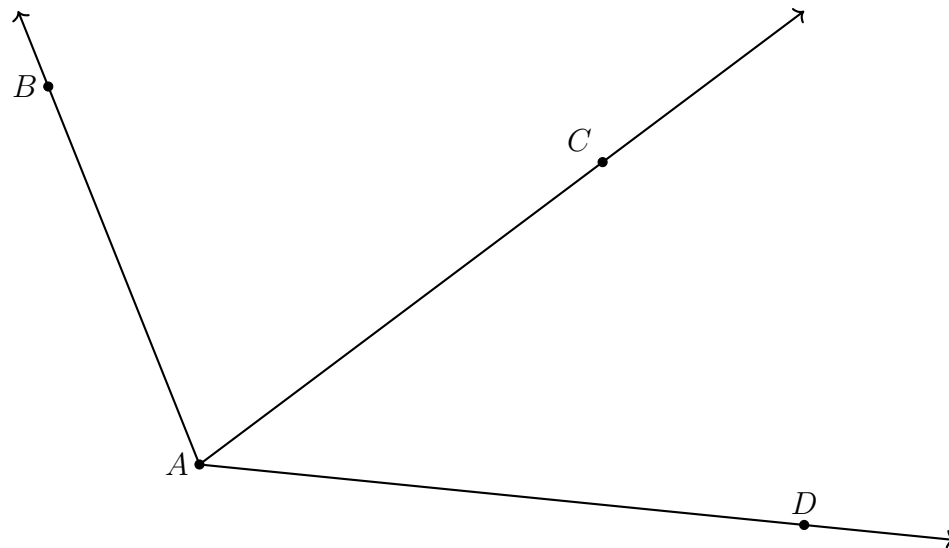


Name: \_\_\_\_\_

## 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.



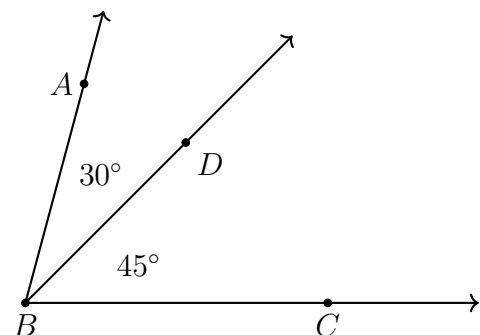
(a) \_\_\_\_\_

(b) \_\_\_\_\_

(c) \_\_\_\_\_

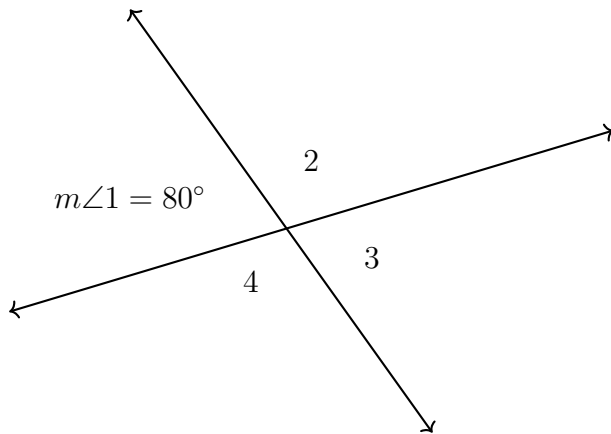
(d) What do you notice about the angle measures?

2.  $m\angle ABD = 30^\circ$ ,  $m\angle DBC = 45^\circ$ . Find  $m\angle ABC$ .

