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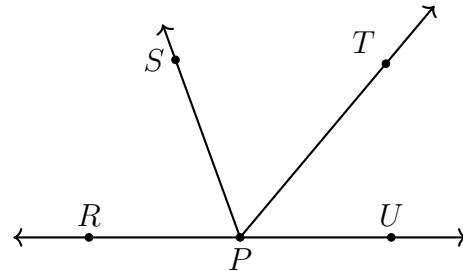
## 2.6 PreTest: Angle measures

1. Given the situation in the diagram, answer each question. Circle True or False.

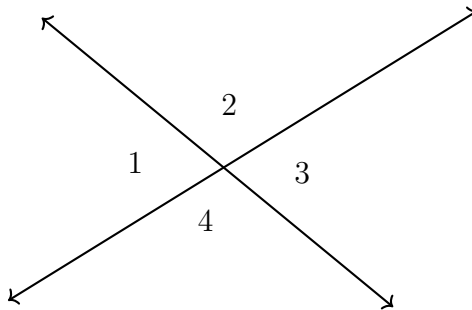
(a) T or F:  $\overrightarrow{PR}$  and  $\overrightarrow{PU}$  are opposite rays.

(b) T or F:  $\angle TPR$  is an obtuse angle.

(c) T or F:  $\angle RPS$  and  $\angle TPU$  are adjacent angles.



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



(a) Given that  $m\angle 1 = 75^\circ$ , find  $m\angle 2 =$  \_\_\_\_\_

(b) Find  $m\angle 3 =$  \_\_\_\_\_

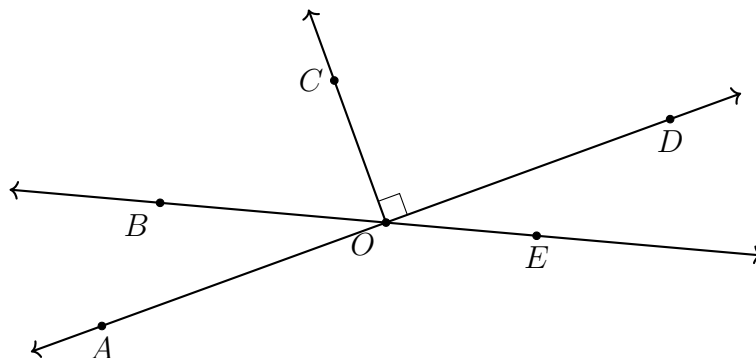
(c) True or false,  $\angle 1$  and  $\angle 4$  are supplementary angles. \_\_\_\_\_

(d) Which angle is opposite  $\angle 1$ ? \_\_\_\_\_

(e) Name an angle that is adjacent to  $\angle 4$ . \_\_\_\_\_

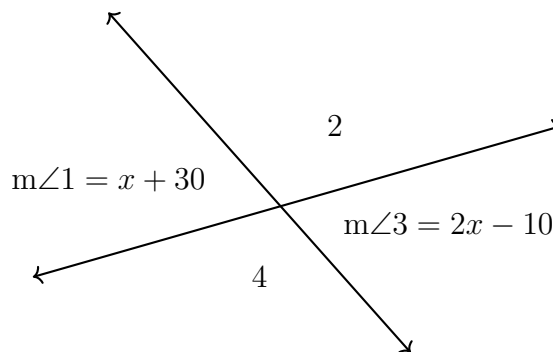
(f) True or false,  $\angle 2$  and  $\angle 4$  are vertical angles. \_\_\_\_\_

3. (a) Given, the diagram below. Name a right angle: \_\_\_\_\_
- (b) Name the angle that is opposite to  $\angle AOB$ : \_\_\_\_\_
- (c) Name an angle that is supplementary to  $\angle COB$ : \_\_\_\_\_

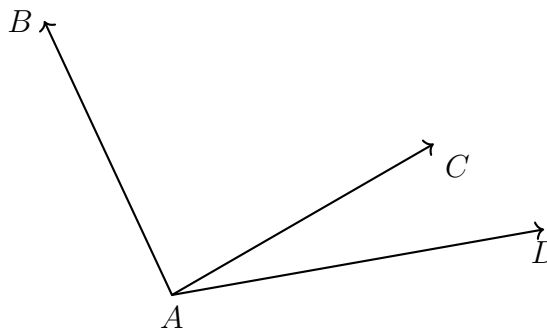


*For full credit on these three problems, start with an equation and check your solution.*

4. As shown below, two lines intersect making four angles:  $\angle 1$ ,  $\angle 2$ ,  $\angle 3$ , and  $\angle 4$ . Given that  $m\angle 1 = x + 30$  and  $m\angle 3 = 2x - 10$ , find  $m\angle 1$ .

