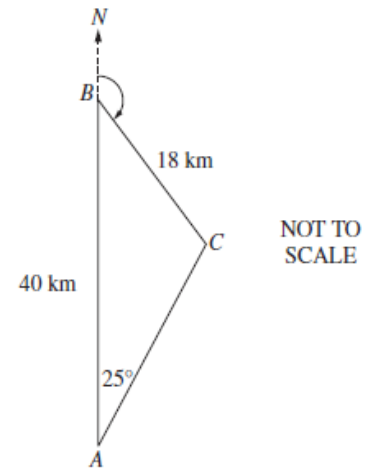
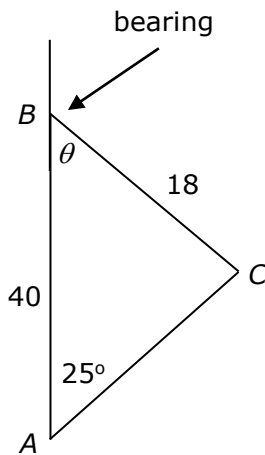




- 2016 25** The diagram shows towns  $A$ ,  $B$  and  $C$ . Town  $B$  is 40 km due north of town  $A$ . The distance from  $B$  to  $C$  is 18 km and the bearing of  $C$  from  $A$  is  $025^\circ$ . It is known that  $\angle BCA$  is obtuse. What is the bearing of  $C$  from  $B$ ?
- (A)  $070^\circ$   
 (B)  $095^\circ$   
 (C)  $110^\circ$   
 (D)  $135^\circ$

**D**

Firstly, find  $C$ :

$$\frac{\sin C}{40} = \frac{\sin 25^\circ}{18}$$

$$\sin C = \frac{40 \times \sin 25^\circ}{18}$$

$$= 0.939151692\dots$$

$$C = 70^\circ \text{ or } 110^\circ \text{ (nearest whole)}$$

But  $\angle BCA$  is obtuse:

$$\therefore C = 110^\circ$$

$$\therefore \theta = 180^\circ - (110^\circ + 25^\circ)$$

$$= 45^\circ$$

As  $180 - 45 = 135$ , the bearing is  $135^\circ$ .

State Mean:

**0.39**

\* These solutions have been provided by [projectmaths](http://projectmaths.com.au) and are not supplied or endorsed by NESA.