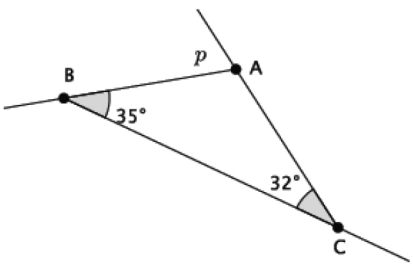
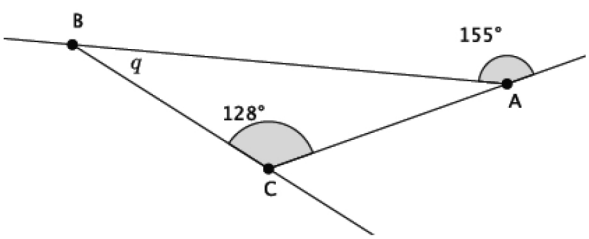
Name _____ Date _____

More on the Angles of a Triangle

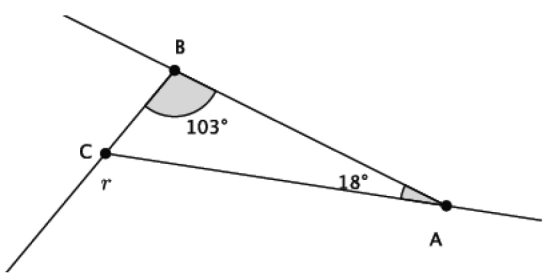
1. Find the measure of angle p. Present an informal argument showing that your answer is correct.



2. Find the measure of angle q. Present an informal argument showing that your answer is correct.

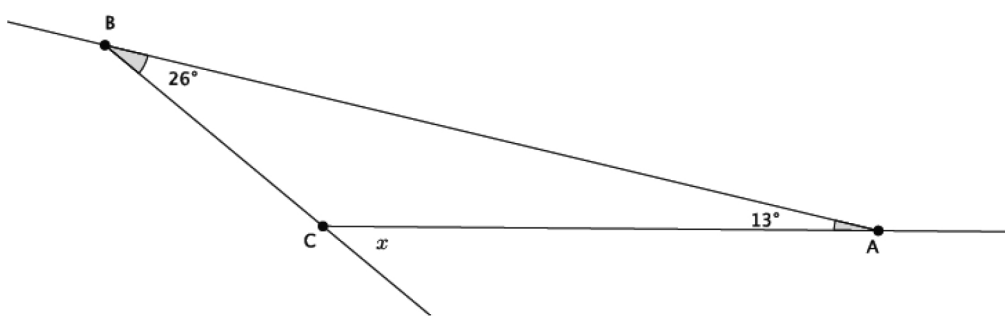


3. Find the measure of angle r. Present an informal argument showing that your answer is correct.

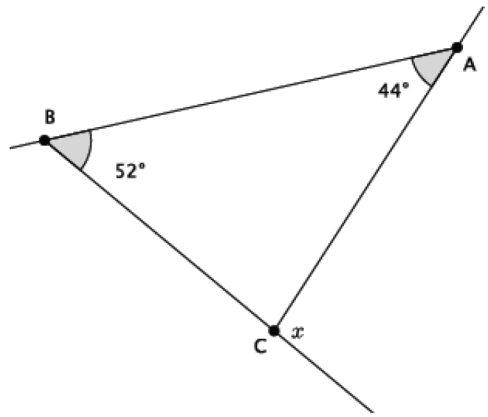


For each of the problems below, use the diagram to find the missing angle measure. Show your work.

