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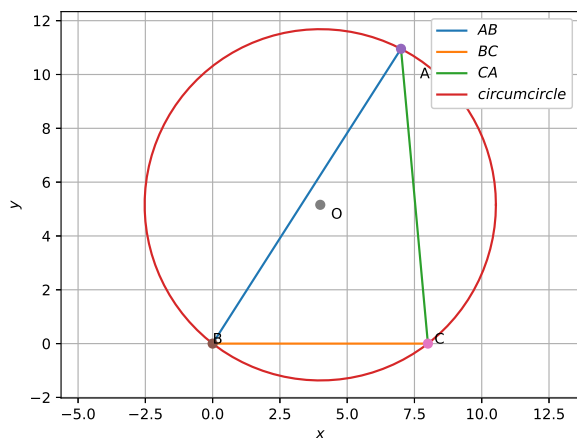


Fig. 1.5

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**Abstract**—This manual has exercises on based on problems in Math Olympiad.

## 1

- 1.1 Plot  $\triangle ABC$  for  $a = 8, b = 11$  and  $c = 13$ .
- 1.2 Draw the circumcircle  $\Gamma$  of  $\triangle ABC$ .
- 1.3 Mark  $D$  and  $E$  on  $AB$  and  $AC$  respectively, such that  $AD = AE = 7$ .
- 1.4 Draw the perpendicular bisectors  $FD$  and  $GE$  such that  $F$  and  $G$  lie on the circumcircle  $\Gamma$ .
- 1.5 Draw  $DE$  and  $FG$  and find their direction vectors. Is  $DE \parallel FG$ ?

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## 2

2.1 Write a program to find all integers  $n \geq 3$ , for which

$$a_i a_{i+1} + 1 = a_{i+2}, \quad i = 1, 2, \dots, n \quad (1)$$

such that

$$a_{n+1} = a_1, a_{n+2} = a_2. \quad (2)$$