Bearings - Worksheet

Skill

Group A - Drawing bearings from a point

Measure and draw the given bearings from a point P:

1) 030°

2) 045°

3) 060°

4) 095°

5) 155°

6) 205°

7) 227°

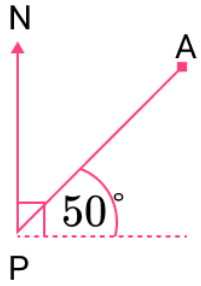
8) 259°

9) 312°

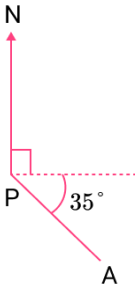
Group B - Calculating bearings around a point

From the diagram, calculate the bearing of A from P:

1)

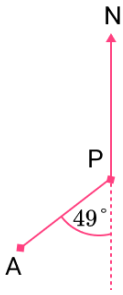


2)

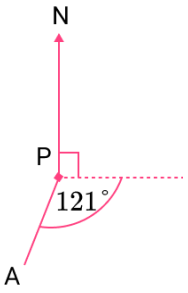


3)

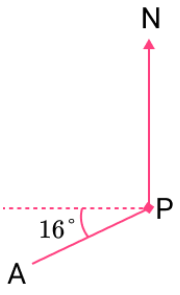
4)



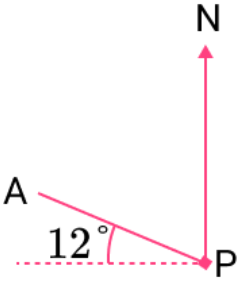
5)



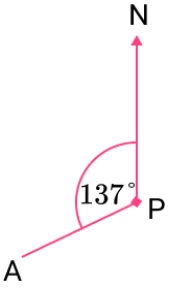
6)



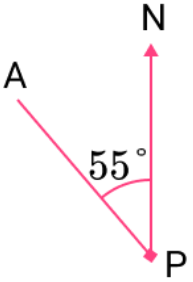
7)



8)



9)



Bearings - Worksheet

Group C - Calculating bearing using parallel lines and/or trigonometry

Find the required bearing:

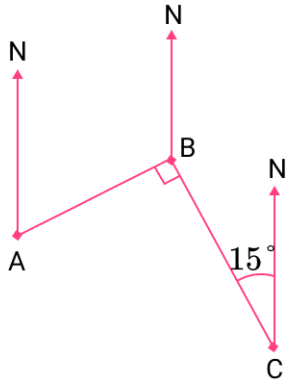
1) The bearing of A from B is $035°$. What is the bearing of B from A?

2) The bearing of P from Q is $146°$. What is the bearing of Q from P?

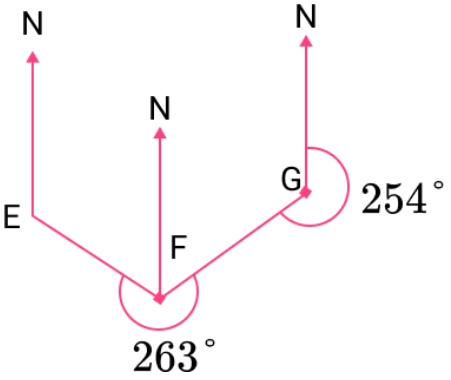
3) The bearing of M from N is $192°$. What is the bearing of N from M?

4) The bearing of X from Y is $308°$. What is the bearing of Y from X?

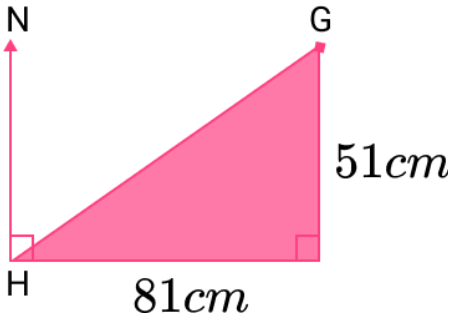
5) What is the bearing of B from A?