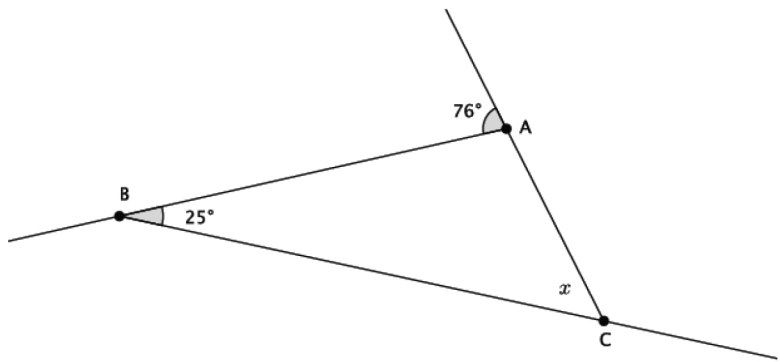
1. Find the measure of angle x. Present an informal argument showing that your answer is correct.



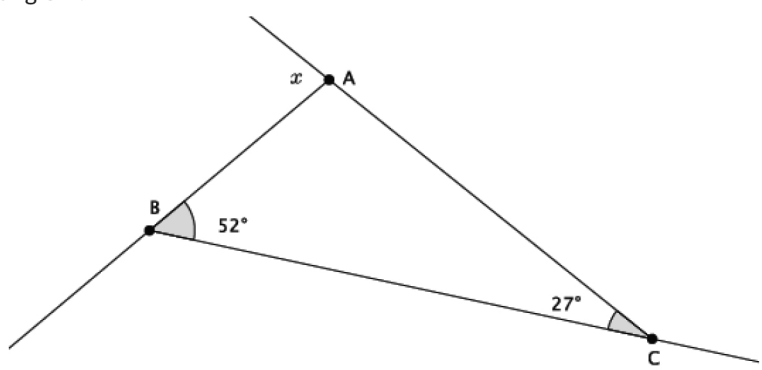
2. Find the measure of angle x.



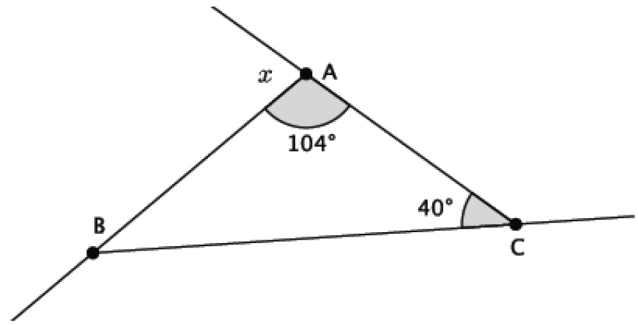
3. Find the measure of angle x. Present an informal argument showing that your answer is correct.



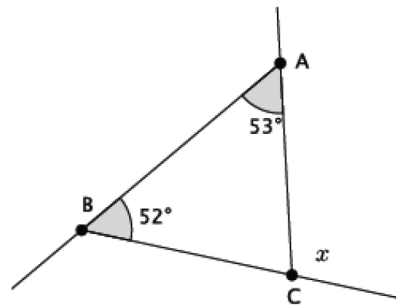
4. Find the measure of angle x.



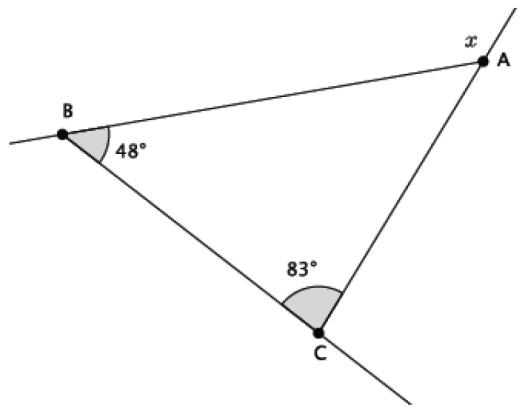
5. Find the measure of angle x.