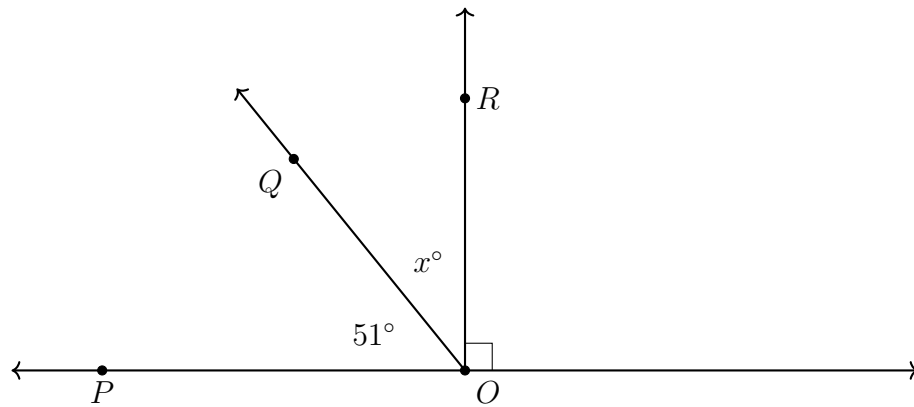


3. Two lines intersect with  $m\angle 1 = 80^\circ$ . Find the measures of  $\angle 2$ ,  $\angle 3$ , and  $\angle 4$ .

2



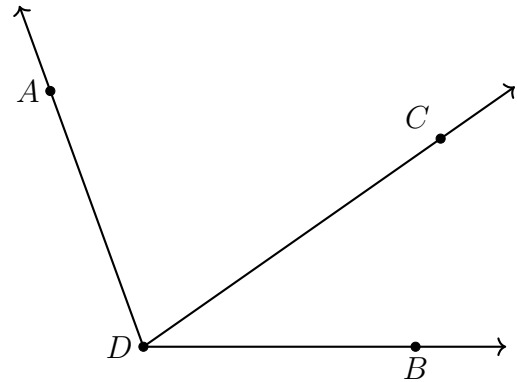
4.  $\angle POQ$  and  $\angle QOR$  are complementary angles. Given  $m\angle POQ = 51^\circ$ , find  $m\angle QOR$ .



Name:

5. Given  $m\angle ADB = 110^\circ$ ,  $m\angle ADC = 75^\circ$ , and  $m\angle BDC = 3x + 5$ . Find  $x$ .

- (a) Label the diagram.  
 (b) Write an equation.  
 (c) Solve for  $x$ .

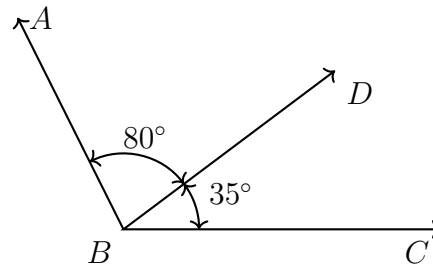


- (d) Check your answer

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

Given  $m\angle ABD = 80^\circ$  and  
 $m\angle DBC = 35^\circ$ .

Find  $m\angle ABC$ .

