**Logo, icon

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**Bearings**

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**Question**

<EFOFEX>
id:fxd{ea5eac8b-0909-4e28-8e13-fa3ac1b88dc6}
FXGP:DP-A2GYB95
FXData:
</EFOFEX>A plane is <EFOFEX>
id:fxe{d8f56fc0-d4c2-4add-925a-d156f0bf195d}
FXGP:DP-A2GYB95
FXData:

</EFOFEX> km North and <EFOFEX>
id:fxe{de213f16-3c39-4c96-abf0-11f391acb56f}
FXGP:DP-A2GYB95
FXData:

</EFOFEX> km West of an airport. The pilot wishes to fly directly to the airport.

1. How far from the airport is plane?
2. What bearing should the pilot fly on to fly directly to the airport?

**Solution**

<EFOFEX>
id:fxd{d9e91b22-f887-4409-a6d6-687a4c253346}
FXGP:DP-A2GYB95
FXData:

</EFOFEX>

a) <EFOFEX>
id:fxe{68c983ec-356c-43d9-8966-618e9a1ed1b6}
FXGP:DP-A2GYB95
FXData:

</EFOFEX>

b) <EFOFEX>
id:fxe{de1653e7-86b8-4c91-af99-4233bf4b41dc}
FXGP:DP-A2GYB95
FXData:

</EFOFEX>

**Notes**

6000+ variations.

**Question**

In each of these examples, find the bearing of A from B

a)

<EFOFEX>
id:fxd{700a9a14-b6f4-4503-afa7-7389fbc54ded}
FXGP:DP-MVKDRYN
FXData:

</EFOFEX>

b)

<EFOFEX>
id:fxd{0d087106-c7c4-4b25-b9ce-87713e877f30}
FXGP:DP-NJN9KHZ
FXData:

</EFOFEX>

c)

<EFOFEX>
id:fxd{a33e8b86-3027-4df0-a57e-69803314c995}
FXGP:DP-3LBY64W
FXData:

</EFOFEX>

**Solution**

a) <EFOFEX>
id:fxe{8872921b-6879-4a3f-81c7-14eb0e671d58}
FXGP:DP-MVKDRYN
FXData:

</EFOFEX>

<EFOFEX>
id:fxd{53e1d5f7-bcf2-44d4-8d24-195236fc5d32}
FXGP:DP-MVKDRYN
FXData:

</EFOFEX>

b) <EFOFEX>
id:fxe{fe947a81-6908-43c4-b5dc-f9938767b6a0}
FXGP:DP-NJN9KHZ
FXData:

</EFOFEX>

<EFOFEX>
id:fxd{dafd87af-d981-4b5d-b56b-1ef95ec208f1}
FXGP:DP-NJN9KHZ
FXData:

</EFOFEX>

c)

<EFOFEX>
id:fxd{f68052b2-1b95-4bdf-8ea5-2c574b13fda8}
FXGP:DP-3LBY64W
FXData:

</EFOFEX>

<EFOFEX>
id:fxe{b59b0338-4259-4582-8658-619ac2f265ba}
FXGP:DP-3LBY64W
FXData:

</EFOFEX>

**Notes**

10000+ variations.

**Question**

<EFOFEX>
id:fxd{1eda9597-b30f-422d-a2cd-16c6eda857b8}
FXGP:DP-UBBG5QX
FXData:
</EFOFEX>A ship leaves from Port A at 1pm and travels on a bearing of <EFOFEX>
id:fxe{a66fb1fd-984e-4833-a5cf-094cbcc54b08}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX> at a constant <EFOFEX>
id:fxe{bfc57f99-5a91-4134-b6fe-da4fb13bebce}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>km/h. At 9pm, the ship’s engine suffers a major malfunction and from that time can only maintain a speed of <EFOFEX>
id:fxe{48f6f607-0511-45f3-b183-eb699fb16620}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>km/h.

The ship needs to be repaired urgently and the ship’s captain must decide whether to turn back to Port A or proceed on to Port B that is <EFOFEX>
id:fxe{9dc8679e-72c6-4fc1-a40e-87bbedbcf7cc}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>km, on a bearing of 148°, from Port A.

1. How far will the ship be away from Port A at 9pm?
2. If the captain decides to return to Port A, on what bearing must the ship travel?
3. The captain has calculated that Port B is closer to the ship than Port A and decides to proceed to Port B. On what bearing must the ship travel?
4. To the nearest minute, how much time will the captain save by sailing to Port B for repairs?