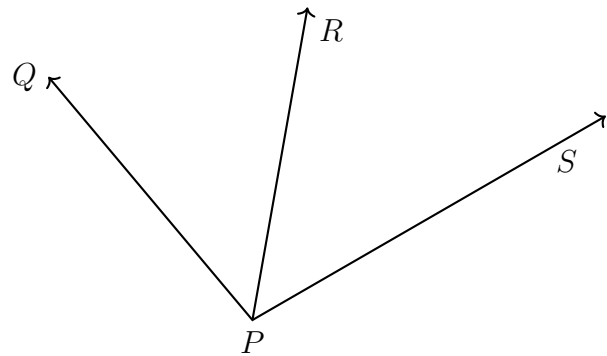


5. Given  $m\angle BAC = 5x - 5$  and  $m\angle DAC = x$ ,  $m\angle BAD = 115^\circ$ . Find  $m\angle BAC$ .

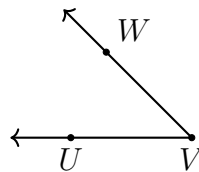


6. An angle bisector is shown below, with  $\overrightarrow{PR}$  bisecting  $\angle QPS$ . Given  $m\angle QPR = 4x + 2$  and  $m\angle QPS = 10x - 20$ , find  $m\angle QPS$ .

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7. The given angle  $\angle UVW$  is which of the following: acute, obtuse, or right?

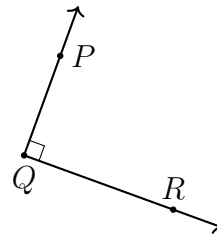


8. Which of the following are true with respect to the angle,  $m\angle PQR$ ?

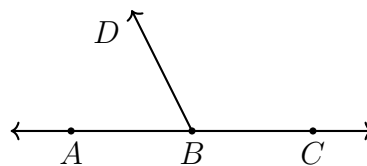
(a) True    False    It is an acute angle

(b) True    False    It's measure is  $90^\circ$

(c) True    False     $\overrightarrow{QP} \perp \overrightarrow{QR}$



9. What is sum of the degree measures of this linear pair,  $\angle ABD$  and  $\angle CBD$ ?

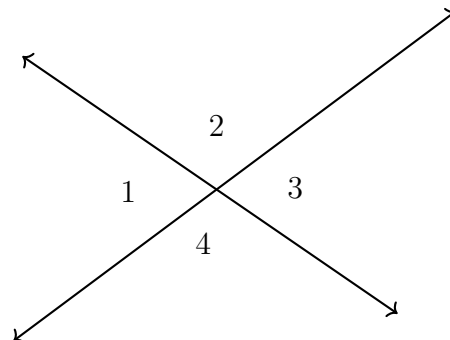


10. As shown below, two lines intersect making four angles:  $\angle 1$ ,  $\angle 2$ ,  $\angle 3$ , and  $\angle 4$ .

(a) Name a pair of vertical angles.

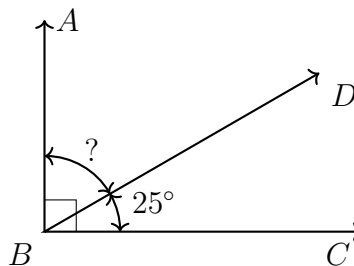
(b) Given  $m\angle 3 = 80^\circ$ , write down  $m\angle 1$ .

(c) Find  $m\angle 4$ .



11. Apply the Angle Addition postulate. Write an equation to support your work.

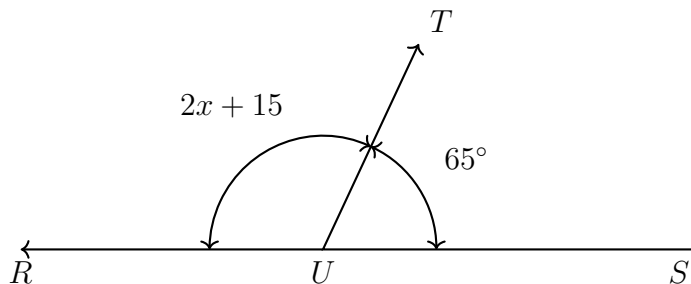
Given  $m\angle CBD = 25^\circ$ ,  $m\angle ABC = 90^\circ$ .