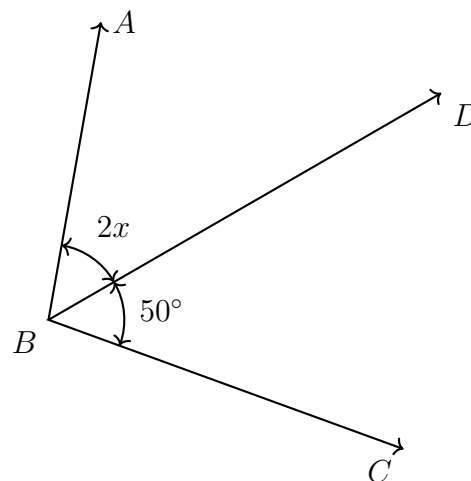


7. Given the angle measures and situation shown, write an equation and solve for  $x$ .

$$m\angle ABD = 2x$$

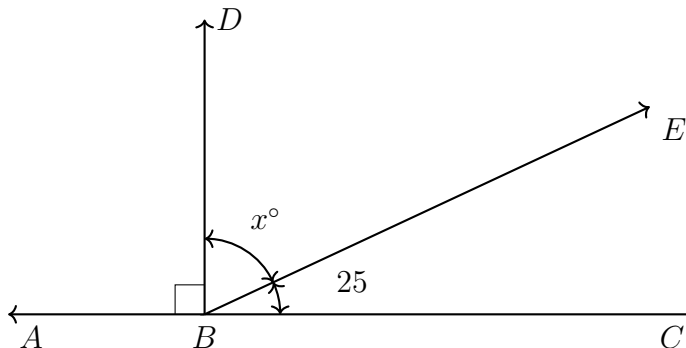
$$m\angle DBC = 50^\circ$$

$$m\angle ABC = 110^\circ$$



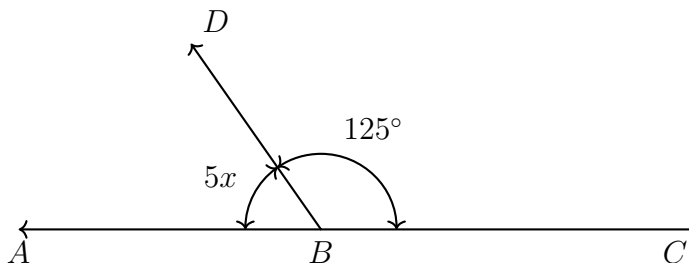
8. The ray  $\overrightarrow{BD}$  makes a  $90^\circ$  angle with the line  $\overleftrightarrow{AC}$ , and  $m\angle DBE = x^\circ$ ,  $m\angle EBC = 25^\circ$ .

Find  $x$ , writing an equation to support your work.



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

Write an equation, then find  $x$ .

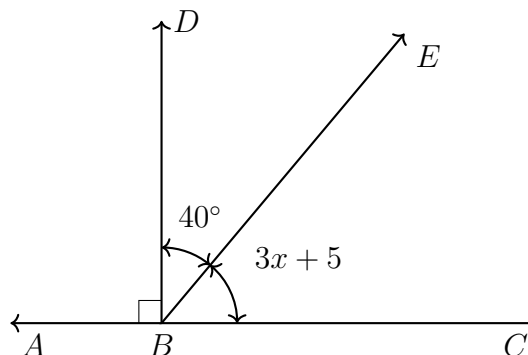


10. Given the perpendicular situation shown,  $\overrightarrow{BD} \perp \overleftrightarrow{AC}$  and angle measures given.

Find  $x$ .

$$m\angle DBE = 40^\circ$$

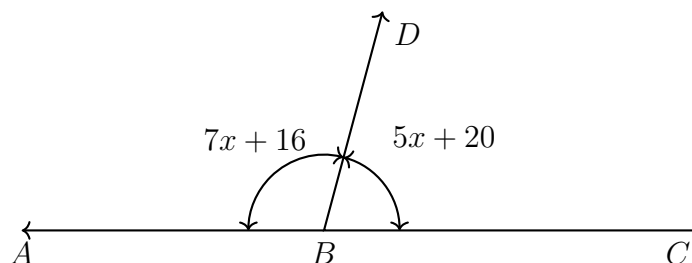
$$m\angle EBC = 3x + 5^\circ$$



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

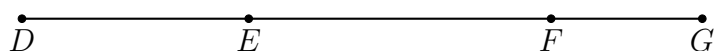
Find  $m\angle ABD$ .

Name:



12. Given  $\overline{DEFG}$ ,  $DE = 3\frac{1}{4}$ ,  $EF = 6\frac{1}{4}$ , and  $FG = 1\frac{3}{4}$ . (diagram not to scale)

Find  $DG$ , expressed as a fraction, not a decimal.



13. Given  $P(-2.4)$  and  $Q(1.8)$ , as shown on the number line.

Find the length of the line segment  $\overline{PQ}$ . State an equation for full credit.