[1,1,7,3 = 12 Marks]

**Solution**

<EFOFEX>
id:fxd{15237006-c9c2-49f1-acde-69d6267c02aa}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>

a) <EFOFEX>
id:fxe{0002d238-648b-4c1d-aa1c-e3fe83b806e9}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>   
The ship will be <EFOFEX>
id:fxe{fc9e2b82-5cbd-4f43-8f04-989c9b1758b2}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX> km from Port A at 9pm

b) The ship must travel on a bearing of <EFOFEX>
id:fxe{b4b90d12-1785-4da1-8e30-0872c82e8dcb}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>° to return to Port A <EFOFEX>
id:fxe{54b2be46-b9be-4a4e-a42c-2931a60c4a1f}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>

c) <EFOFEX>
id:fxd{8fab4d7c-cee0-4f26-af48-3b41a444570d}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>

<EFOFEX>
id:fxe{f34f4e79-1b37-43a2-ae06-5a412f1f4f63}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>

<EFOFEX>
id:fxe{7e3f508f-fbec-4b06-b177-00417d4e30e4}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>

<EFOFEX>
id:fxe{15a28a33-3c12-46c0-826b-3b3a69085479}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>d) <EFOFEX>
id:fxe{1b4183fd-b18b-4bd1-b331-24a0ba86f1d0}
FXGP:DP-UBBG5QX
FXData:

</EFOFEX>

**Notes**

770 variations.

**Question**

Fire control officers have two fire observation towers in a forest that are used to detect forest fires. Tower B is <EFOFEX>
id:fxe{deabb62d-9bc3-41ea-b435-09506c567f68}
FXGP:DP-U9AEF48
FXData:

</EFOFEX> km North West of Tower A. On a hot summer’s day, the two towers observe a forest fire. Tower A reports that the fire is on a bearing of <EFOFEX>
id:fxe{2b91ad38-63ce-4c40-824d-0dad95c3b911}
FXGP:DP-U9AEF48
FXData:

</EFOFEX> and Tower B reports that the fire is on a bearing of <EFOFEX>
id:fxe{2b02c5d6-7993-4e48-aa8e-52d1736f608e}
FXGP:DP-U9AEF48
FXData:

</EFOFEX>.

a) Draw a diagram to represent this situation.

b) How far is the fire from Tower A?

[2,4 = 6 Marks]

**Solution**

<EFOFEX>
id:fxd{b2b71ece-1b9d-4e77-9f6a-3d2bbc1e84c0}
FXGP:DP-U9AEF48
FXData:
</EFOFEX>a)

b) <EFOFEX>
id:fxe{e3c5ef6e-3336-437e-82e7-ac99378232be}
FXGP:DP-U9AEF48
FXData:

</EFOFEX>

**Notes**

1408 variations.

**Question**

<EFOFEX>
id:fxd{2a97e9c3-ecd9-40c6-b517-08e62211dcf6}
FXGP:DP-mDZhKVs
FXData:

</EFOFEX>

A sea rescue volunteer at point A notices a distress flare from a boat and notes that the distress flare(F) is exactly in line with point B, on a bearing of <EFOFEX>
id:fxe{4c00830d-d3ac-442d-8451-62b9f38b1c1a}
FXGP:DP-mDZhKVs
FXData:

</EFOFEX>. At the same moment, a second volunteer at point C sees the same distress flare on a bearing of <EFOFEX>
id:fxe{c9659b49-7f04-41e4-8fba-8aed1aac67cf}
FXGP:DP-mDZhKVs
FXData:

</EFOFEX>. If the distance between B and C is <EFOFEX>
id:fxe{ace0808f-a3c3-4a26-b99e-b77f2449b41c}
FXGP:DP-mDZhKVs
FXData:

</EFOFEX> and B is on a bearing of <EFOFEX>
id:fxe{57b4b883-d9a0-4277-9ab0-4f17e95bc7e2}
FXGP:DP-mDZhKVs
FXData:

</EFOFEX> from C:

1. Calculate the distance from the flare to point B (BF).

The volunteer decides to send a rescue boat to investigate the flare. They have two rescue craft available at points B and C. These rescue craft can travel at the same speed.

1. Which rescue craft will arrive at point F the quickest?

The volunteer realises that it is possible that the flare might be closest to point A but quickly find that they do not have enough information available to calculate the distance AF.

1. What other measurement could the volunteer make in order to calculate the distance AF?

**Solution**

<EFOFEX>
id:fxd{74047c79-5eb5-4b52-a3b2-591f9c867bb7}
FXGP:DP-mDZhKVs
FXData:

</EFOFEX>

a) <EFOFEX>
id:fxe{d6f05542-2542-4b50-9f3b-5f5e9748c383}
FXGP:DP-mDZhKVs
FXData:

</EFOFEX>

b) <EFOFEX>
id:fxe{881a9e92-848e-4347-a682-24d2f8786661}
FXGP:DP-mDZhKVs
FXData:

</EFOFEX>

c) There are numerous extra measurements that can be taken to allow the distance from A to F to be calculated. The bearing from A to C; the bearing from C to A; the distance from A to C or the distance from A to B. Any of these is acceptable.

**Notes**

1680 variations.