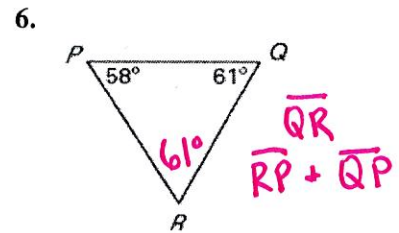
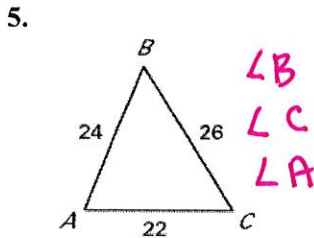
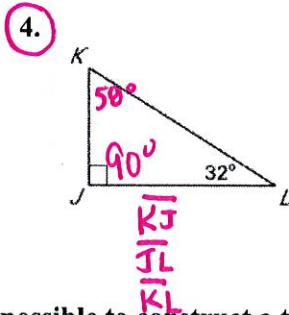
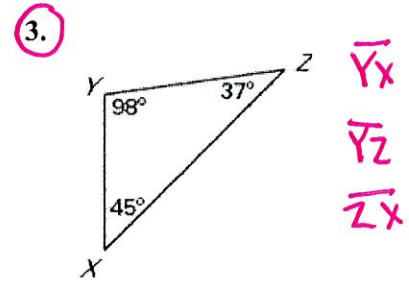
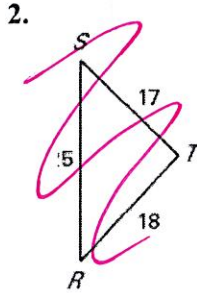
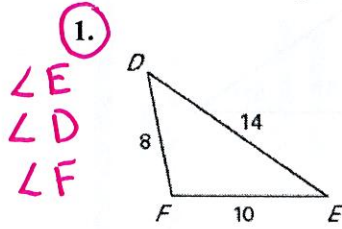


**Honors Geometry Triangle Relationships**

List the sides and the angles in order from smallest to largest.



Is it possible to construct a triangle with the given side lengths? If not, explain why not.

7. 3, 4, 5  
Yes!

8. 1, 4, 6 NO!  
 $1+4 > 6$  nope!  
 $5 > 6$

9. 17, 17, 33 Yes!

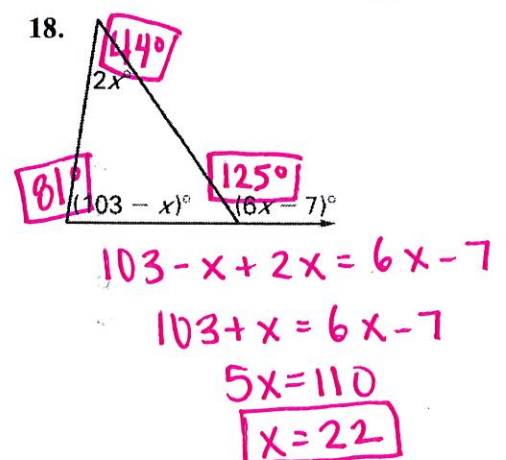
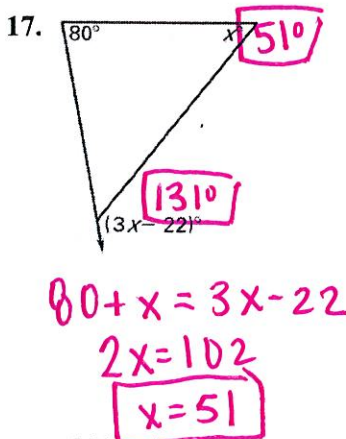
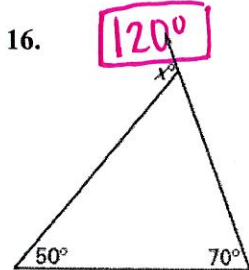
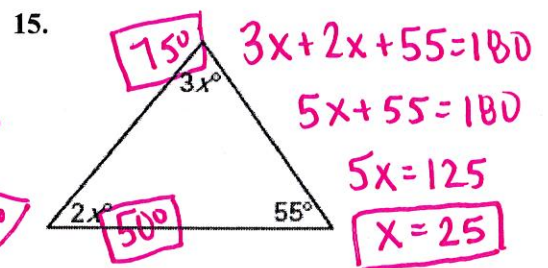
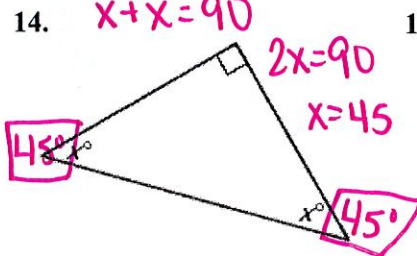
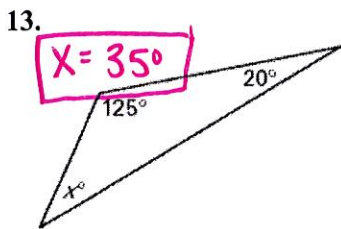
Describe the possible lengths of the third side of the triangle given the lengths of the other two sides.