Find  $m\angle ABD$ .

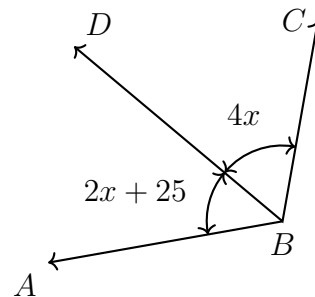
12. A linear pair is formed by two angles,  $m\angle RUT = 2x + 15$  and  $m\angle SUT = 65^\circ$ .

Write an equation, then solve for  $x$ .



13. Given  $m\angle ABD = 2x + 25$ ,  $m\angle DBC = 4x$ , and  $m\angle ABC = 115^\circ$ , as shown.

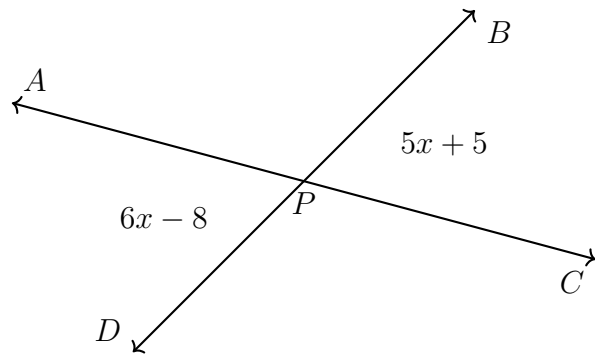
Model the situation with an equation, then solve for  $x$ . Check your solution for full credit.



14. Given vertical angles,  $m\angle APD = 6x - 8$ ,  $m\angle BPC = 5x + 5$ , as shown.

Find  $x$ . Check your solution for full credit.

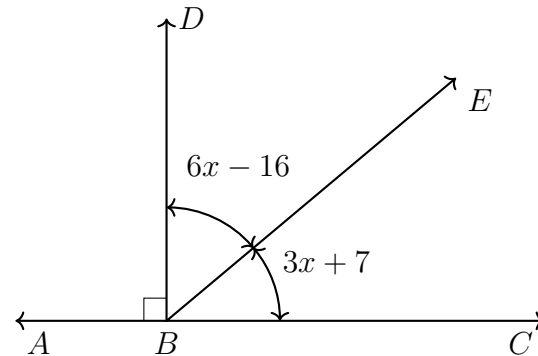
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15. In the diagram shown,  $\overrightarrow{BD} \perp \overrightarrow{ABC}$  with angle measures marked. Find  $x$ .

Show the check for full credit.

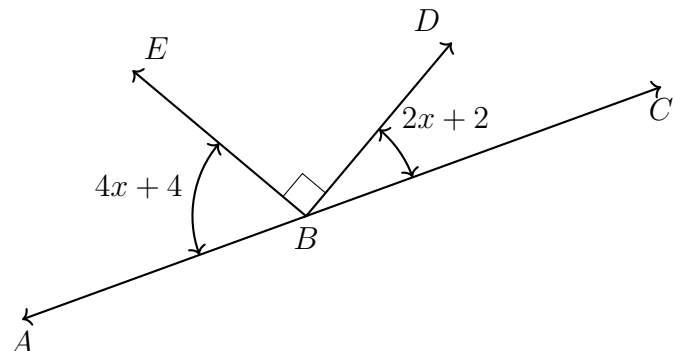
$$m\angle DBE = 6x - 16^\circ$$



$$m\angle EBC = 3x + 7^\circ$$

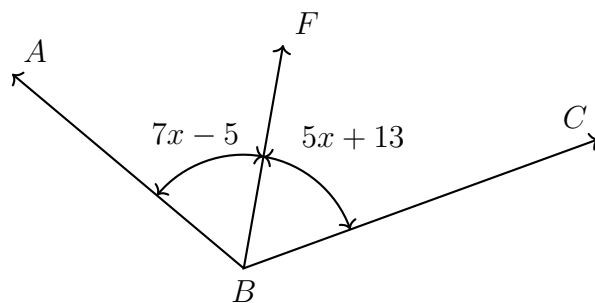
16. Given  $\overleftrightarrow{ABC}$ , right angle  $\angle DBE$ ,  $m\angle ABE = 4x + 4$ , and  $m\angle CBD = 2x + 2$ .

