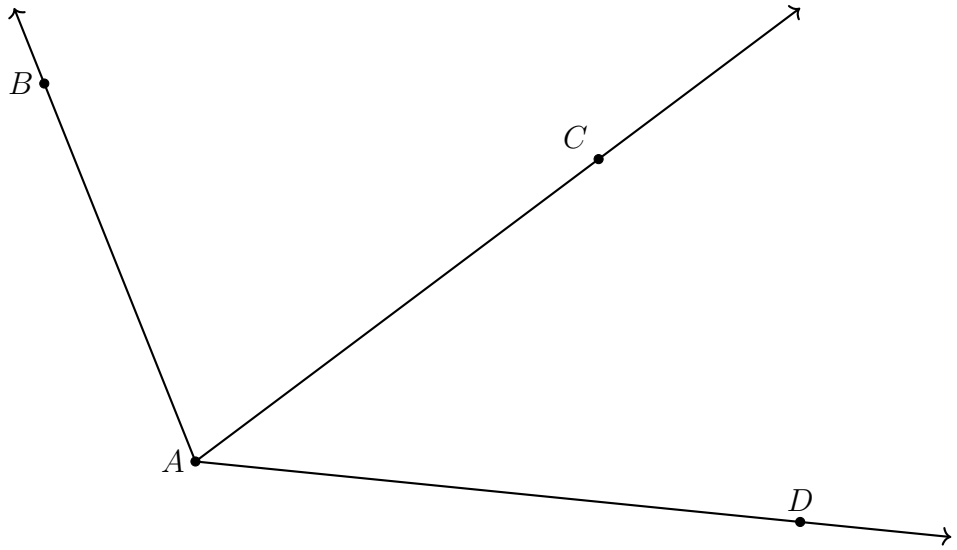
2.2 Classwork: Angle addition

1. Write down the name of the *three* angles shown in the diagram below and their angle measures, using your protractor.



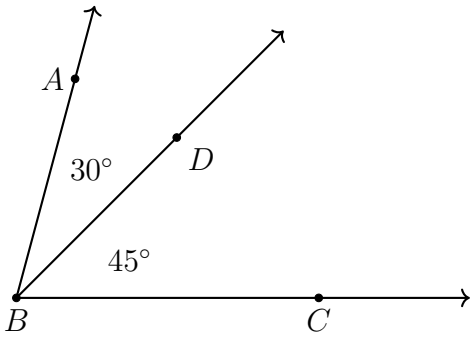
(a) _____

(b) _____

(c) _____

(d) What do you notice about the angle measures?

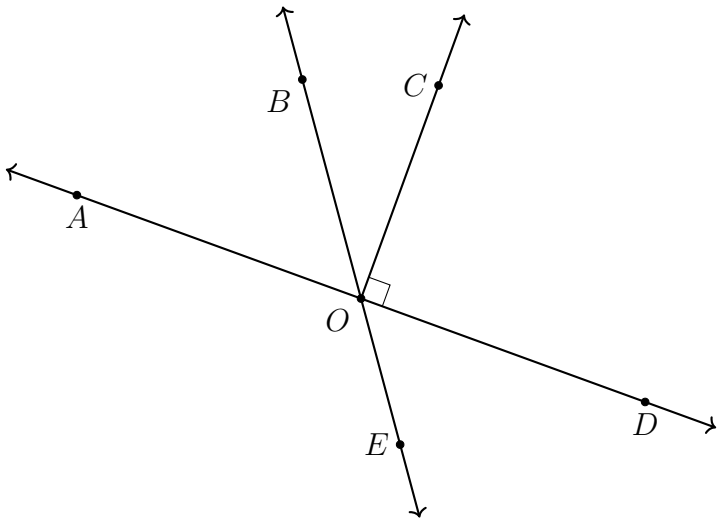
2. $\text{m}\angle ABD = 30°$, $\text{m}\angle DBC = 45°$. Find $\text{m}\angle ABC$.



