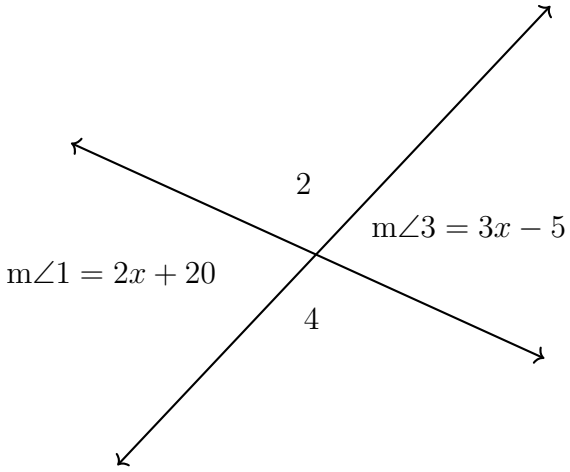
2.5 Homework: Mixed practice

1. Two lines intersect with vertical angles $\text{m}\angle 1 = 2x + 20$ and $\text{m}\angle 3 = 3x - 5$. Find $\text{m}\angle 2$.



2. Write the appropriate name for the type of angle depending on its measure in degrees. (acute, right, obtuse, or straight)

   (a) $\text{m}\angle = 90$: _____

   (b) $90 < \text{m}\angle < 180$: _____

   (c) $0 < \text{m}\angle < 90$: _____

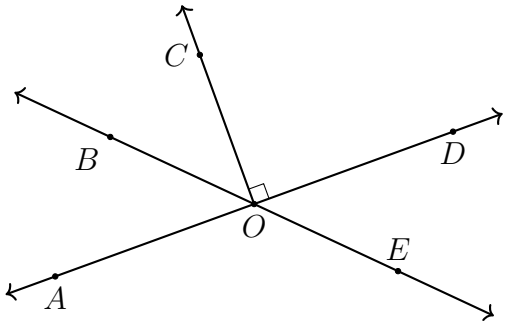
   (d) $\text{m}\angle = 180$: _____

3. Identify the true statement(s) given $\angle AOB = 2x$ and $\angle BOC = 5x + 20$.

   (a) $\angle AOB \cong \angle BOC$
   $2x = (5x + 20)$

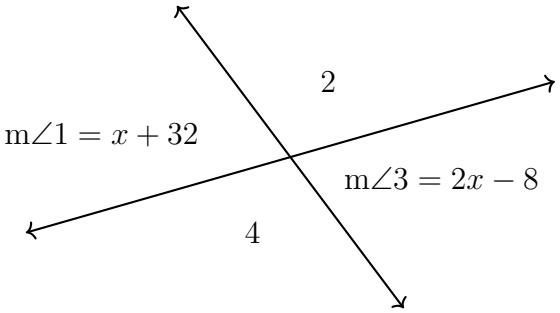
   (b) $\angle AOB$, $\angle BOC$ are complementary
   $2x + (5x + 20) = 90°$

   (c) $\angle AOB$ and $\angle BOC$ are a linear pair
   $2x + (5x + 20) = 180°$

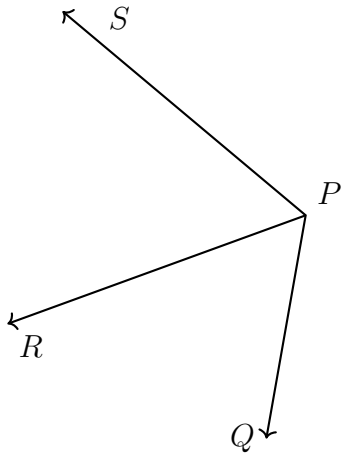


Copy the correct equation and solve for x. Check your answer.

4. As shown below, two lines intersect making four angles: $\angle 1$, $\angle 2$, $\angle 3$, and $\angle 4$. Given that $\text{m}\angle 1 = x + 32$ and $\text{m}\angle 3 = 2x - 8$, find $\text{m}\angle 1$.



5. An angle bisector is shown below, with $\overrightarrow{PR}$ bisecting $\angle QPS$. Given $\text{m}\angle QPR = 6x - 12$ and $\text{m}\angle QPS = 10x + 4$, find $\text{m}\angle QPS$.

