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

1. [13-14 Standardised Test 2, #5]

In **Figure 4**, $AB // DE$, $\angle BAC = 56^o$ and $\angle ACB = \angle BDE = 36^o$. Find $\angle CBD$. **(3 marks)**

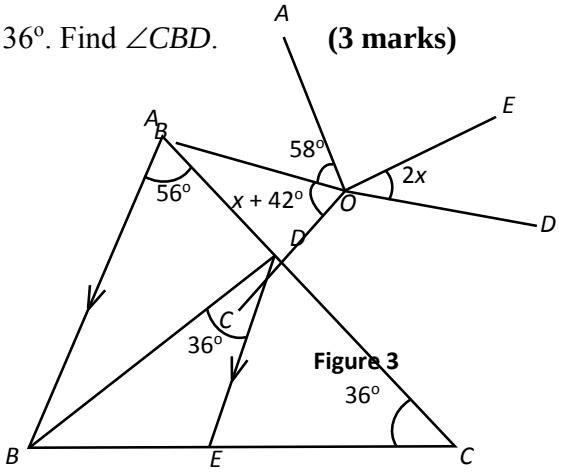

Figure 4

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

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

(a) Prove that $BF // CG$. **(2 marks)**

(b) Prove that $AC // FH$. **(2 marks)**

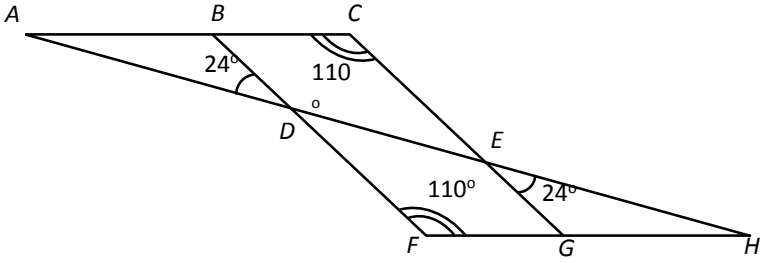

Figure 5

3. [13-14 Standardised Test 2, #8]

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

ABGHI is a pentagon, *BCDEFG* is a hexagon and $BG // IH$.

(a) Find x and y. **(4 marks)**

(b) Prove that $BC // GF$. **(2 marks)**

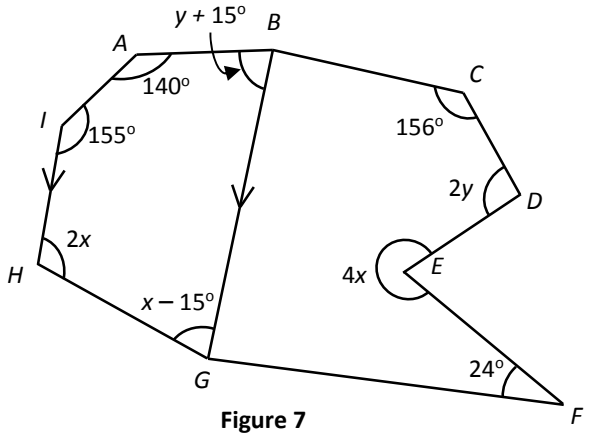

Figure 7

4. [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)**

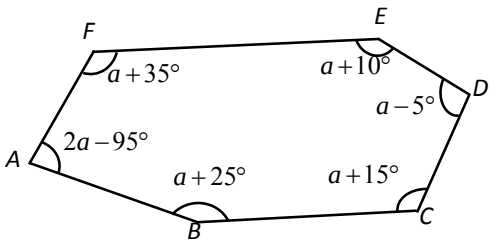

Figure 3

5. [14-15 Standardized Test #4]

In **Figure 2**, *EAC*, *FAB* and *BDC* are straight lines. It is given that $\angle ABC = 6x$, $\angle ACB = 4x$, $\angle BAD = 5x$ and $\angle CAD = 3x$, find $\angle EAF$. **(2 marks)**

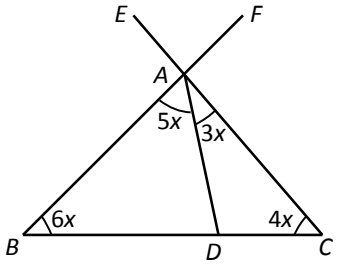

Figure 2

6. [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*//*CE*.

