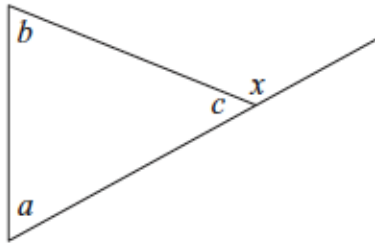
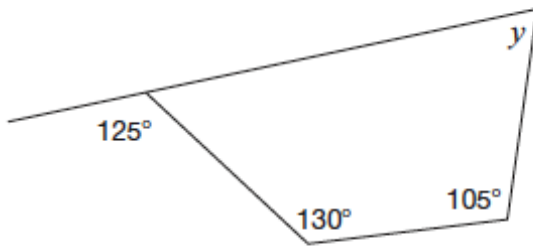


1. Consider the diagram below.

Which of the following equations is always true?



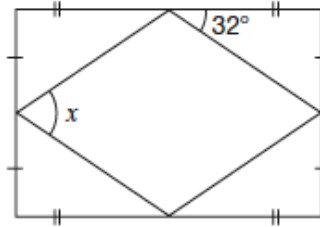
- a  $x = a + b$   
 b  $x = b + c$   
 c  $x = a - b$   
 d  $x = b - c$
3. Consider the diagram below.



Which of the following is the value of  $y$  in the diagram?

- a  $55^\circ$   
 b  $70^\circ$   
 c  $125^\circ$   
 d  $130^\circ$

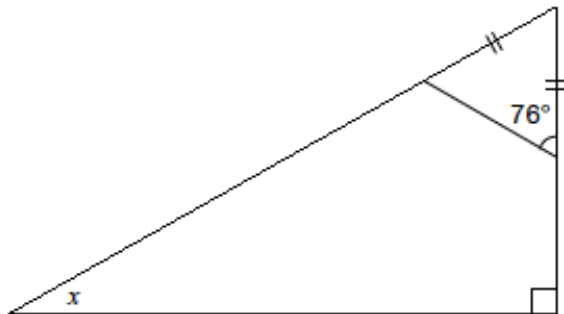
2. A rectangular sign is built as shown below. The four supports for the back of the sign form four congruent triangles.



What is the value of  $x$ ?

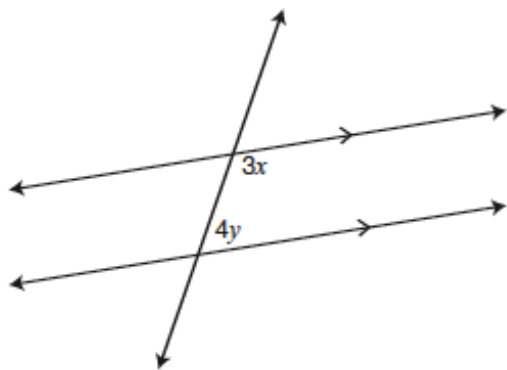
- a  $26^\circ$   
 b  $32^\circ$   
 c  $58^\circ$   
 d  $64^\circ$
4. What is the sum of the interior angles of a 12-sided regular polygon?
- a  $1080^\circ$   
 b  $1800^\circ$   
 c  $1980^\circ$   
 d  $2160^\circ$

5. Consider the following diagram.



What is the value of  $x$ ?

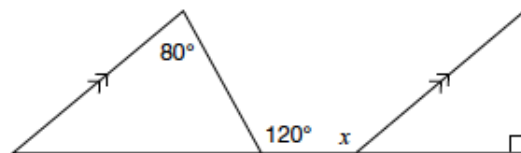
- a  $14^\circ$
  - b  $28^\circ$
  - c  $62^\circ$
  - d  $76^\circ$
7. The relation shown below can be expressed as  $3x + 4y - 180 = 0$ .



Another way to write this relation is

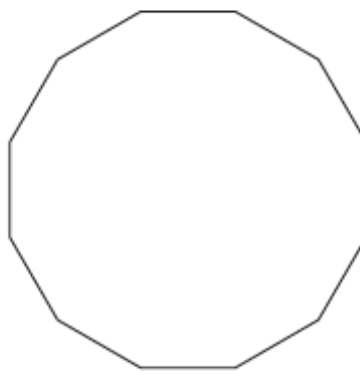
- a  $y = \frac{3}{4}x - 45$ .
- b  $y = -\frac{3}{4}x + 45$ .
- c  $y = -\frac{4}{3}x + 60$ .
- d  $y = \frac{4}{3}x - 60$ .

6. Consider the diagram below.



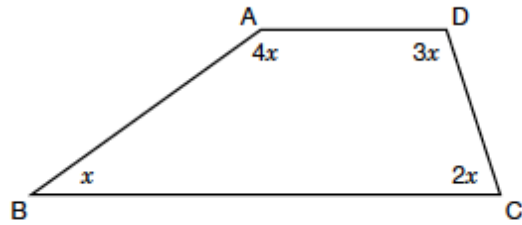
What is the value of  $x$ ?

- a  $80^\circ$
  - b  $120^\circ$
  - c  $140^\circ$
  - d  $170^\circ$
8. What is the measure, in degrees, of the sum of the interior angles of a 12-sided regular polygon?



- a  $2160^\circ$
- b  $1800^\circ$
- c  $1500^\circ$
- d  $1080^\circ$

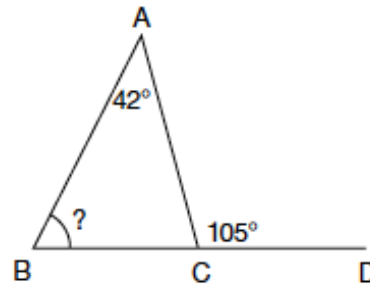
9. ABCD is a quadrilateral.



What is the measure of  $\angle BAD$ ?

- F  $108^\circ$
- G  $120^\circ$
- H  $132^\circ$
- J  $144^\circ$

10. In the figure, BC is extended to D.  $\angle BAC = 42^\circ$  and  $\angle ACD = 105^\circ$ .

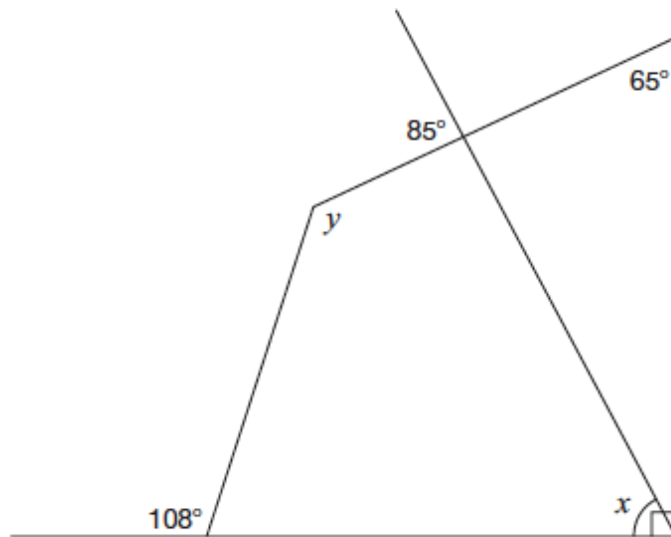


What is the value of  $\angle ABC$ ?

- A  $33^\circ$
- B  $42^\circ$
- C  $52^\circ$
- D  $63^\circ$

11. **What's Missing?**

Consider the diagram below.



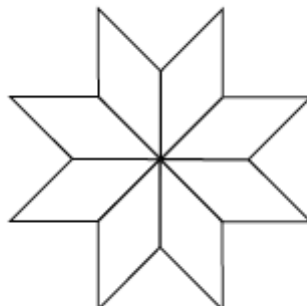
Complete the table below.

Justify your answers using geometric properties.

12. **Geometric Quilts**

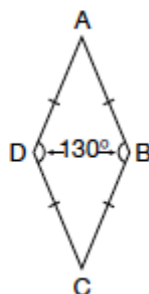
Paul's grandmother wants to use quilt pieces to make an **eight-pointed star** like the one shown.

**Eight-Pointed Star**



Her quilt pieces are in the shape of a rhombus with two angles of  $130^\circ$ .

**Quilt Piece**



Is it possible to make an **eight-pointed star** using copies of her quilt piece?  
Justify your answer.