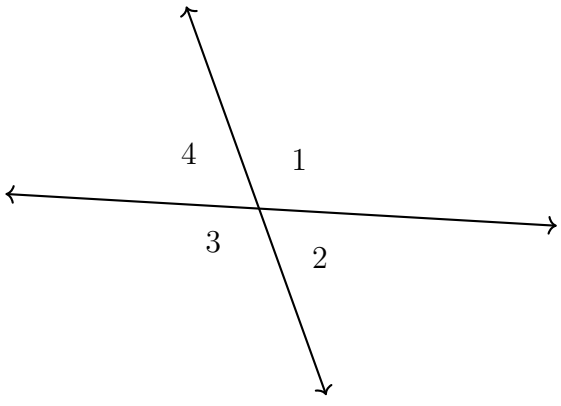


6. As shown below, two lines intersect making four angles: $\angle 1$, $\angle 2$, $\angle 3$, and $\angle 4$.

   (a) Name a pair of vertical angles.

   (b) Given $\text{m}\angle 4 = 70°$, write down $\text{m}\angle 2$.

   (c) Find $\text{m}\angle 1$.



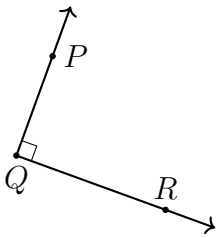
7. Demonstrate your ability to classify angles and use standard terminology.

   (a) Which of the following are true with respect to the angle, m$\angle PQR$?

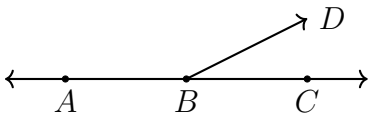
   True False It is a right angle

   True False It's measure is 180°

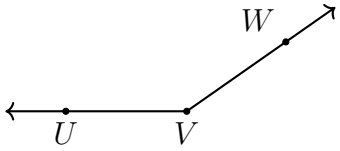
   True False $\overrightarrow{QP}$ is perpendicular to $\overrightarrow{QR}$



   (b) What is the sum of the degree measures of this linear pair, $\angle ABD$ and $\angle CBD$?



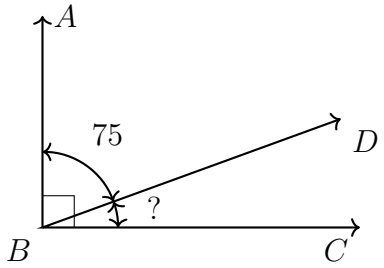
   (c) The given angle $\angle UVW$ is which of the following: acute, obtuse, or right?



8. Apply the Angle Addition postulate. Write and equation to support your work.

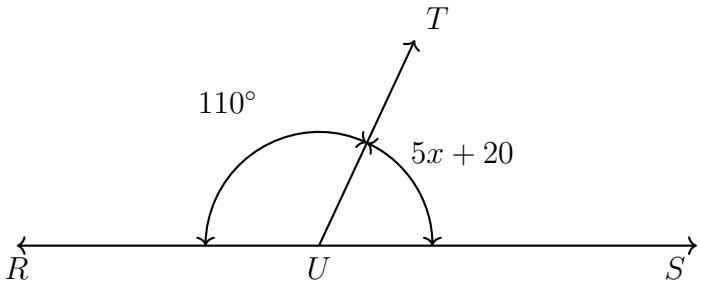
   Given m$\angle ABD = 75°$, m$\angle ABC = 90°$.

   Find $m\angle CBD$.



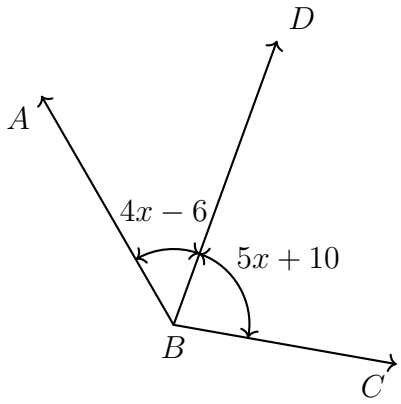
9. A linear pair is formed by two angles, m$\angle RUT = 110°$ and m$\angle SUT = 5x + 20$.

   Write an equation, then solve for x.