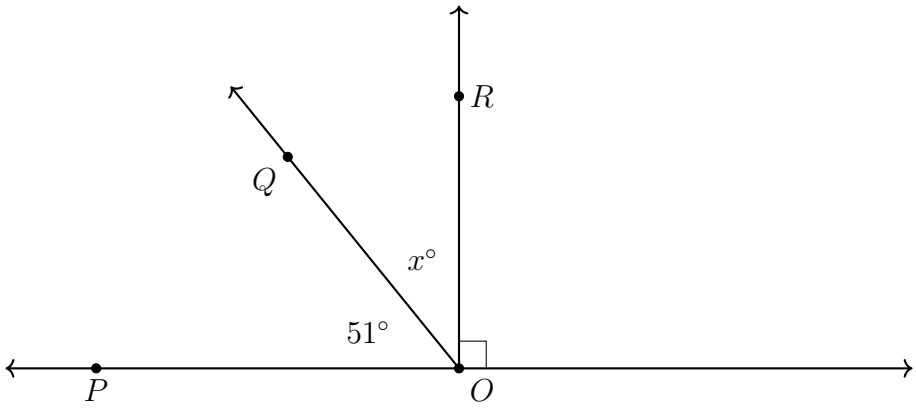
3. Answer based on the diagram below.

   (a) Name an angle that is supplementary to $\angle AOB$: _____

   (b) Name an angle that is complementary to $\angle DOE$: _____



4. $\angle POQ$ and $\angle QOR$ are complementary angles. Given $\text{m}\angle POQ = 51°$, find $\text{m}\angle QOR$.

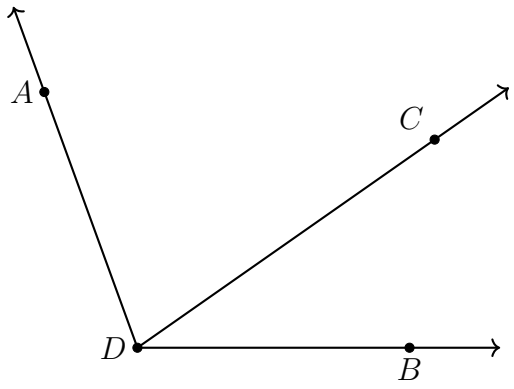


5. Given $\text{m}\angle ADB = 110°$, $\text{m}\angle ADC = 75°$, and $\text{m}\angle BDC = 3x + 5$. Find x.

   (a) Label the diagram.

   (b) Write an equation.

   (c) Solve for x.

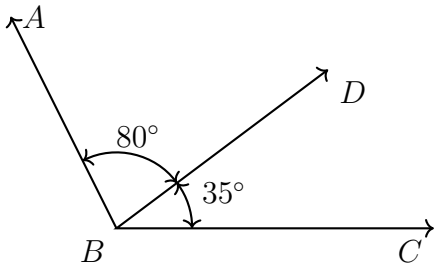


   (d) Check your answer

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

   Given $\text{m}\angle ABD = 80°$ and $\text{m}\angle DBC = 35°$.

   Find $m\angle ABC$.

