

TB(1B) Ch. 11 Angles related to lines Conventional Questions

1. [11-12 Final Exam #6]

In **Figure 2**, $\angle B = 124^\circ$, $\angle C = 4x$, reflex $\angle E = 236^\circ$, $AB \parallel CD$ and $BC \parallel DE$.

- (a) Find the value of x . (2 marks)
- (b) Prove $CD \parallel EF$. (4 marks)

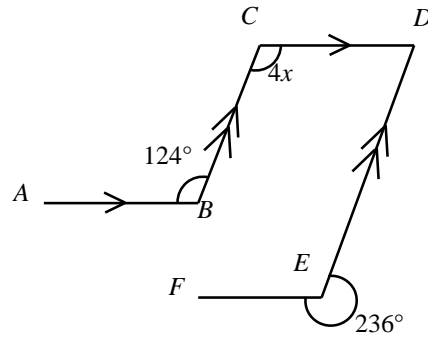


Figure 2

2. [12-13 Standardised Test 2, #5]

In **Figure 3**, $\angle AOB = 58^\circ$, $\angle BOC = x + 42^\circ$, $\angle DOE = 2x$, $\angle AOE = 2\angle DOE$ and $\angle DOE = \frac{1}{3}\angle COD$.

- (a) Find the value of x . (3 marks)
- (b) Is BOD a straight line? Explain briefly. (2 marks)

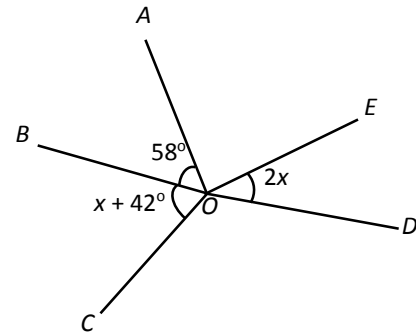


Figure 3

3. [12-13 Standardised Test 2, #6]

In **Figure 4**, ABC is a triangle and AG intersects BC at D . $\angle B = 35^\circ$ and $\angle BDG = 85^\circ$. E and F are points on AB and AC respectively such that $DE \perp AB$ and $DF \perp AC$. If DF bisects $\angle ADC$,

- (a) find the values of x , y and z . (5 marks)
- (b) write down the type of $\triangle ABC$ according to the sizes of its angles. (1 mark)

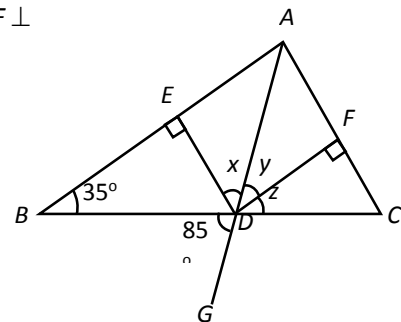


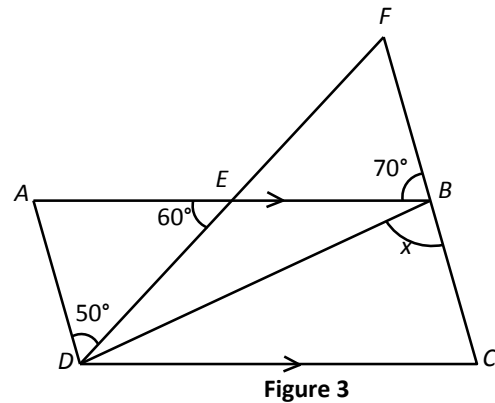
Figure 4

4. [12-13 Final Exam, #6]

In **Figure 3**, AEB , DEF and CBF are straight lines. $AB \parallel DC$, $\angle ADE = 50^\circ$, $\angle AED = 60^\circ$, $\angle EBF = 70^\circ$ and $\angle BDE = \angle BDC$.

(a) Prove that $AD \parallel FC$. (2 marks)

(b) Find x . (2 marks)



5. [13-14 Standardised Test 2, #5]

In **Figure 4**, $AB \parallel DE$, $\angle BAC = 56^\circ$ and $\angle ACB = \angle BDE = 36^\circ$. Find $\angle CBD$.

(3 marks)

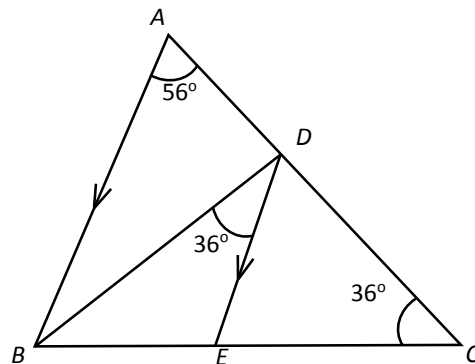


Figure 4

6. [13-14 Standardised Test 2, #6]

In **Figure 5**, ABC , FGH , BDF , CEG and $ADEH$ are straight lines. $\angle ADB = \angle GEH = 24^\circ$ and $\angle ACG = \angle BFH = 110^\circ$.

(a) Prove that $BF \parallel CG$. (2 marks)

(b) Prove that $AC \parallel FH$. (2 marks)

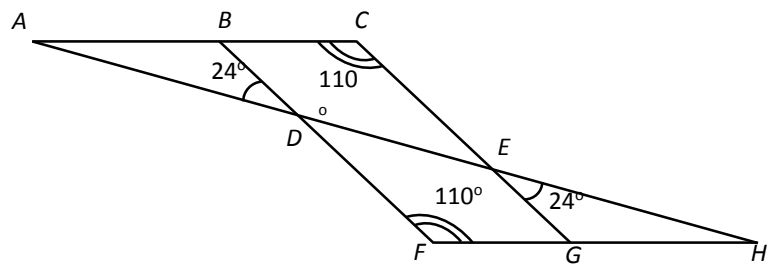


Figure 5

7. [13-14 Standardised Test 2, #8]

In Figure 7, $ABCDEFGHI$ is a 9-sided polygon.

