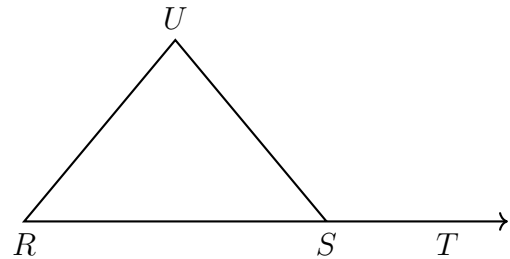


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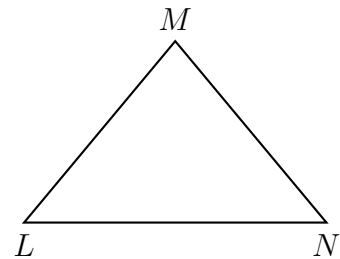
### 3.6 Classwork: External angles of triangles

1. The measures in degrees of the three angles of a triangle are  $x$ ,  $\frac{1}{2}x$ , and  $\frac{3}{2}x$ . Find the measures of the triangle's angles.

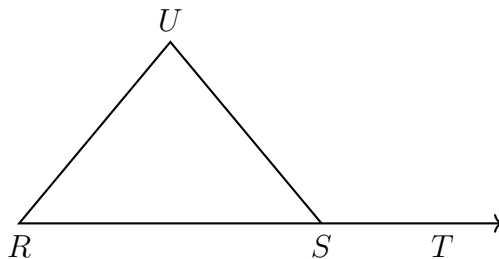
2. Given  $\triangle RSU$ . If  $m\angle UST = x$  and  $m\angle R = x - 80$ , and  $m\angle U = x - 50$ .



3. Given isosceles  $\triangle LMN$  with  $\overline{LM} \cong \overline{NM}$ . If  $m\angle L = 2x + 20$  and  $m\angle N = 3x + 5$ , find  $m\angle M$ .

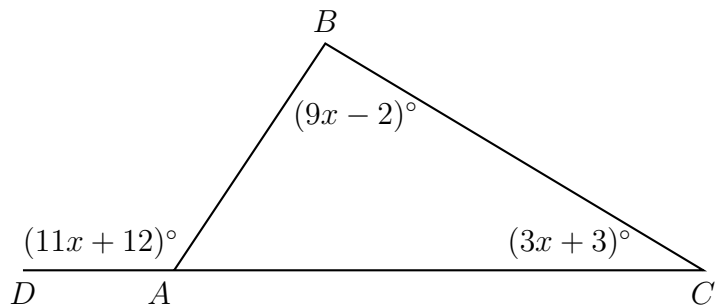


4. Given  $\triangle RSU$ . If  $m\angle UST = x + 50$ ,  $m\angle R = x - 20$ , and  $m\angle U = x + 10$ , find  $m\angle R$ .

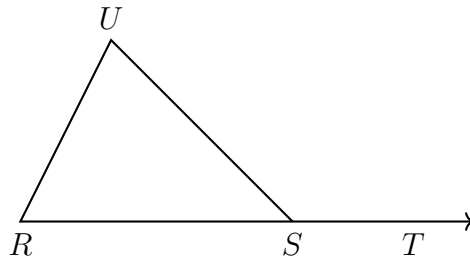


5. In  $\triangle ABC$  shown below, side  $\overline{AC}$  is extended to point  $D$  with  $m\angle DAB = (11x + 12)^\circ$ ,  $m\angle C = (3x + 3)^\circ$ , and  $m\angle B = (9x + 2)^\circ$ .

Find  $m\angle BAC$ .



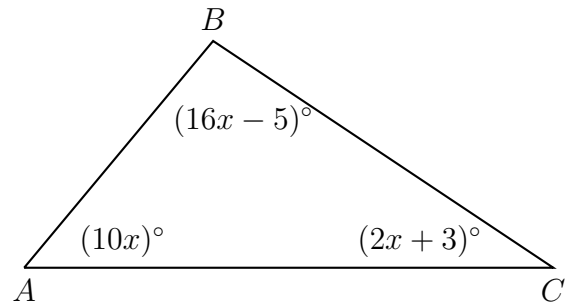
6. Given isosceles  $\triangle RSU$  with  $\overline{US} \cong \overline{RS}$ . If  $m\angle UST = 150$  find  $m\angle U$ .



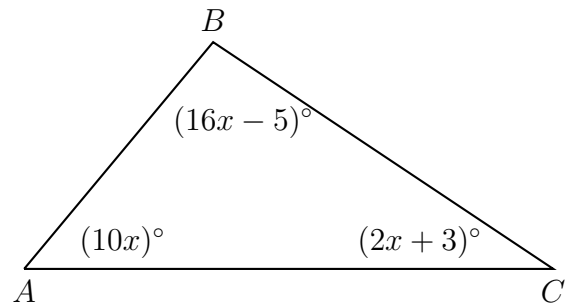
7. In  $\triangle ABC$  shown below,  $m\angle A = (10x)^\circ$ ,  $m\angle B = (16x - 5)^\circ$ , and  $m\angle C = (2x + 3)^\circ$ .