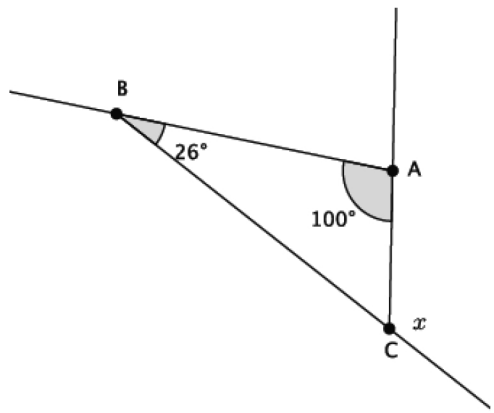
6. Find the measure of angle x.



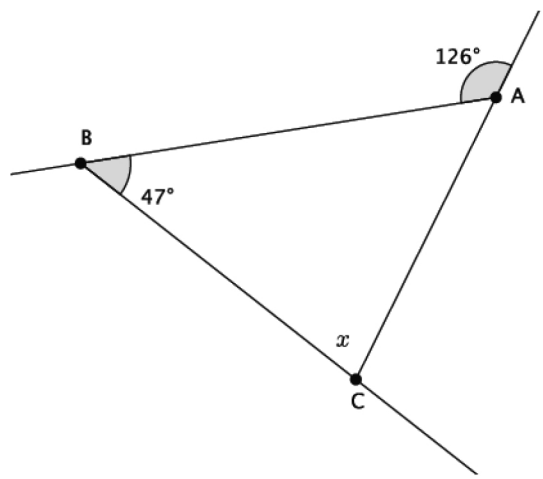
7. Find the measure of angle x.



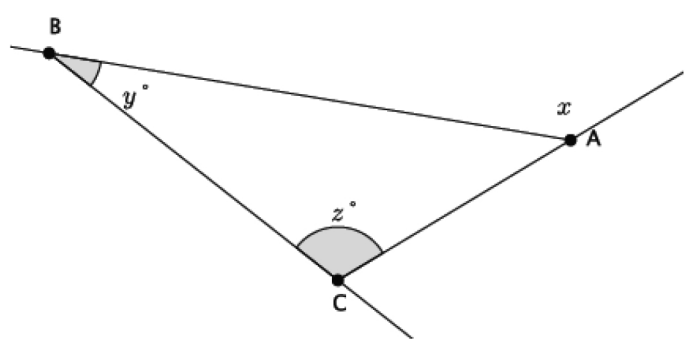
8. Find the measure of angle x.



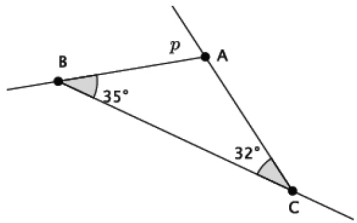
9. Find the measure of angle x.



10. Write an equation that would allow you to find the measure of angle x. Present an informal argument showing that your answer is correct.

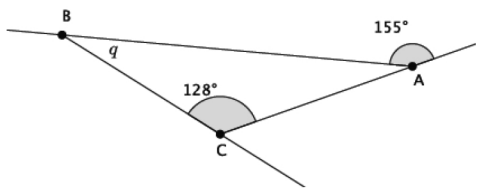


1. Find the measure of angle p. Present an informal argument showing that your answer is correct.



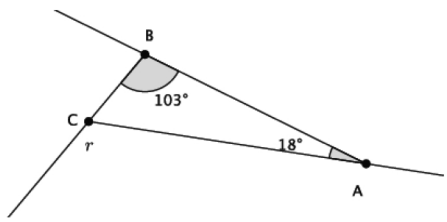
The measure of angle p is $67°$. We know that triangles have a sum of interior angles that is equal to $180°$. We also know that straight angles are $180°$. Angle $\angle BAC$ must be $113°$, which means that $\angle p = 67°$.

2. Find the measure of angle q. Present an informal argument showing that your answer is correct.



The measure of angle q is $27°$. We know that triangles have a sum of interior angles that is equal to $180°$. We also know that straight angles are $180°$. Angle $\angle CAB$ must be $25°$, which means that $\angle q = 27°$.