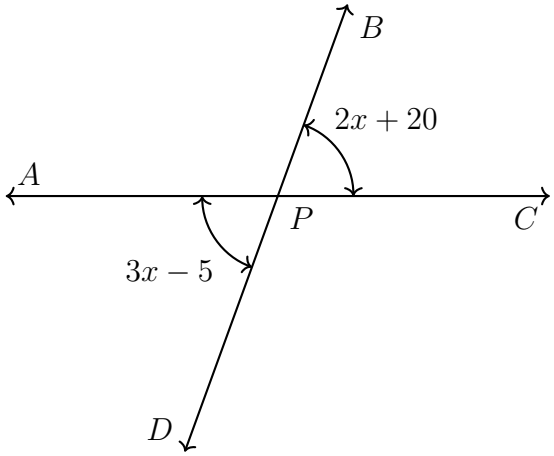
10. Given $\text{m}\angle ABD = 4x - 6$, $\text{m}\angle DBC = 5x + 10$, and $m\angle ABC = 130°$, as shown.

    Model the situation with an equation, then solve for x. Check your solution for full credit.



11. Given vertical angles, $\text{m}\angle APD = 3x - 5$, $\text{m}\angle BPC = 2x + 20$, as shown.

    Find x. Check your solution for full credit.

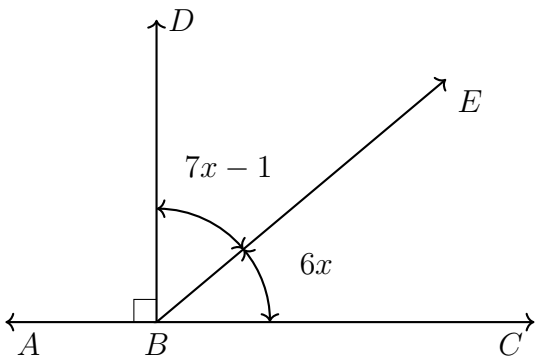


12. In the diagram shown, $\overrightarrow{BD} \perp \overleftrightarrow{ABC}$ with angle measures marked. Find x.

    Show the check for full credit.

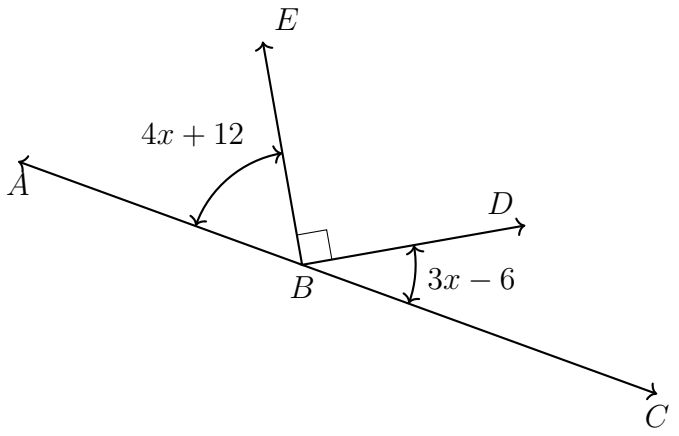
    $\text{m}\angle DBE = 7x - 1°$

    $\text{m}\angle EBC = 6x°$



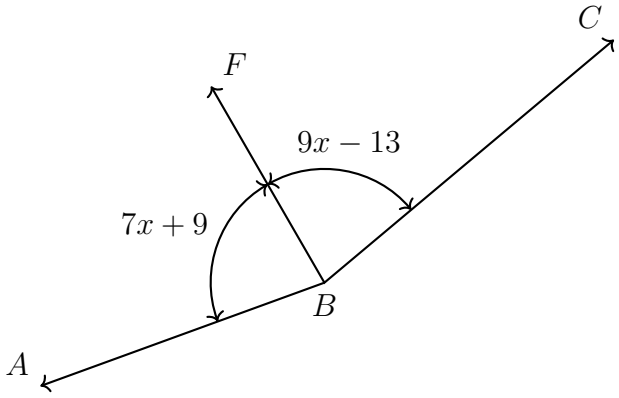
13. Given $\overleftrightarrow{ABC}$, right angle $\angle DBE$, $\text{m}\angle ABE = 4x + 12$, and $\text{m}\angle CBD = 3x - 6$.

    Find $\text{m}\angle CBD$.



14. Ray $\overrightarrow{BF}$ is the angle bisector of $\angle ABC$. Given that the angle measures are $\text{m}\angle ABF = 7x + 9$ and $\text{m}\angle CBF = 9x - 13$.

    Find $\text{m}\angle ABC$.



15. Ray $\overrightarrow{XL}$ is the angle bisector of $\angle KXM$. Given $\text{m}\angle JXN = 2x + 3$.

    Find x.

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