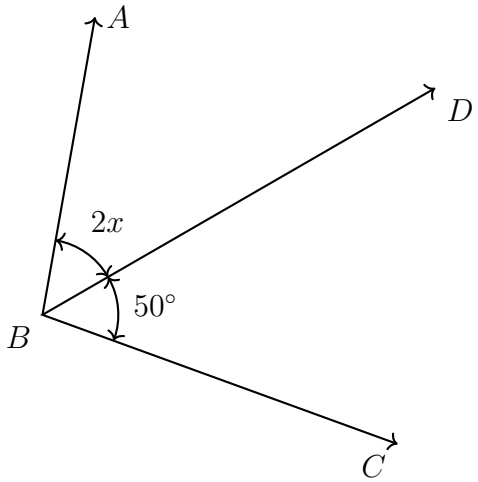


7. Given the angle measures and situation shown, write an equation and solve for x.

   $\text{m}\angle ABD = 2x$

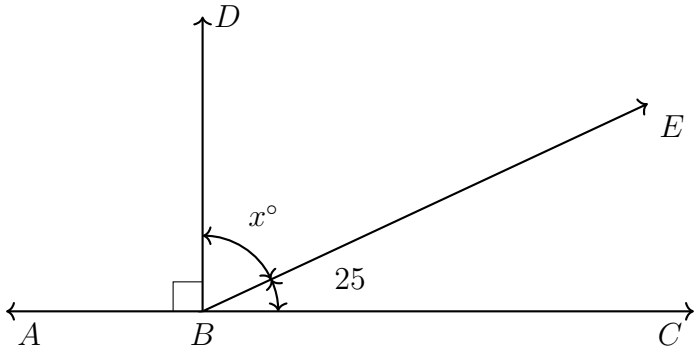
   $\text{m}\angle DBC = 50°$

   $m\angle ABC = 110°$



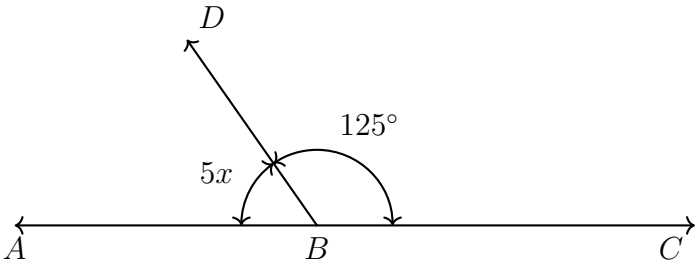
8. The ray $\overrightarrow{BD}$ makes a 90° angle with the line $\overleftrightarrow{ABC}$, and m$\angle DBE = x°$, m$\angle EBC = 25°$.

   Find x, writing and equation to support your work.



9. Two supplementary angles have measures m$\angle ABD = 5x$ and m$\angle DBC = 125°$.

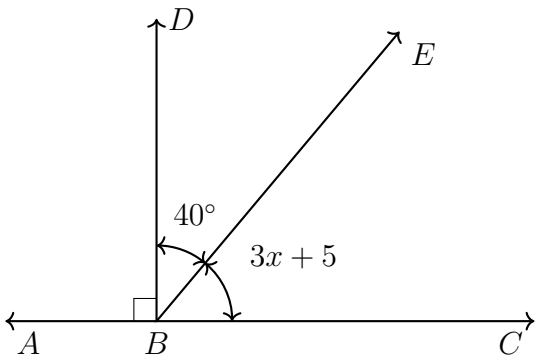
   Write an equation, then find x.



10. Given the perpendicular situation shown, $\overrightarrow{BD} \perp \overleftrightarrow{ABC}$ and angle measures given.

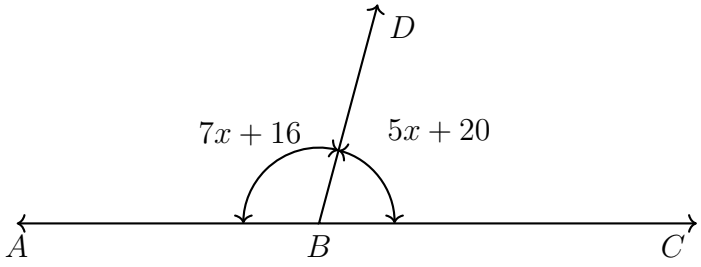
    Find x.

    m$\angle DBE = 40°$
    m$\angle EBC = 3x + 5°$



11. A linear pair have measures m$\angle ABD = 7x + 16°$ and m$\angle DBC = 5x + 20°$.

    Find m$\angle ABD$.


D
7x + 16
5x + 20
A
B
C