(a) Prove that *BC*// *FG*. **(3 marks)**

(b) If ΔDCG is an obtuse-angled triangle, find a set of possible value for $\angle GCD$ and $\angle CGD$. Explain your answer. **(2 marks)**

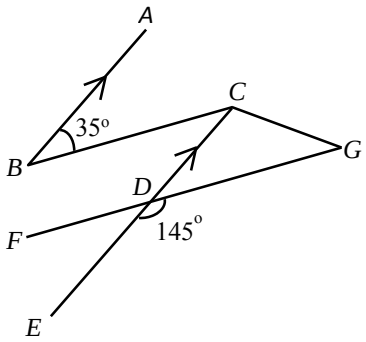

Figure 4

7. [14-15 Final Exam #4]

In **Figure 1**, it is given that *AB* // *DC*, $\angle ADC = 40^\circ$, $\angle BAC = 65^\circ$ and $\angle ABC = 75^\circ$.

AB = 4 cm and *AC* = 6 cm.

(a) Find $\angle DAC$ and $\angle ACD$. **(2 marks)**

(b) Prove that $\Delta ADC \sim \Delta BCA$. **(2 marks)**

(c) Find the length of *DC*. **(1 mark)**

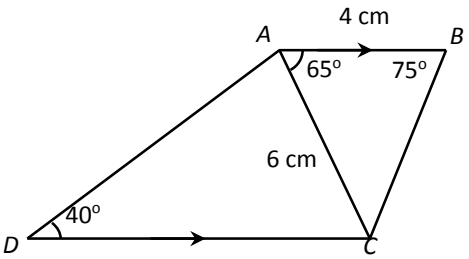

Figure 1

8. [14-15 Final Exam #5]

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

(a) Find *a*. **(2 marks)**

(b) Prove that *AD* // *BC*. **(2 marks)**

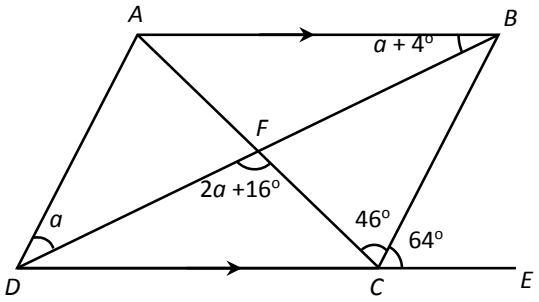

Figure 2

9. [14-15 Final Exam #6]

In **Figure 3**, *ABIJK*, *BCD*, *CEF* and *GHI* are straight lines. Find *a* and *b*. **(4 marks)**

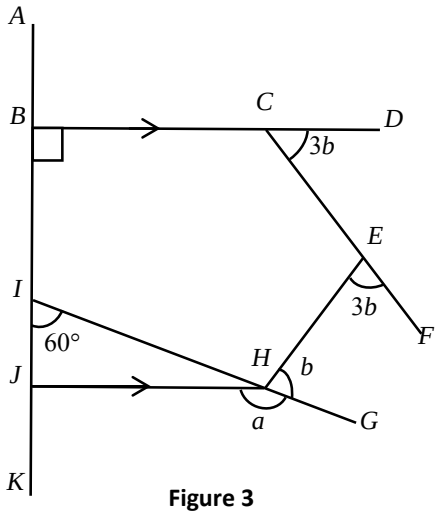

Figure 3

10. [15-16 Final Exam, #9]

In **Figure 4**, *BCDE* is a straight line, $\angle ABC = 54^o$, $\angle CAD = 36^o$ and $\angle ADF = 54^o$. It is known that $\angle ACD = \angle ADC$.

(a) Find $\angle ADC$. **(1 mark)**

(b) Prove that *AB* // *FD*. **(2 marks)**

(c) It is given that *AF* // *BE*. Show that $\Delta ABD \cong \Delta DFA$. **(2 marks)**

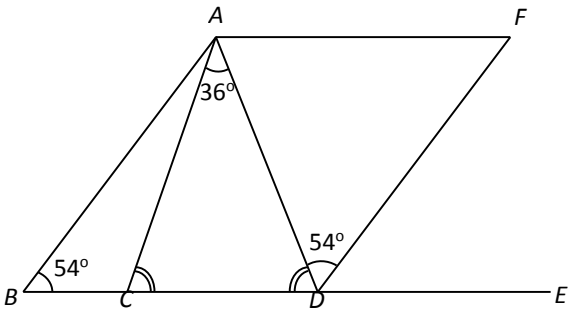

Figure 4

11. [16-17 Final Exam, #10]

In **Figure 3**, *DEC* is a straight line and *AB* // *DC*. It is given that $\angle BAE = 55^o$, $\angle CBE = 46^o$, $\angle BCE = 72^o$ and $\angle ADE = 62^o$.

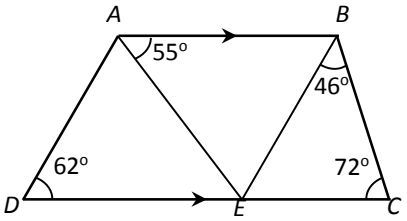

Figure 3

(a) Find $\angle ABE$ and $\angle AED$. **(2 marks)**

(b) Prove that $\Delta ABE \cong \Delta EDA$. **(2 marks)**

(c) Prove that *AD* // *BE*. **(2 marks)**

12. [17-18 Standardised Test 2, 1]

In **Figure 1**, *ABCD* and *EFG* are parallel straight lines, $\angle DCF = 115°$, $\angle BFC = 25°$.

