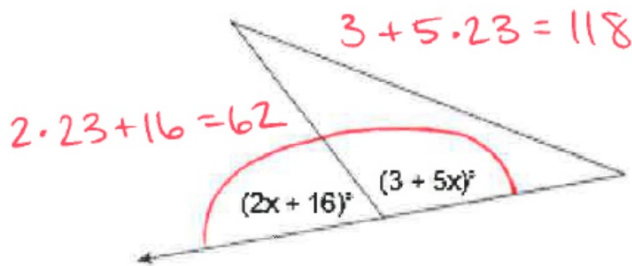
d. $\angle ABC = \underline{101^\circ}$ $x = \underline{43^\circ}$



$$\begin{aligned} 2x + 15 + 44 + 215 &= 360 \\ 2x + 274 &= 360 \\ -274 &\quad -274 \\ \hline 2x &= 86 \\ \frac{2x}{2} &= \frac{86}{2} \\ x &= 43 \end{aligned}$$

$$\begin{aligned} \angle ABC &= 2(43) + 15 \\ &= 101 \end{aligned}$$

9. Based on the diagram, determine whether each equation is true. Select True or False for each statement.



$$3 + 5 \cdot 23 = 118$$

$$2 \cdot 23 + 16 = 62$$

$$\underline{2x} + \underline{16} + \underline{3} + \underline{5x} = 180$$

$$7x + 19 = 180$$

$$\underline{-19} \quad \underline{-19}$$

$$7x = 161$$

$$\underline{\div 7} \quad \underline{\div 7}$$

$$x = 23$$

Statement	True	False
$2x + 16^\circ = 62^\circ$	X	
$3^\circ + 5x = 118^\circ$	X	
$7x + 19^\circ = 90^\circ$		X

Homework:

study and bring silent reading book

**(optional practice worksheets will be
available on my website)**