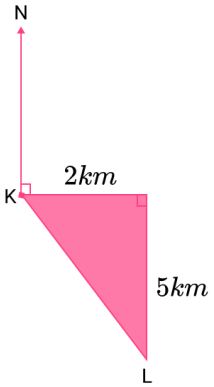
6) What is the bearing of E from F?



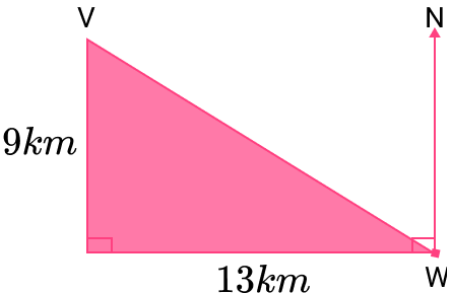
7) What is the bearing of G from H?



8) What is the bearing of L from K?



9) What is the bearing of V from W?



Bearings - Worksheet

Applied

1) Two planes P and Q, take off from an airport A. A short time after takeoff, P is $20km$ from A on a bearing of $085°$, and Q is $35km$ from A on a bearing of $200°$.

(a) Using a scale of $1: 500\ 000$, produce a scale drawing of the positions of the airport A and the planes P, Q.

(b) Measure the distance between A and Q and give the actual distance in km.

2) Airport runways around the world show the direction of the runway as a bearing depending on the direction the plane is heading to help it land.
The numbers are not the full bearing, but the bearing rounded to the nearest $10°$ but with the end zero omitted.
This runway shows 05 at one end and 23 at the other end. 05 stands for $050°$ and 23 stands for $230°$ which is the back bearing. $050° + 180° = 230°$

(a) A runway has 07 at one end. What number will be at the other end?

(b) A runway has 31 at one end. What number will be at the other end?

3) Two hikers walk $10km$ from a cabin. One walks on a bearing of $114°$, the other walks on a bearing of $226°$.
A point M is the midpoint of the hiker's positions.

(a) What is the bearing of M from the cabin?

(b) Calculate the distance between the two hikers.

Bearings - Worksheet

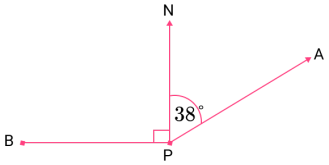
4) A boat sails from port P for $12km$ on a bearing of $070°$ to point Q. It then immediately heads on a bearing of $160°$ to point R. The distance from R to P is $13km$.

(a) Find the distance the boat sailed from Q to R.

(b) Find the bearing from Q to P.

Bearings - Exam Questions

1)



(a) Write down the bearing of A from P. ..... **(1)**

(b) Write the bearing of B from P. ..... **(1)**

(2 marks)

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2) The bearing of A from B is 215°. Find the bearing of B from A. ..... **(2 marks)**

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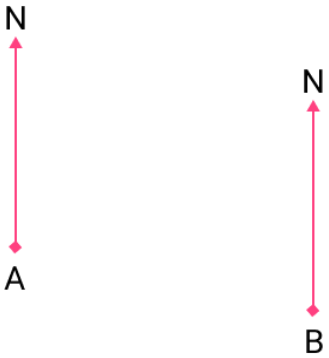
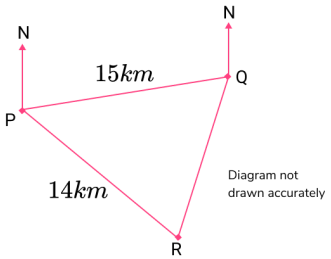
3) The point C is on a bearing of 065° from point A and on a bearing of 310° from point B. On the diagram, mark with a (x) the position of point C. ..... **(2 marks)**



Bearings - Exam Questions

4) The diagram shows the positions of three towns labeled P, Q and R.
Q is on a bearing of $080°$ from P.
R is on a bearing of $132°$ from P.
The distance PQ is $15km$ and the distance PR is $14km$.



(a) Find the distance QR. .....