(a) Find *x* and *y*. **(4 marks)**

(b) Elaine claims that $AD \perp BF$. Do you agree? Explain briefly. **(2 marks)**

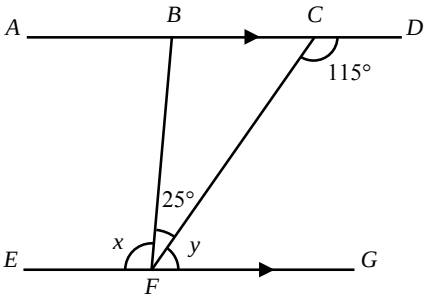

Figure 1

13. [17-18 Standardised Test 2, 5]

In **Figure 4**, *ABC*, *BHG*, *CDF*, *EFG* and *AHDE* are straight lines. $\angle AHB = \angle EDF = 30^o$ and $\angle BAH = 50^o$ and $\angle EGH = 100^o$.

(a) Prove that *AC* // *EG*. **(2 marks)**

(b) Prove that *BG* // *CF*. **(2 marks)**

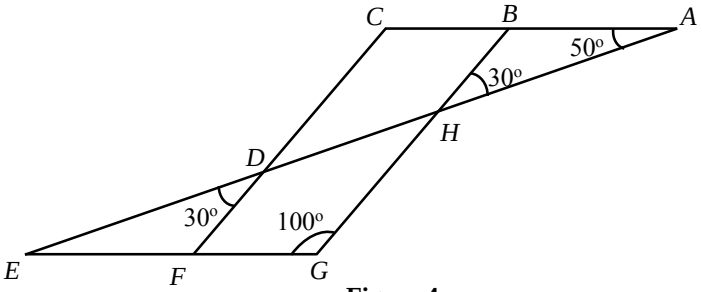

Figure 4

14. [17-18 Final Exam, 8]

In **Figure 5**, *ABCD* is a quadrilateral. Given that *AD* // *BC*, *AB* = *DC* and $\angle A = \angle C$. Prove that $\Delta ABD \cong \Delta CDB$.

(2 marks)

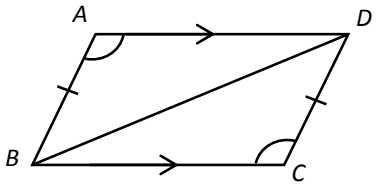

Figure 5

15. [17-18 Final Exam, 9]

(a) In **Figure 6**, *PQ* // *RS*, *AEC*, *DEB*, *PABQ* and *RDCS* are straight lines. Find *a* and *b*. **(4 marks)**

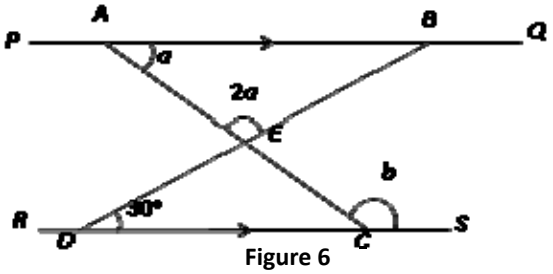

Figure 6

(b) In **Figure 7**, $\angle ACD = 32^o$, $\angle KIJ = 148^o$, *ACG*, *BCDF*, *EDIK* and *HIJ* are straight lines. It is given that *AG* and *EK* are parallel lines. Prove that *BF* // *HJ*. **(2 marks)**

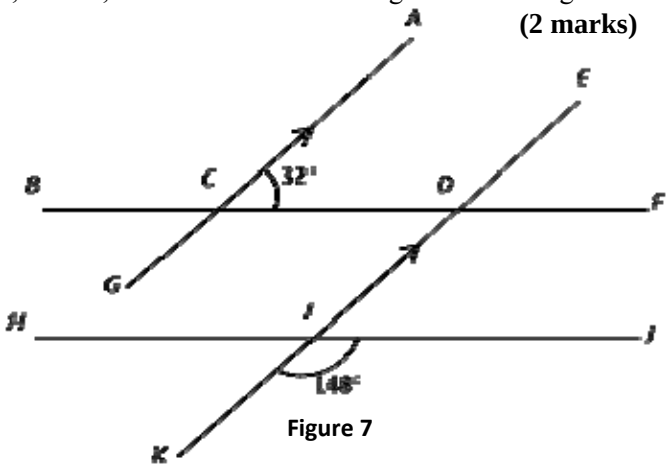

Figure 7

~ End ~