Find  $m\angle CBD$ .



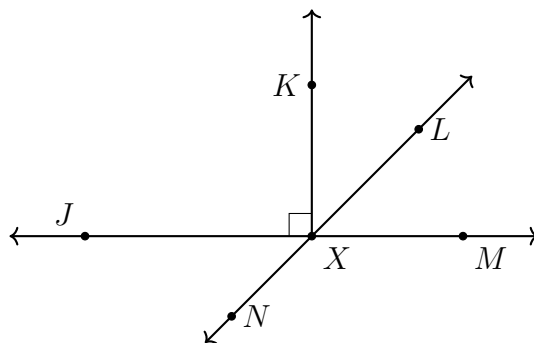
17. Ray  $\overrightarrow{BF}$  is the angle bisector of  $\angle ABC$ . Given that the angle measures are  $m\angle ABF = 7x - 5$  and  $m\angle CBF = 5x + 13$ .

Find  $m\angle ABC$ .



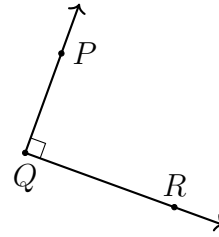
18. Ray  $\overrightarrow{XL}$  is the angle bisector of  $\angle KXM$ . Given  $m\angle JXN = 4x - 23$ .

Find  $m\angle KXL$ .



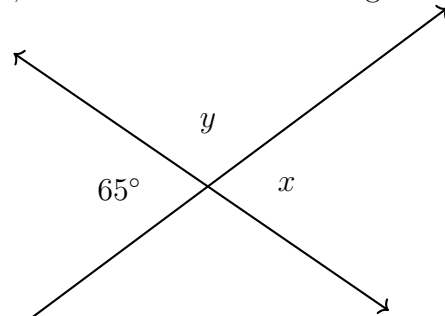
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**Write the equation to model each situation. “Do NOT Solve” the equation.**



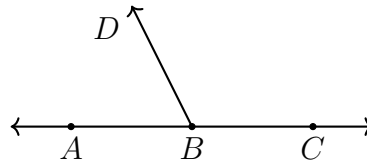
19. Write down an equation stating the value of the given angle.

20. As shown below, two lines intersect making four angles. Write two equations, one for  $x$



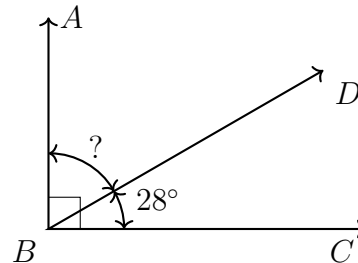
and one for  $y$ .

21. Write down an equation expressing the sum of the degree measures of this linear pair,  $\angle ABD$  and  $\angle CBD$ .



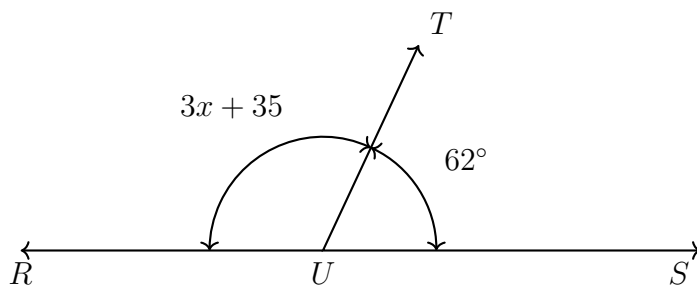
22. Apply the Angle Addition postulate. Given  $m\angle CBD = 28^\circ$ ,  $m\angle ABC = 90^\circ$ .

Write an equation to represent the situation. (do not solve)



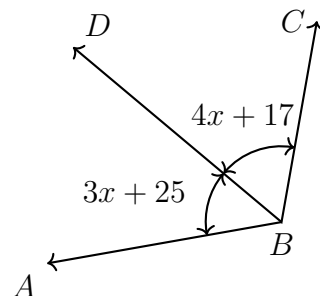
23. A linear pair is formed by two angles,  $m\angle RUT = 3x + 35$  and  $m\angle SUT = 62^\circ$ .