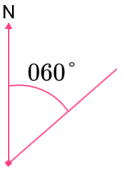
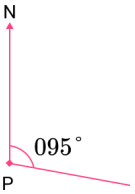
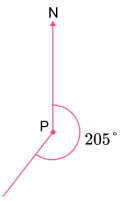
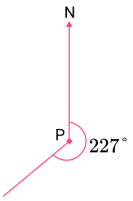
(3)

(b) Find the bearing of R from Q. .....

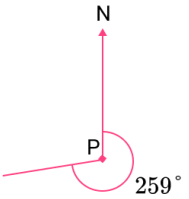
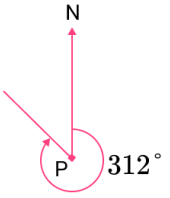
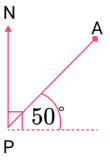
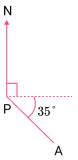
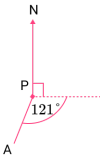
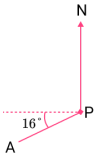
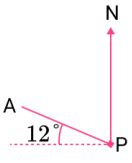
(4)

(7 marks)

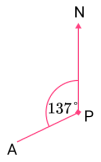
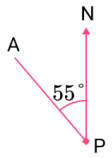
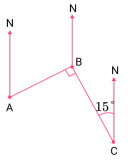
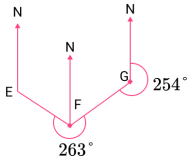
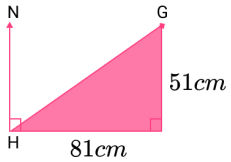
Bearings - Answers

	Question	Answer
	Skill Questions	
Group A	Measure and draw the given bearings from a point P: **1)** 030° **2)** 045° **3)** 060° **4)** 095° **5)** 155° **6)** 205° **7)** 227°	**1)**  **2)**  **3)**  **4)**  **5)**  **6)**  **7)** 

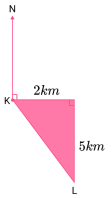
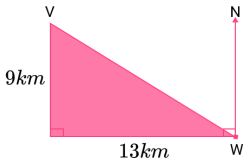
Bearings - Answers

	8) 259° **9)** 312°	**8)**  **9)** 
Group B	From the diagram, calculate the bearing of A from P: **1)**  **2)**  **3)**  **4)**  **5)**  **6)**  **7)** 	**1)** 040° **2)** 125° **3)** 155° **4)** 229° **5)** 211° **6)** 254° **7)** 282°

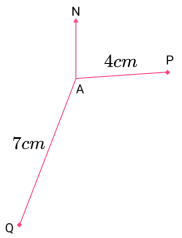
Bearings - Answers

	8)  **9)**  	**8)** 223° **9)** 307°
Group C	Find the required bearing: **1)** The bearing of A from B is 035°. What is the bearing of B from A? **2)** The bearing of P from Q is 146°. What is the bearing of Q from P? **3)** The bearing of M from N is 192°. What is the bearing of N from M? **4)** The bearing of X from Y is 308°. What is the bearing of Y from X? **5)** What is the bearing of B from A?  **6)** What is the bearing of E from F?  **7)** What is the bearing of G from H?  	**1)** 215° **2)** 326° **3)** 012° **4)** 128° **5)** 075° **6)** 337° **7)** 058°

Bearings - Answers

	8) What is the bearing of L from K?  **9)** What is the bearing of V from W?  	**8)** $158°$ **9)** $305°$

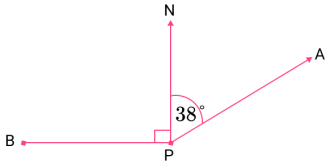
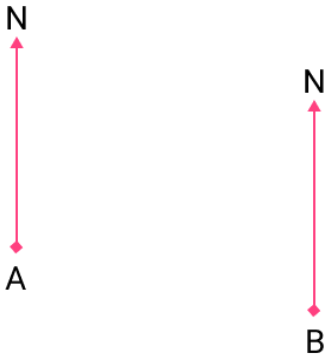
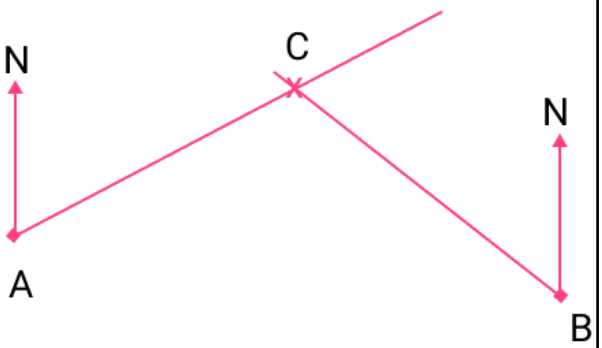
Bearings - Answers