$ABGHI$ is a pentagon, $BCDEFG$ is a hexagon and $BG \parallel IH$.

- (a) Find x and y . (4 marks)
- (b) Prove that $BC \parallel GF$. (2 marks)

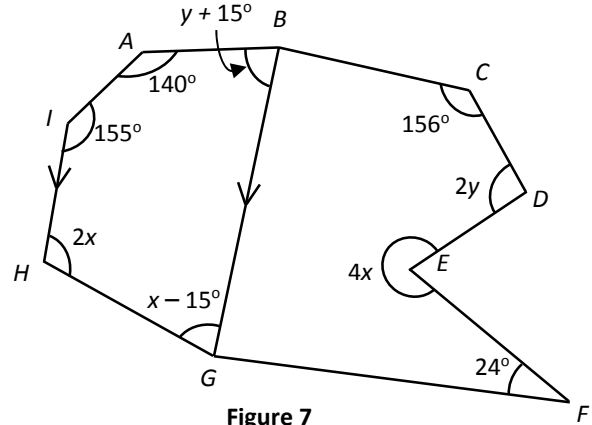


Figure 7

8. [13-14 Final Exam, #7]

Figure 3 shows a hexagon $ABCDEF$.

- (a) Find a . (2 marks)
- (b) Is FE parallel to BC ? Explain your answer. (3 marks)

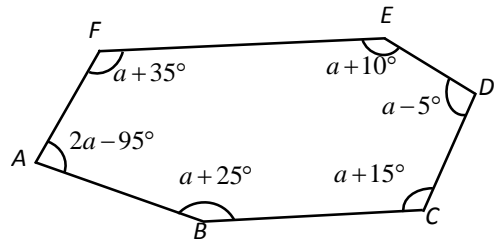


Figure 3

9. [14-15 Standardized Test #7]

In Figure 4, $\angle ABC = 35^\circ$ and $\angle GDE = 145^\circ$. CDE and FDG are straight lines and $AB \parallel CE$.

- (a) Prove that $BC \parallel FG$. (3 marks)
- (b) If $\triangle DCG$ is an obtuse-angled triangle, find a set of possible value for $\angle GCD$ and $\angle CGD$. Explain your answer. (2 marks)

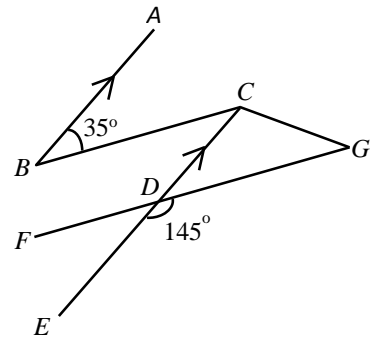


Figure 4

10. [14-15 Final Exam #5]

In Figure 2, $ABCD$ is a quadrilateral with $AB \parallel DC$. DC is produced to E . AC and BD intersect at F . It is given that $\angle ABF = a + 4^\circ$, $\angle ADF = a$, $\angle DFC = 2a + 16^\circ$, $\angle FCB = 46^\circ$ and $\angle BCE = 64^\circ$.

- (a) Find a . (2 marks)
- (b) Prove that $AD \parallel BC$. (2 marks)

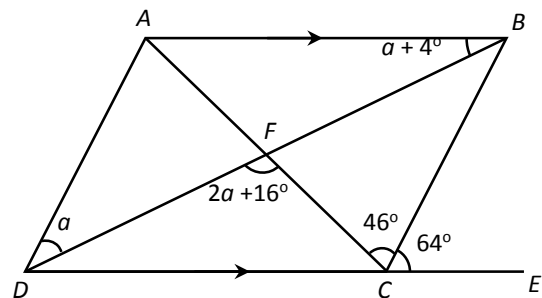


Figure 2

11. [14-15 Final Exam #6]

In **Figure 3**, $ABIJK$, BCD , CEF and GHI are straight lines. Find a and b .

(4 marks)

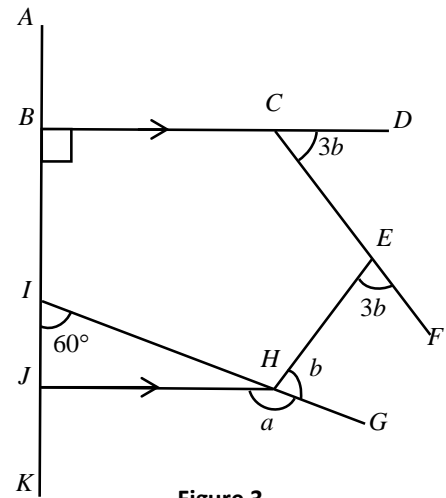


Figure 3

12. [15-16 Final Exam, #8]

An n -sided convex polygon is given.

(a) Express the sum of interior angles of the polygon in terms of n .

(1 mark)

(b) It is known that one of the interior angles of this polygon is x and the sum of all the other interior angles is 1000° .

(i) Write down the sum of interior angles of this polygon in terms of x .

(1 mark)

(ii) Show that $x = 180^\circ n - 1360^\circ$.

(1 mark)

(iii) It is known that $x < 180^\circ$. Write down the value of n .

(1 mark)

~ End ~