3. Find the measure of angle r. Present an informal argument showing that your answer is correct.

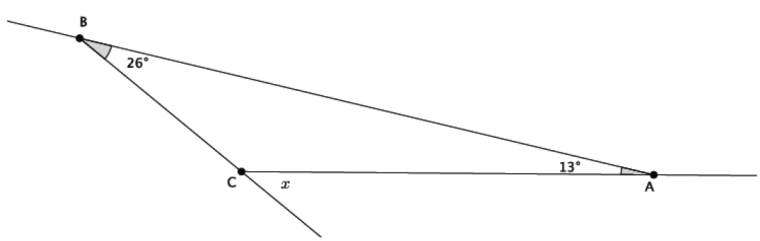


The measure of angle r is $121°$. We know that triangles have a sum of interior angles that is equal to $180°$. We also know that straight angles are $180°$. Angle $\angle BCA$ must be $59°$, which means that $\angle r = 121°$.

Students practice finding missing angle measures of triangles.

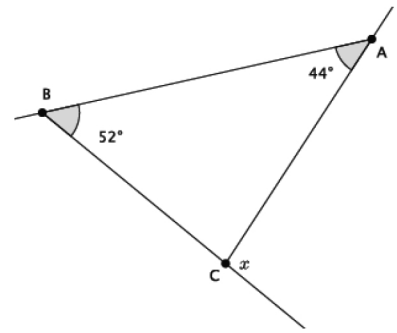
For each of the problems below, use the diagram to find the missing angle measure. Show your work.

1. Find the measure of angle x. Present an informal argument showing that your answer is correct.



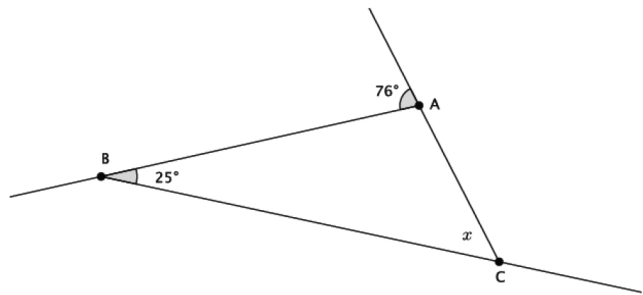
Since $26 + 13 = 39$, the measure of angle x is $39°$. We know that triangles have a sum of interior angles that is equal to $180°$. We also know that straight angles are $180°$. Angle $\angle BCA$ must be $141°$, which means that $\angle x = 39°$.

2. **Find the measure of angle x.**



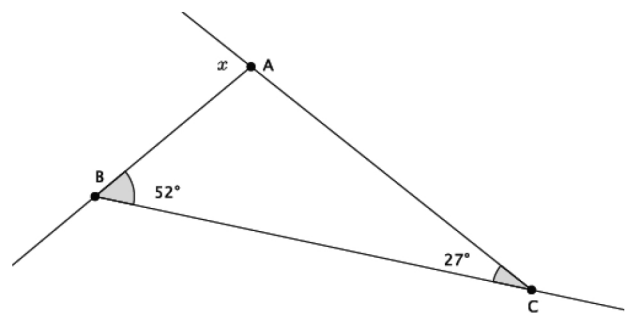
Since $52 + 44 = 96$, the measure of angle x is $96°$.

3. **Find the measure of angle x. Present an informal argument showing that your answer is correct.**



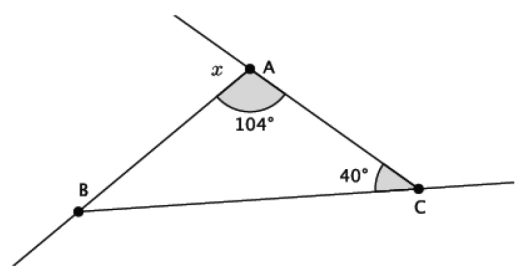
Since $76 - 25 = 51$, the measure of angle x is $51°$. We know that triangles have a sum of interior angles that is equal to $180°$. We also know that straight angles are $180°$. Angle $\angle BAC$ must be $104°$ because it is part of the straight angle. Then, $x = 180° - (104° + 25°) = 51°$.

