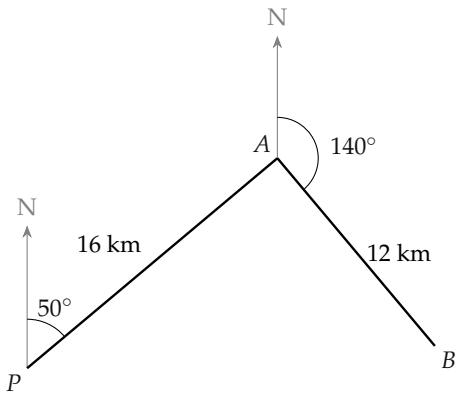
Exercise 3

Paper 2 style · Graphic display calculator

3 7 marks SL 3.3 ●●○ Typical

A boat sails from a harbour P on a bearing of 050° for 16 km to a point A. It then sails on a bearing of 140° for 12 km to a point B.



(a) Show that $P\hat{A}B = 90°$. **[2]**

(b) Find the distance PB. **[2]**

(c) Find the bearing of B from P. **[3]**

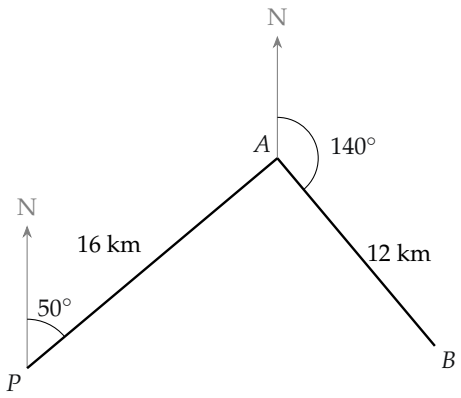
The markscheme is on the next page: try the question first. Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization.
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Exercise 3 — markscheme

Paper 2 style · Graphic display calculator

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MARKSCHEME (a)

the bearing of P from A is $050° + 180° = 230°$ M1

$230° - 140°$ A1

$P\hat{A}B = 90°$ AG

Total 2 marks

MARKSCHEME (b)

$PB^2 = 16^2 + 12^2$ (M1)

$PB = 20$ km A1

Total 2 marks

MARKSCHEME (c)

$\tan A\hat{P}B = \frac{12}{16}$ (M1)

$A\hat{P}B = 36.8698\ldots°$ (A1)

$050° + 36.87° = 086.9°$ A1

Total 3 marks