	Question	Answer
	Applied Questions	
1)	Two planes P and Q, take off from an airport A. A short time after takeoff, P is $20km$ from A on a bearing of $085°$, and Q is $35km$ from A on a bearing of $200°$.	
	(a) Using a scale of $1:500\,000$, produce a scale drawing of the positions of the airport A and the planes P, Q.	**(a)** 
	(b) Measure the distance between A and Q and give the actual distance in km.	**(b)** $9.4cm = 47km$
2)	Airport runways around the world show the direction of the runway as a bearing depending on the direction the plane is heading to help it land. The numbers are not the full bearing, but the bearing rounded to the nearest $10°$ but with the end zero omitted. This runway shows 05 at one end and 23 at the other end. 05 stands for $050°$ and 23 stands for $230°$ which is the back bearing. $050° + 180° = 230°$ 	
	(a) A runway has 07 at one end. What number will be at the other end?	**(a)** 25
	(b) A runway has 31 at one end. What number will be at the other end?	**(b)** 13

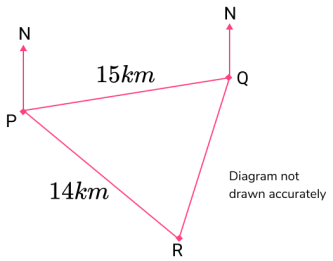
Bearings - Answers

3)	Two hikers walk $10km$ from a cabin. One walks on a bearing of $114°$, the other walks on a bearing of $226°$. A point M is the midpoint of the hiker's positions.	
	(a) What is the bearing of M from the cabin? **(b)** Calculate the distance between the two hikers.	**(a)** $170°$ **(b)** $16.58km$
4)	A boat sails from port P for $12km$ on a bearing of $070°$ to point Q. It then immediately heads on a bearing of $160°$ to point R. The distance from R to P is $13km$.	
	(a) Find the distance the boat sailed from Q to R. **(b)** Find the bearing from Q to P.	**(a)** $5km$ **(b)** $273°$

Bearings - Mark Scheme

	Question	Answer	
	Exam Questions		
1)			
(a)	Write down the bearing of A from P.	**(a)** 038°	**(1)**
(b)	Write the bearing of B from P.	**(b)** 270°	**(1)**
2)	The bearing of A from B is 215°. Find the bearing of B from A.	Either $215 - 180$ or $360 - 215 = 145$ seen (1) 035° (1)	**(2)**
3)	The point C is on a bearing of 065° from point A and on a bearing of 310° from point B. On the diagram, mark with a (x) the position of point C. 	Correct line from A or correct line from B (1) Both lines correct and (x) shown (1) 	**(2)**

Bearings - Mark Scheme

4)	The diagram shows the positions of three towns labeled P, Q and R. Q is on a bearing of $080°$ from P. R is on a bearing of $132°$ from P. The distance PQ is $15km$ and the distance PR is $14km$.  		
(a)	Find the distance QR.	**(a)** Angle $QPR = 132° - 80° = 52°$ (1) Values substituted into cosine rule $QR^2 = 15^2 + 14^2 - 2 \times 15 \times 14 \times cos\ 52$ (1) $QR = 12.74km$ (1)	**(3)**
(b)	Find the bearing of R from Q.	**(b)** Use of sine rule $\frac{sin\ 52}{12.74} = \frac{sin\ PQR}{14}$ (1) Angle $PQR = 59.96°$ (1) Angle of $100°$ anticlockwise from North line at Q (1) $360 - 100 - 59.96$ (1) Answer of $200°$ (1)	**(4)**