Write an equation. *Do not* solve for  $x$ .



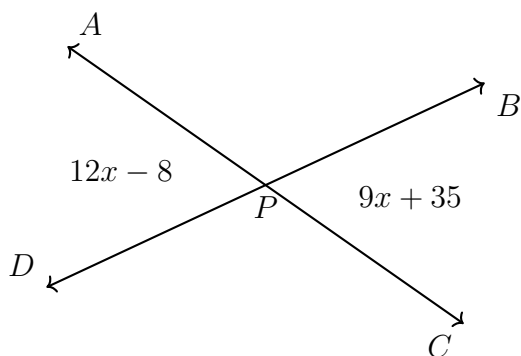
24. Given  $m\angle ABD = 3x + 25$ ,  $m\angle DBC = 4x + 17$ , and  $m\angle ABC = 119^\circ$ , as shown.

Model the situation with an equation, but do not solve for  $x$ .



25. Given vertical angles,  $m\angle APD = 12x - 8$ ,  $m\angle BPC = 9x + 35$ , as shown.

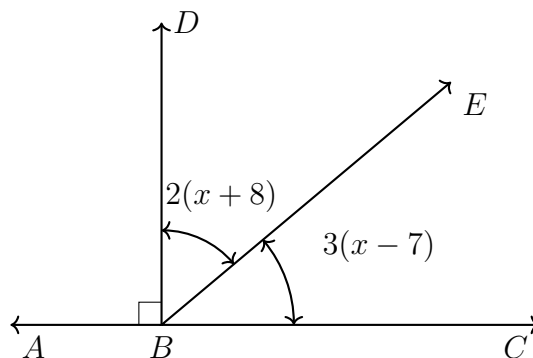
Write an equation that could be used to solve for  $x$ .



26. In the diagram shown,  $\overrightarrow{BD} \perp \overrightarrow{ABC}$  with angle measures marked. Write an equation modeling the situation. (do not solve)

$$m\angle DBE = 2(x + 8)^\circ$$

$$m\angle EBC = 3(x - 7)^\circ$$

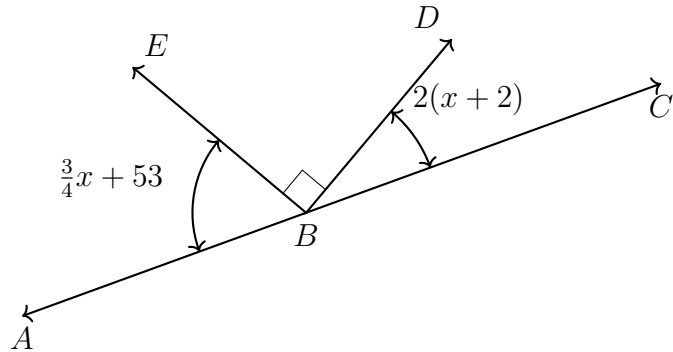




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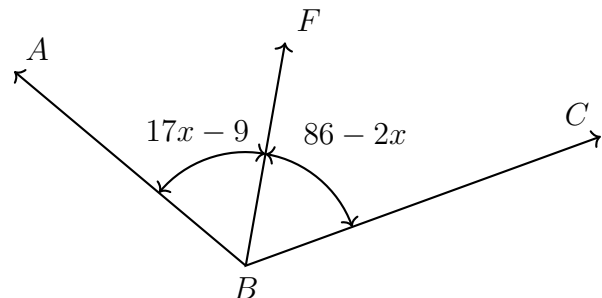
27. What equation could be used to solve for  $x$ ?

Given  $\overleftrightarrow{ABC}$ , right angle  $\angle DBE$ ,  $m\angle ABE = \frac{3}{4}x + 53$ , and  $m\angle CBD = 2(x + 2)$ .



28. Ray  $\overrightarrow{BF}$  is the angle bisector of  $\angle ABC$ . Given that the angle measures are  $m\angle ABF = 17x - 9$  and  $m\angle CBF = 86 - 2x$ .

Write an equation in terms of  $x$  to model the situation.



29. Ray  $\overrightarrow{XL}$  is the angle bisector of  $\angle KXM$ . Given  $m\angle MXN = 14x - 19$ .

Write an equation that could be solved for the value of  $x$  in the diagram.

