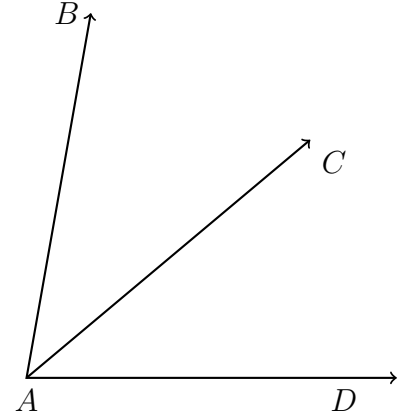


7 October 2019

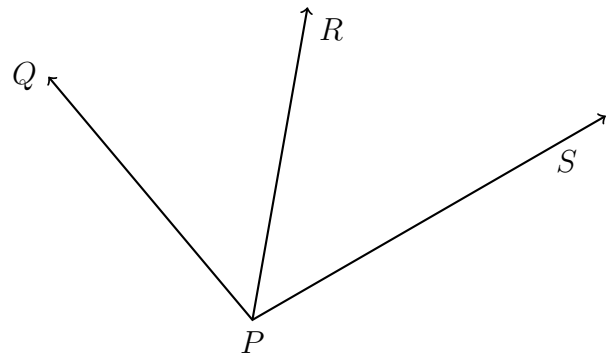
Name:

**3.3 Classwork: Angle bisectors, modeling segments**

1. An angle bisector is shown below, with  $\overrightarrow{AC}$  bisecting  $\angle BAD$ . Given  $m\angle BAC = 7x + 5$  and  $m\angle DAC = 9x - 5$ , find  $m\angle BAD$ . (Show check)



2. 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  $m\angle QPS$ .



**Do Not Solve! Make a drawing on the right, an equation to the left, and circle where it states what to find.**

3. The point  $Q$  is the midpoint of  $\overline{PR}$ ,  $PQ = 11$ , and  $QR = 2x + 1$ . Find  $x$ .
  
  
  
  
  
  
  
  
  
  
4. Given  $\overline{PQR}$ , with  $PQ = 3x - 7$ ,  $QR = x + 3$ , and  $PR = 12$ . Find  $x$ .
  
  
  
  
  
  
  
  
  
  
5. Given that  $Q$  bisects  $\overline{PR}$ .  $PQ = 2x - 5$ ,  $PR = 42$ . Find  $x$ .
  
  
  
  
  
  
  
  
  
  
6. The points  $P$ ,  $Q$ , and  $R$  are collinear, with  $PQ = x + 4$  and  $PR = 27$ .  $\overline{QR}$  is twice the length of  $\overline{PQ}$ . Find  $x$ .