



# Headquarters Air Cadets Examination

Leading Cadet  
32/2 Basic Navigation  
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Serial: 458

1. Use black or dark blue pen, NOT pencil.
2. Mark one answer per question with a cross.
3. If you wish to change an answer, cancel the original mark and mark another single answer.

A selected answer.

A cancelled answer.

Mark:

Name and Initials \_\_\_\_\_

Date of Exam \_\_\_\_\_

Date of Birth \_\_\_\_\_

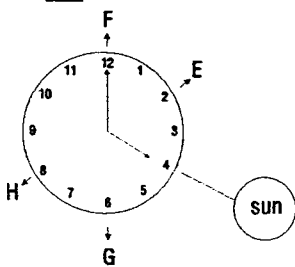
Squadron/Unit \_\_\_\_\_

Wing \_\_\_\_\_

- 1 The difference between grid north and true north in the UK:
- Changes a little each year
  - Is not more than 2 degrees in most places
  - Is at least 2 degrees in most places
  - Always equals zero degrees

- 2 Orientating a map can also be called:
- Organising a map
  - Ranging a map
  - Sighting a map
  - Setting a map

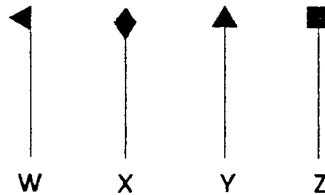
- 3 If you are on the Isle of Wight on 21 November at 4 pm (GMT), and you hold your watch flat with its hour hand pointing to the Sun - as in the diagram - which arrow (E, F, G, or H) points to the north?
- H
  - G
  - E
  - F



- 4 Which physical property of the Earth do we use, when navigating using a compass?
- The surface is covered with lines of latitude and longitude
  - It rotates clockwise
  - It has a magnetic field
  - It has a gravitational field

- 5 The Earth's magnetic pole is located:
- Slightly north of Hudson Bay in Canada
  - In northern Siberia
  - In the same place as the true north pole
  - In the same place as the grid north pole

- 6 Which of these symbols represents magnetic north?
- X
  - Z
  - W
  - Y



- 7 What is the angular difference between true north and magnetic north called?
- Magnetic variation
  - Magnetic deviation
  - Magnetic differential
  - Compass error

- 8 The angular difference between grid north and magnetic north is:
- Grid variation
  - Grid magnetic angle
  - Magnetic difference angle
  - Magnetic variation

- 9 What information is provided at the bottom of an M726 OS map?
- Sheet number
  - Magnetic variation
  - Grid magnetic angle
  - Abbreviations

- 10 What is the purpose of liquid in the capsule of a compass?
- Allows the needle to be seen more clearly
  - Increases the needle's sensitivity
  - Prevents the needle from moving
  - Allows the needle to settle down quickly

- 11 Which of the following would be most likely to cause magnetic deviation if close to a compass:
- A plastic water bottle
  - Aluminium tent pole
  - A tree
  - A cattle grid

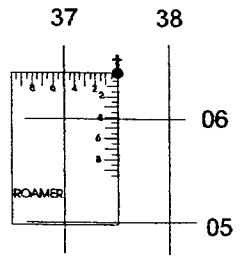
- 12 When setting a map with a compass what is the first action:
- Place the compass onto the map with the long edge on a north/south grid line
  - Set the map down on a firm non-magnetic surface
  - Determine the grid magnetic angle and set this value against the direction arrow of the compass
  - Turn the map and compass together until the compass needle falls inside the orienting arrow

- 13 When using a compass to take a bearing on a distant object you would first of all:
- a  Point the direction of travel arrow at the object
  - b  Align the red compass needle to point at the object
  - c  Turn the capsule so that the orientating arrow points at the object
  - d  Turn the capsule to subtract the grid magnetic angle

- 14 The direction of a line drawn between two places on a map is measured against the grid lines and found to be 110degrees (Grid). If magnetic north is 6degrees west of grid north what is the magnetic bearing of the line?
- a  104degrees (M)
  - b  116degrees (M)
  - c  108degrees (M)
  - d  110degrees (M)

- 15 When walking on a bearing in good visibility, the best technique is to:
- a  Select an object 5 metres in front and walk to it
  - b  Send a team member out 50 metres and walk to there
  - c  Follow your compass and ignore the countryside
  - d  Select a distant feature that is along your intended direction of travel

- 16 The 6 figure GR shown would be:
- a  064 375
  - b  385 056
  - c  056 385
  - d  375 064



- 17 You are at a point where variation is 1 degree W, and Grid Magnetic Angle is 6 degrees W. If the compass bearing of a trig point is 150 degrees what is its Grid bearing?
- a  157 degrees
  - b  156 degrees
  - c  144 degrees
  - d  143 degrees

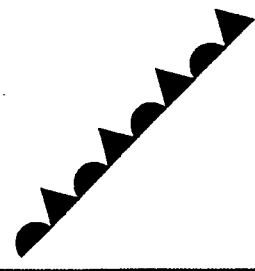
- 18 Naismith's Rule applies to the calculation of:
- a  The speed of advance on foot in mountainous country
  - b  Gradients
  - c  The shapes depicted by contour lines
  - d  True headings from magnetic headings

- 19 When navigating, in order to reduce the area of uncertainty to a minimum, you should:
- a  Always follow paths
  - b  Never follow contours
  - c  Measure distances and bearings as accurately as possible
  - d  Walk as quickly as possible to your destination

- 20 Following linear features to guide you close to your destination is known as:
- a  Handrailing
  - b  Using attack points
  - c  Contouring
  - d  Aiming off

- 21 Which air mass originates in the north of Canada and Greenland and brings cool winds and heavy shower to the UK, both summer and winter?
- a  Polar maritime
  - b  Polar continental
  - c  Arctic maritime
  - d  Tropical continental

- 22 The diagram shows:
- a  Warm front
  - b  Occluded front
  - c  Cold front
  - d  Isobar



- 23 Generally, an area of high pressure will tend to bring:
- a  Fast moving fine weather systems
  - b  Long periods of fine weather
  - c  Long periods of poor weather
  - d  Fast moving wet weather systems

- 24 Depressions move under the influence of:
- a  Lower winds
  - b  Warm fronts
  - c  Upper winds
  - d  Cold fronts

- 25 Which of these would be found only at high level?
- a  Stratocumulus
  - b  Altostratus
  - c  Altocumulus
  - d  Cirrostratus