Find  $m\angle A$ . (show the check for full credit)

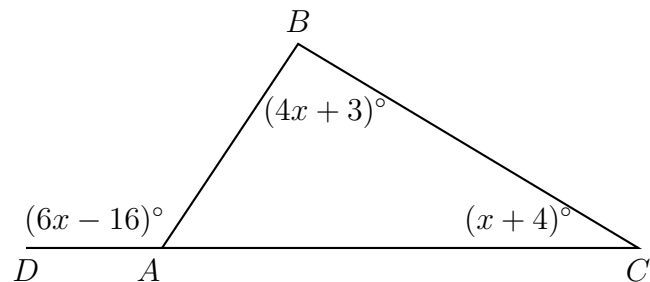
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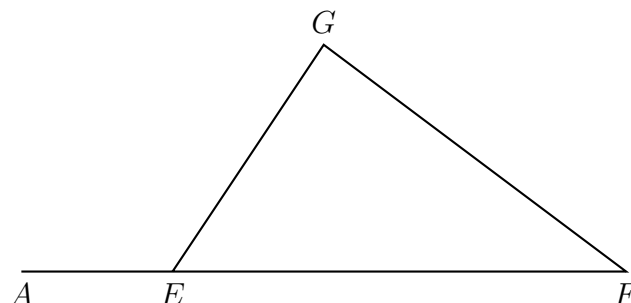
8. In  $\triangle ABC$  shown below,  $m\angle A = (10x)^\circ$ ,  $m\angle B = (16x - 5)^\circ$ , and  $m\angle C = (2x + 3)^\circ$ .  
 Find  $m\angle A$ . (show the check for full credit)



9. In  $\triangle ABC$  shown below, side  $\overline{AC}$  is extended to point  $D$  with  $m\angle DAB = (6x - 16)^\circ$ ,  $m\angle C = (x + 4)^\circ$ , and  $m\angle B = (4x + 3)^\circ$ .  
 Find  $m\angle BAC$ .

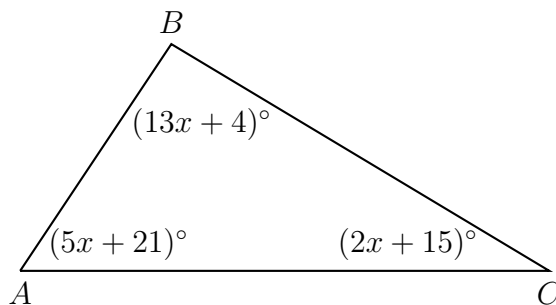


10. Given  $\triangle EFG$  with  $\overline{EF}$  extended to  $A$ . If  $m\angle F = 44^\circ$  and  $m\angle G = 92^\circ$ , find  $m\angle AEG$ ?



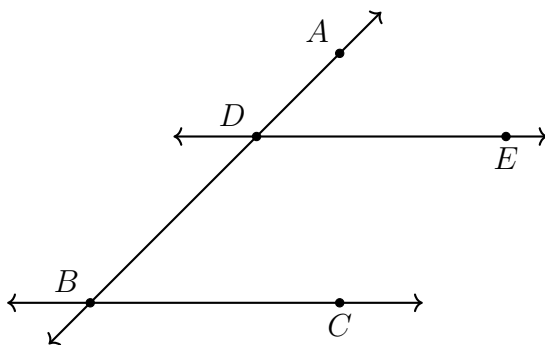
11. In  $\triangle ABC$  shown below,  $m\angle A = (5x + 21)^\circ$ ,  $m\angle B = (13x + 4)^\circ$ , and  $m\angle C = (2x + 15)^\circ$ .

What is  $m\angle A$ ?



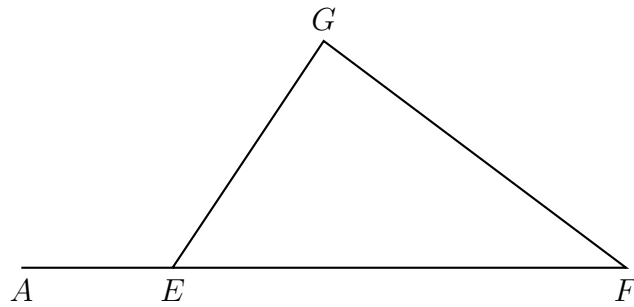
12. Given two parallel lines that intersect a transversal,  $\overleftrightarrow{DE} \parallel \overleftrightarrow{BC}$ .  $m\angle ABC = 3x - 5$  and  $m\angle BDE = 6x + 5$ .

Find  $m\angle ADE$ .



13. Given  $\triangle EFG$  with  $\overline{EF}$  extended to  $A$ . If  $m\angle F = 38^\circ$  and  $m\angle AEG = 133^\circ$ , what is  $m\angle EGF$ ?

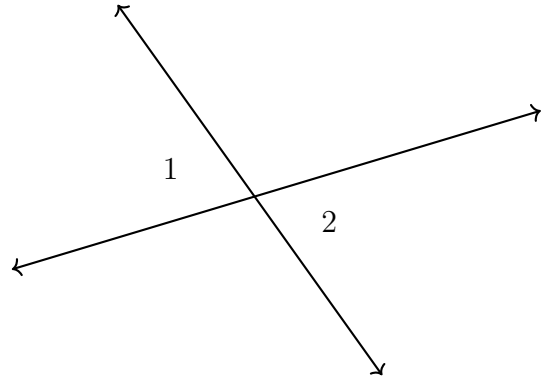
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14. Given two vertical angles as shown,  $m\angle 1 = 5x + 5$ ,  $m\angle 2 = 7x - 17$ .

Find  $m\angle 1$ .

For full credit find the  $m\angle 2$  as a check.



15. Given  $\overrightarrow{BA} \perp \overrightarrow{BC}$ ,  $m\angle ABD = 5x + 47$ , and  $m\angle DBC = 2x + 22$ . Find  $m\angle DBC$ .

For full credit, show the check using both angle measures.

