



Headquarters Air Cadets Examination

Staff Cadet
Pilot Navigation
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Serial: 65

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 _____

How does the met office pass information about airfield weather to aircrew:

- a ☐ By TEMPOs and BECMGs
- b ☐ By RADAR
- c ☐ By TELEVISION
- d ☐ By using TAFs and METARs

What do aircrew use to avoid thunderstorms:

- a ☐ RADAR
- b ☐ RADIO BEACONS
- c ☐ SEAWEED
- d ☐ WEATHER FORECASTS

Why do you need to know the outside air temperature at operating altitude in order to complete your flight planning:

- a ☐ To calculate TAS from RAS
- b ☐ To ensure that the passengers meals stay frozen
- c ☐ To ensure that the engines will work
- d ☐ To calculate IAS from mach No

The Navigator's No 1 priority is:

- a ☐ Navigating with a sextant
- b ☐ Calculating a/c altitude in metres
- c ☐ Calculation of safety altitude
- d ☐ Keeping the a/c above safety speed

In which 2 countries would you expect to be told by air traffic control to fly at a height of 300 metres instead of 1000 feet:

- a ☐ Russia and China
- b ☐ Australia and New Zealand
- c ☐ UK and Ireland
- d ☐ USA and Mexico

What is the best thing for an aviation to do about thunderstorms:

- a ☐ Stay on the ground
- b ☐ Use the radar to go through the centre
- c ☐ Pass downwind of them
- d ☐ Avoid them by a wide margin

All long range nav aids work on a similar basis, what do the equipments use to calculate position:

- a ☐ Old moore's almanac
- b ☐ Phase difference on various radials
- c ☐ Time interval between successive fixes
- d ☐ Time interval between synchronized signals

Both VOR/DME and TACAN give the same information, is it:

- a ☐ True heading and range to the beacon
- b ☐ Magnetic track and groundspeed
- c ☐ Airway centreline and distance
- d ☐ Magnetic bearing and range to beacon

In the early stages of training, students are made to concentrate on which method of navigation:

- a ☐ Map reading
- b ☐ Air plot
- c ☐ Mechanical track plot
- d ☐ Astro navigation

If the highest obstacle near your track is 1750', what is your safety altitude:

- a ☐ 3800ft
- b ☐ 1800ft
- c ☐ 2800ft
- d ☐ 2700ft

How many elements of the vector triangle are needed in order that the triangle may be solved:

- a ☐ 6
- b ☐ half
- c ☐ 4
- d ☐ 3

Why do we use units of volume for a/c fuel, even though it would be more correct to measure its mass:

- a ☐ The Americans don't like doing it that way
- b ☐ The fuel is affected by outside air temperatures
- c ☐ The mass of the fuel depends on its type
- d ☐ It is impossible to weigh the fuel in the air

The units used for vertical distance and speed in most countries are:

- a ☐ Feet and knots
- b ☐ Feet and feet per minute
- c ☐ Metres and metres per minute
- d ☐ Metres and knots

What is the main difference between map reading on the ground and in the air:

- a ☐ You do not need waterproof maps in the air
- b ☐ The scale of maps is so different
- c ☐ You don't have to wear an oxygen mask on the ground
- d ☐ There is no time in the air to discuss where we are

What is the major advantage of Astro Navigation over more modern systems:

- a ☐ It can only be used by naval aviators
- b ☐ It is more accurate
- c ☐ It cannot be jammed
- d ☐ It is easier to use

6 Which of the following would you not expect to find on an air traffic control flight plan:

- ☐ a Destination
- ☐ b Windforecast
- ☐ c Persons on board
- ☐ d Callsign

7 In the triangle of velocities, which vector represents the wind velocity:

- ☐ a The angle between track and heading
- ☐ b The vector with one arrowhead
- ☐ c The vector with three arrowheads
- ☐ d The vector with two arrowheads

18 Why must you be very careful if using an OS map to work out safety altitudes:

- ☐ a The grid is based on kilometre squares
- ☐ b The elevations are in metres
- ☐ c The map is out of date
- ☐ d The map does not cover a large enough area

19 The main difference between a TAF and a METAR is:

- ☐ a One TAF is more reliable
- ☐ b One is a report, the other is a forecast
- ