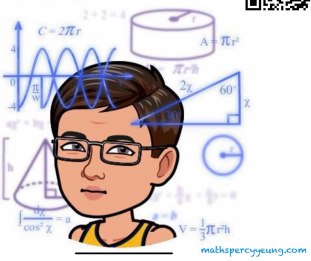
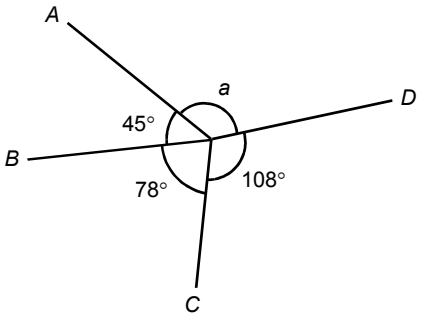


Chapter 9 Plane Geometry

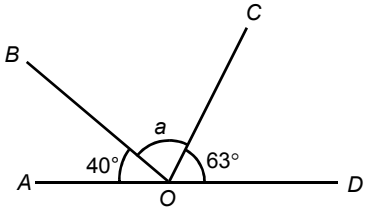
Multiple Choice Questions

1. In the figure, find a.



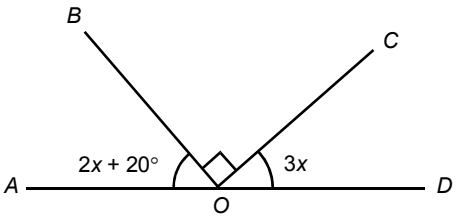
A. 119° B. 129° C. 139° D. 149°

2. In the figure, AOD is a straight line. Find a.



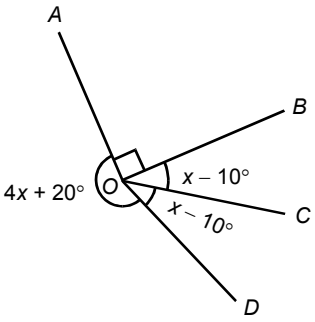
A. 77° B. 87° C. 97° D. 103°

3. In the figure, AOD is a straight line. Find x.



A. 14° B. 14 C. 76° D. 76

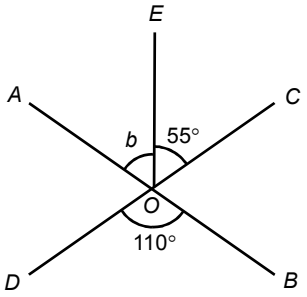
4. In the figure, find x.



A. 43° B. 43 C. 45° D. 45

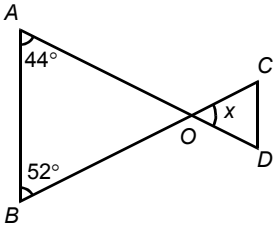
Email: bb_bubu@msn.com created by Percy Yeung

5. In the figure, *AOB* and *COD* are straight lines. Find *b*.



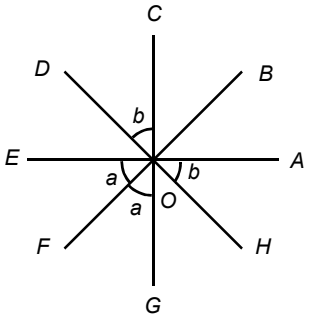
A. 45° B. 55° C. 65° D. 75°

6. In the figure, *AOD* and *BOC* are straight lines. Find *x*.



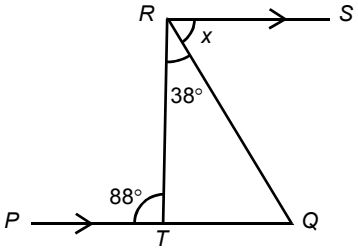
A. 74° B. 78° C. 84° D. 94°

7. In the figure, *AOE*, *BOF*, *COG* and *DOH* are straight lines. How many right angles are there in the figure?



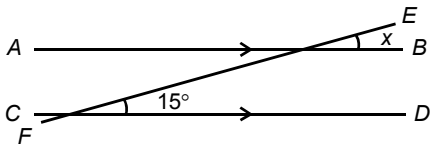
A. 0 B. 1 C. 2 D. 4

8. In the figure, *RS* // *PQ*. Find *x*.



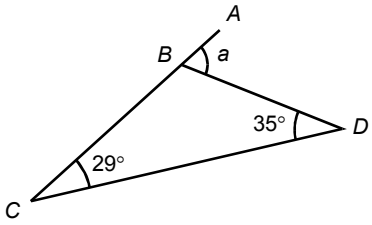
A. 38° B. 50° C. 88° D. 126°

9. In the figure, AB // CD and EF is a straight line. Find x.



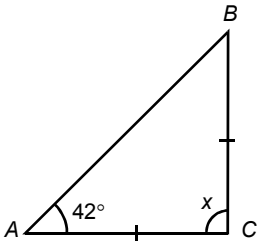
A. 15° B. 45° C. 75° D. 165°

10. In the figure, ABC is a straight line. Find a.



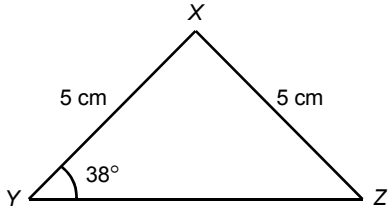
A. 6° B. 64° C. 80° D. 116°

11. In the figure, find x.



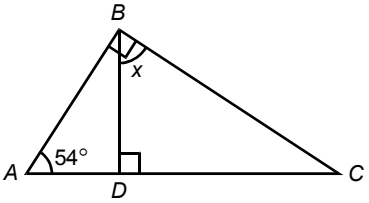
A. 42° B. 48° C. 96° D. 138°

12. In the figure, find $\angle X$.



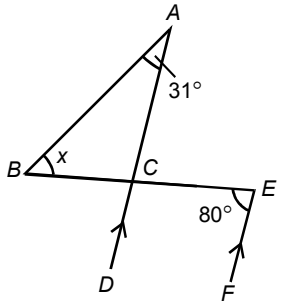
A. 38° B. 76° C. 104° D. 114°

13. In the figure, ADC is a straight line. Find x.



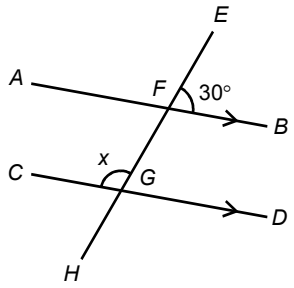
A. 27° B. 36° C. 48° D. 54°

14. In the figure, BCE and ACD are straight lines and AD // EF. Find x.



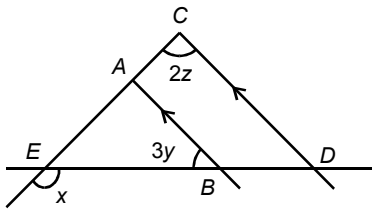
A. 31° B. 49° C. 69° D. 80°

15. In the figure, AB // CD and $EFGH$ is a straight line. Find x.



A. 30° B. 90° C. 120° D. 150°

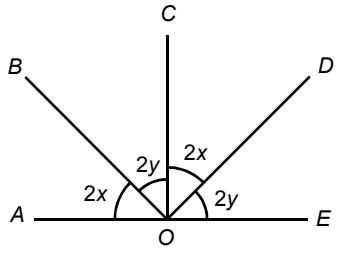
16. In the figure, AB // CD and EBD and EAC are straight lines. Express x in terms of y and z.



A. $x = 3y + 2z$ B. $x = 180° - 3y - 2z$

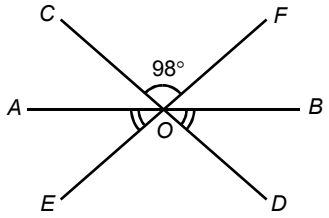
C. $x = 180° + 3y + 2z$ D. $x = 90° - 3y - 2z$

17. If AOE is a straight line, find $x + y$.



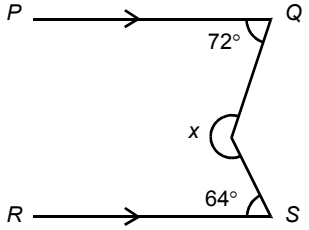
A. 45° B. 90° C. 120° D. It cannot be found.

18. In the figure, AOB, COD and EOF are straight lines and $\angle AOE = \angle BOD$. Find $\angle AOE$.



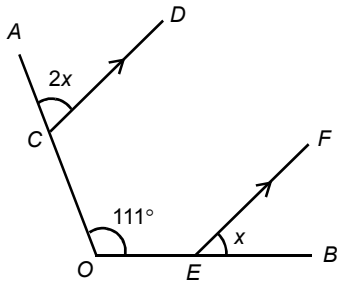
A. 41° B. 42° C. 49° D. 98°

19. In the figure, find x.



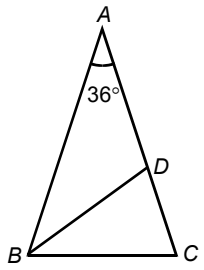
A. 108° B. 116° C. 136° D. 224°

20. In the figure, CD // EF and ACO and OEB are straight lines. Find x.



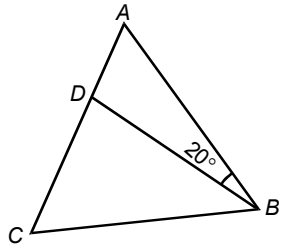
A. 27° B. 37° C. 47° D. 57°

21. In the figure, $AB = AC$ and $BC = BD$. Find $\angle ABD$.



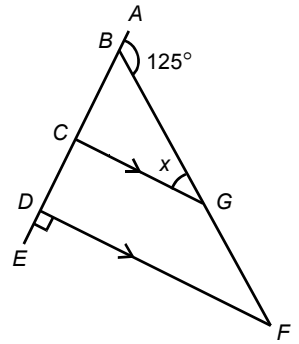
A. 36° B. 40° C. 62° D. 72°

22. In the figure, ABC is an equilateral triangle. Find $\angle BDC$.



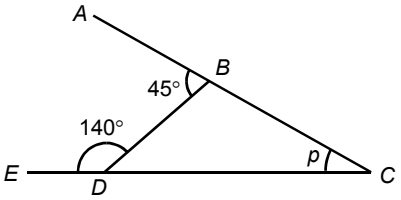
A. 20° B. 40° C. 60° D. 80°

23. In the figure, *ABCDE* and *BGF* are straight lines and *CG* // *DF*. Find *x*.



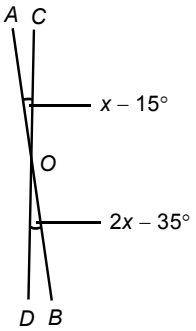
A. 25° B. 35° C. 50° D. 55°

24. In the figure, *ABC* and *CDE* are straight lines. Find *p*.



A. 5° B. 40° C. 45° D. 95°

25. In the figure, *AOB* and *COD* are straight lines. Find $\angle AOC$.



A. 5° B. 15° C. 20° D. 25°

26. Find the sum of all exterior angles of a regular 26-gon.

A. 170° B. 360° C. 4 320° D. 6 480°

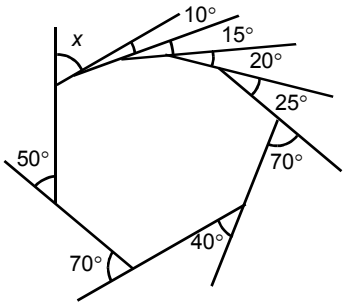
27. Find the sum of all interior angles of a regular 16-gon.

A. 180° B. 360° C. 2 520° D. 2 880°

28. Find the size of each interior angle of a regular 36-gon.

A. 10° B. 20° C. 160° D. 170°

29. In the figure, find x.



A. 30° B. 60° C. 120° D. 150°

30. Which of the following regular polygons cannot be used to create regular tessellation?

A. Equilateral triangle B. Square

C. Regular hexagon D. Regular 12-gon

31. If the interior angles of a convex nonagon are x, x, $3x$, $4x$, $4x$, $5x$, $5x$, $6x$ and $7x$, find x.

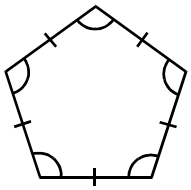
A. 10° B. 35° C. 55° D. 145°

32. Find the number of sides of a regular polygon if each of its interior angles is 168°.

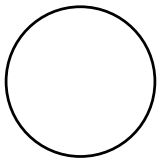
A. 12 B. 16 C. 28 D. 30

33. Which of the following figures can be used to create regular tessellation?

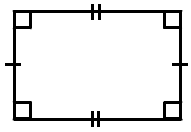
A.



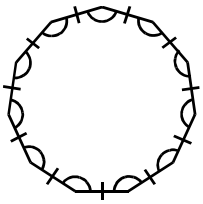
B.



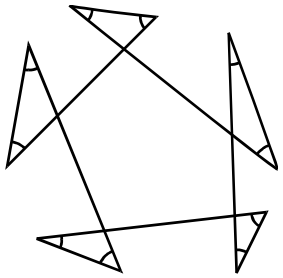
C.



D.



34. In the figure, find the sum of all marked angles.



A. 180° B. 360° C. 540° D. 720°

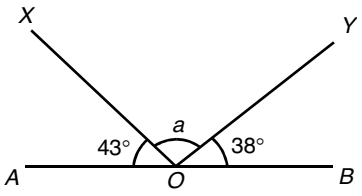
35. If the sum of the interior angles of an n-gon is eight times of the sum of its exterior angles, find n.

A. 12 B. 14 C. 16 D. 18

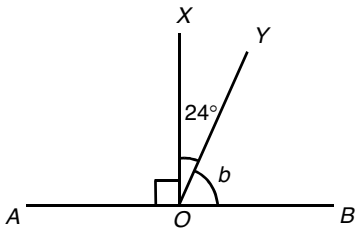
Level 1

1. If AOB is a straight line, find the unknowns.

(a)

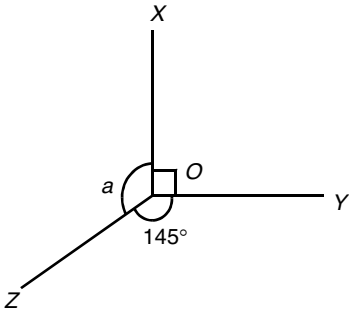


(b)

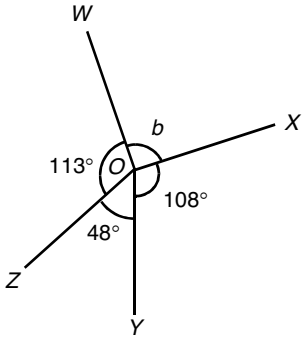


2. Find the unknowns in the following figures.

(a)

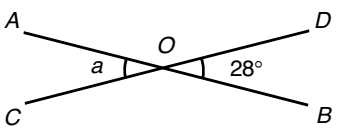


(b)

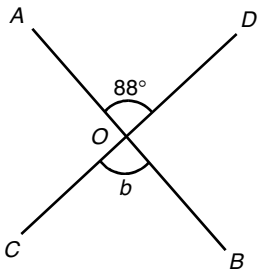


3. If AOB and COD are straight lines, find the unknowns in the following figures.

(a)

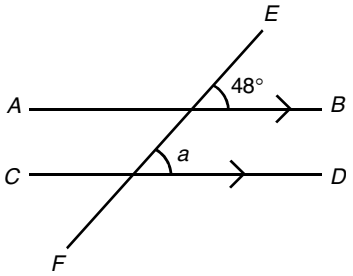


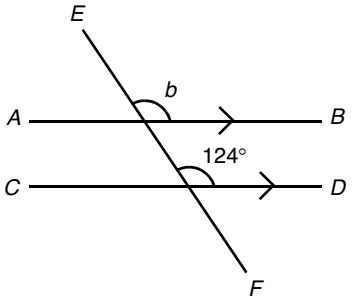
(b)



4. In each of the following figures, AB // CD and EF is a transversal cutting AB and CD. Find the unknowns.

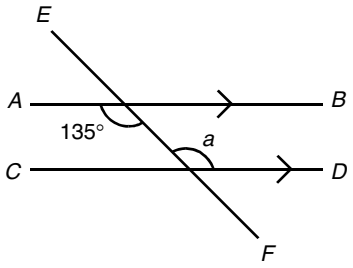
(a) **(b)**



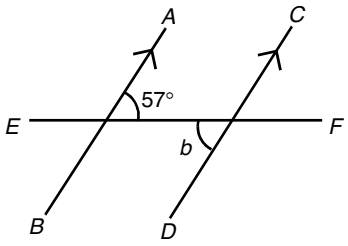


5. In each of the following figures, AB // CD and EF is a transversal cutting AB and CD. Find the unknowns.

(a)

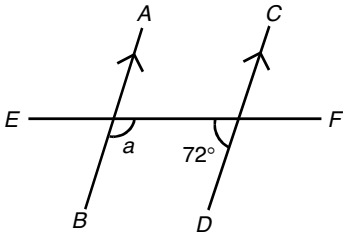


(b)

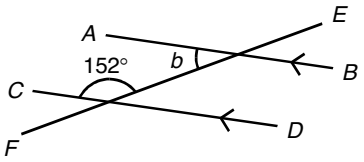


6. In each of the following figures, AB // CD and EF is a transversal cutting AB and CD. Find the unknowns.

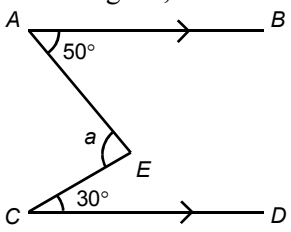
(a)



(b)

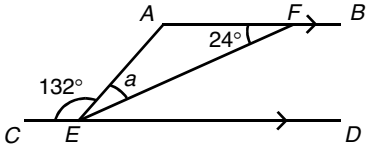


7. In the figure, AB // CD. Find a.

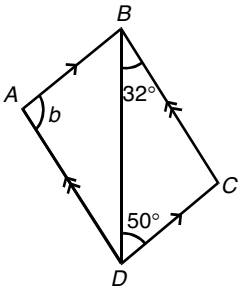


8. Find the unknowns in the following figures.

(a) CED and AFB are straight lines.

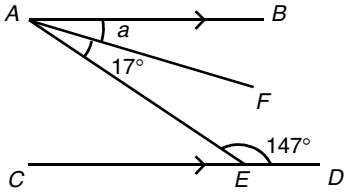


(b)

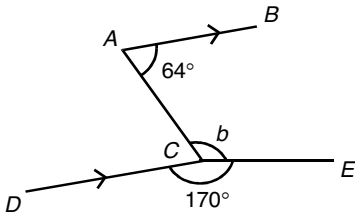


9. Find the unknowns in the following figures.

(a) CED is a straight line.

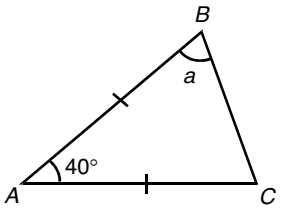


(b)

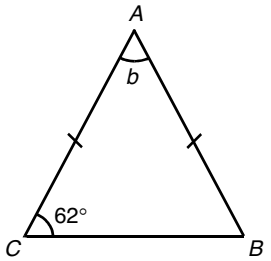


10. Find the unknowns in the following figures.

(a)

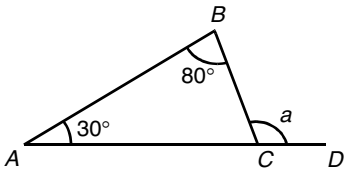


(b)

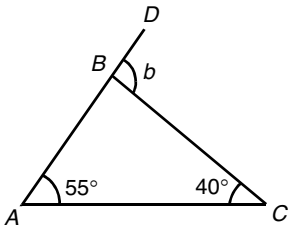


11. Find the unknowns in the following figures.

(a) ACD is a straight line.

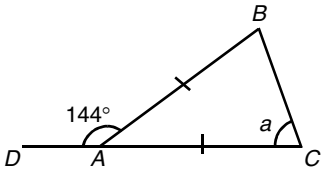


(b) ABD is a straight line.

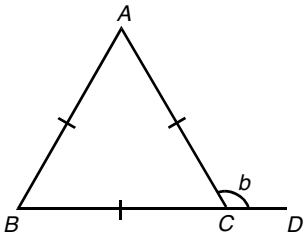


12. Find the unknowns in the following figures.

(a) DAC is a straight line.

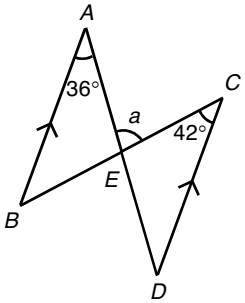


(b) BCD is a straight line.

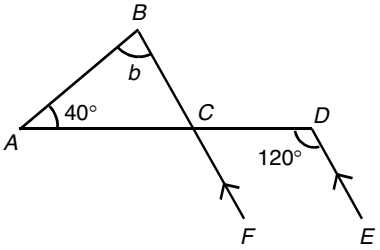


13. Find the unknowns in the following figures.

(a) AED and BEC are straight lines.

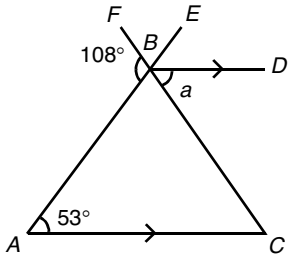


(b) ACD and BCF are straight lines.

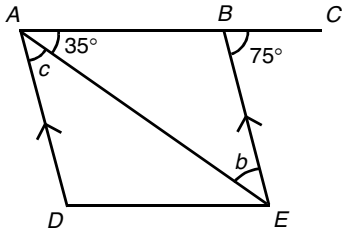


14. Find the unknowns in the following figures.

(a) ABE and CBF are straight lines.



(b) ABC is a straight line.



15. Find the size of each exterior angle of a regular

(a) hexagon.

(b) 20-gon.

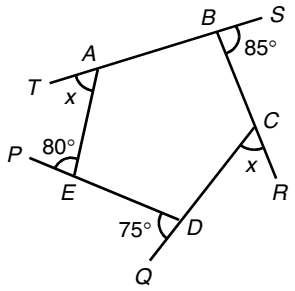
16. Find the number of sides of a regular polygon if each of its interior angles is

(a) 90°.

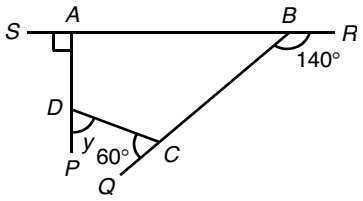
(b) 120°.

17. Find the unknowns in the following figures.

(a) $TABS$, BCR, CDQ and DEP are straight lines.



(b) $SABR$, BCQ and ADP are straight lines.



18. Find the size of each interior angle of a regular

(a) 24-gon.

(b) 40-gon.

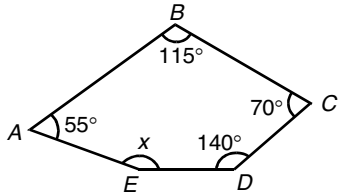
19. Find the number of sides of a polygon if the sum of its interior angles is

(a) 5 040°.

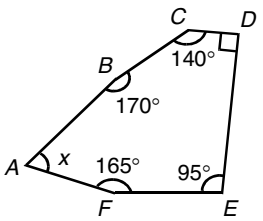
(b) 9 360°.

20. In each of the following figures, find x.

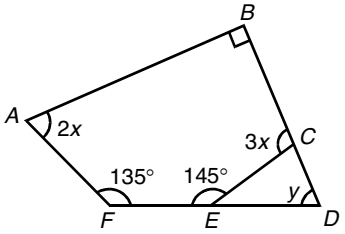
(a)



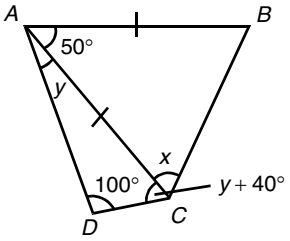
(b)



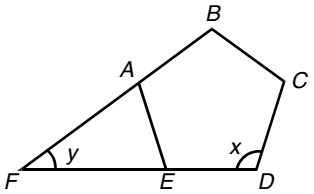
21. In the figure, BCD and FED are straight lines. Find the unknowns.



22. Find x and y in the following figure.



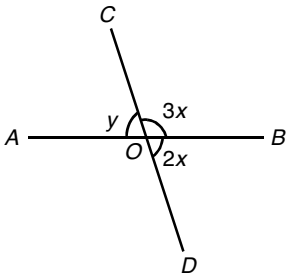
23. In the figure, $ABCDE$ is a regular pentagon, FAB and FED are straight lines. Find x and y.



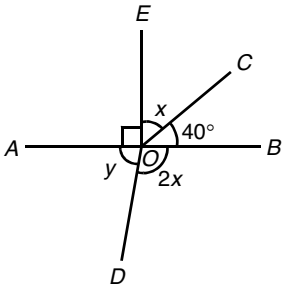
Level 2

24. Find the unknowns in the following figures.

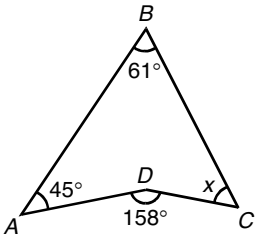
(a) AOB and COD are straight lines.



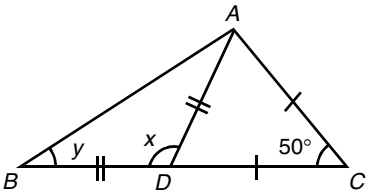
(b) AOB is a straight line.



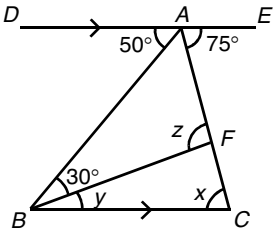
25. Find x in the following figure.



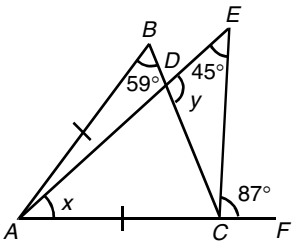
26. In the figure, BDC is a straight line. Find x and y.



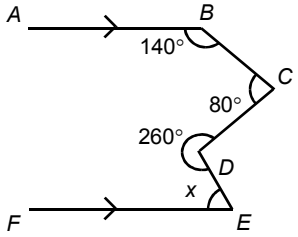
27. In the figure, DAE and AFC are straight lines. Find x, y and z.



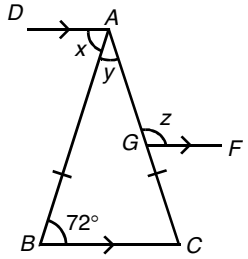
28. In the figure, ACF, BDC and ADE are straight lines. Find x and y.



29. Find x in the following figure.

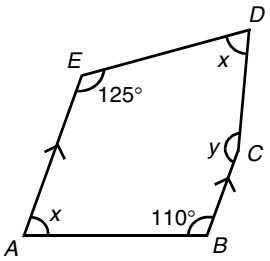


30. In the figure, AGC is a straight line. Find x, y and z.

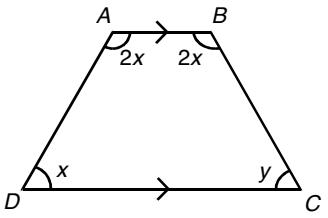


31. Find the unknowns in the following figures.

(a)

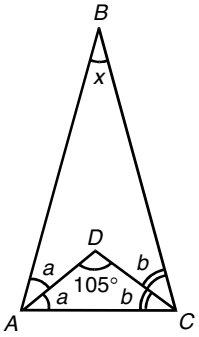


(b)

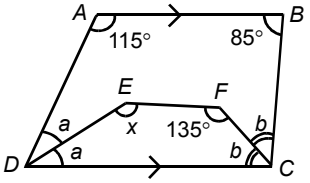


32. In the following figures, find x.

(a)



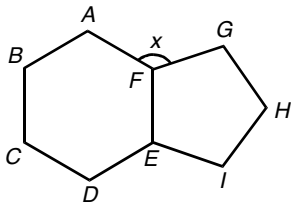
(b)



33. An nonagon has four equal interior angles of size x each and the sum of the remaining five interior angles is 700°. Find x.

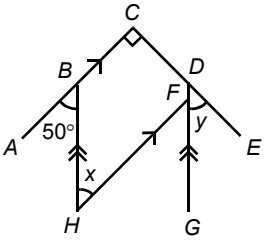
34. If the sum of all interior angles of an n-gon is seven times the sum of its exterior angles, find n.

35. In the figure, $ABCDEF$ is a regular hexagon and $EFGHI$ is a regular pentagon. Find x.



Level 3

36. In the figure, ABC and CDE are straight lines. Find x and y.



37. In the figure, $APSC$ and BQP are straight lines. Find $a + b + c + d$.