4. **Find the measure of angle x.**



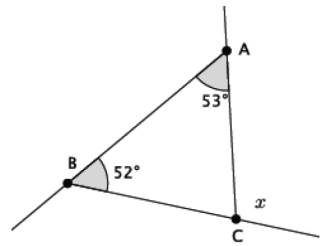
Since $27 + 52 = 79$, the measure of angle x is $79°$.

5. **Find the measure of angle x.**



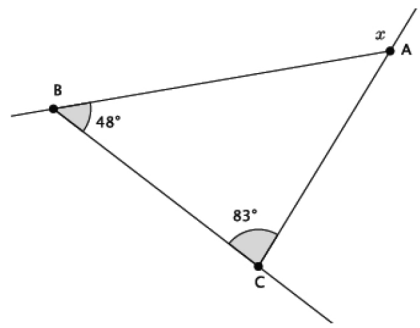
Since $180 - 104 = 76$, the measure of angle x is $76°$.

6. **Find the measure of angle x.**



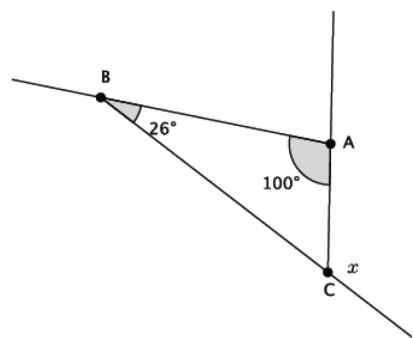
Since $52 + 53 = 105$, the measure of angle x is $105°$.

7. **Find the measure of angle x.**



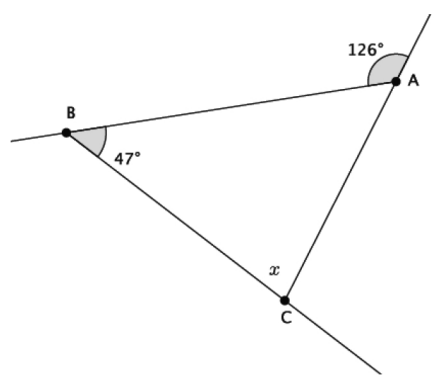
Since $48 + 83 = 131$, the measure of angle x is $131°$.

8. **Find the measure of angle x.**



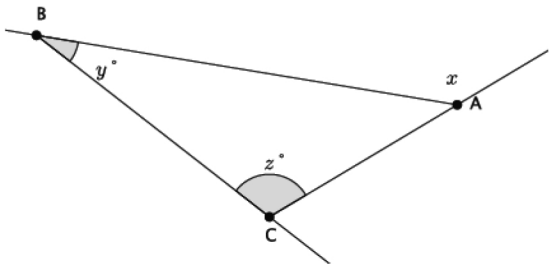
Since $100 + 26 = 126$, the measure of angle x is $126°$.

9. **Find the measure of angle x.**



Since $126 - 47 = 79$, the measure of angle x is $79°$.

10. Write an equation that would allow you to find the measure of angle x. Present an informal argument showing that your answer is correct.



Since $y + z = x$, the measure of angle x is $(y + z)^\circ$. We know that triangles have a sum of interior angles that is equal to 180°. We also know that straight angles are 180°. Then, $\angle y + \angle z + \angle BAC = 180^\circ$, and $\angle x + \angle BAC = 180^\circ$. Since both equations are equal to 180°, then $\angle y + \angle z + \angle BAC = \angle x + \angle BAC$. Subtract $\angle BAC$ from each side of the equation, and you get $\angle y + \angle z = \angle x$.