10. 6 in., 9 in.  
 $3 < x < 15$

11. 4 ft, 12 ft  
 $8 < x < 16$

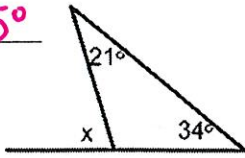
12. 22 in., 2 ft 24 in  $2 < x < 46$

Find the value of  $x$ . Then find any missing angle measures.

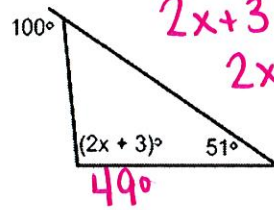


Find the value of  $x$  in each figure.

1.  $x = 55^\circ$



2.  $x = 23$

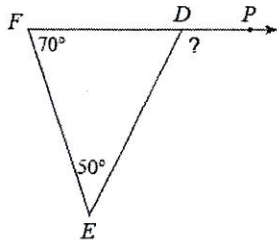


$$\begin{aligned} 2x + 3 + 51 &= 100 \\ 2x + 54 &= 100 \\ 2x &= 46 \\ x &= 23 \end{aligned}$$

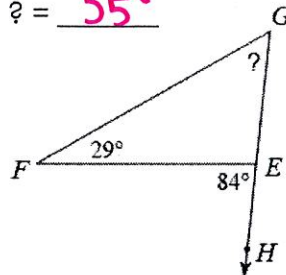
**CLASSWORK PRACTICE**

Find the missing angle.

1.  $\angle = 120^\circ$

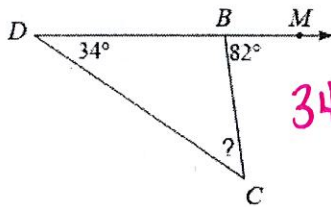


2.  $\angle = 55^\circ$



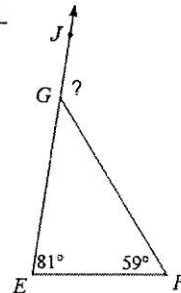
$$\begin{aligned} 29 + x &= 84 \\ x &= 55 \end{aligned}$$

3.  $\angle = 48^\circ$



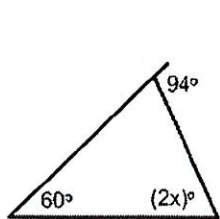
$$\begin{aligned} 34 + x &= 82 \\ x &= 48 \end{aligned}$$

4.  $\angle = 140^\circ$



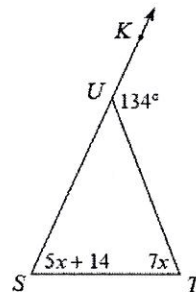
Solve for  $x$ .

5.  $x = 17$



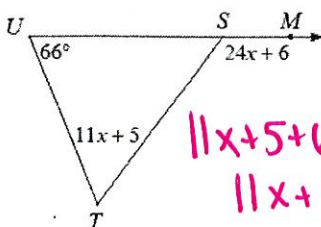
$$\begin{aligned} 60 + 2x &= 94 \\ 2x &= 34 \\ x &= 17 \end{aligned}$$

6.  $x = 10$



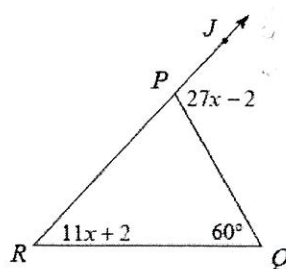
$$\begin{aligned} 5x + 14 + 7x &= 134 \\ 12x + 14 &= 134 \\ 12x &= 120 \\ x &= 10 \end{aligned}$$

7.  $x = 5$



$$\begin{aligned} 11x + 5 + 66 &= 24x + 6 \\ 11x + 71 &= 24x + 6 \\ 13x &= 65 \\ x &= 5 \end{aligned}$$

8.  $x = 4$



$$\begin{aligned} 11x + 2 + 60 &= 27x - 2 \\ 11x + 62 &= 27x - 2 \\ 16x &= 64 \\ x &= 4 \end{aligned}$$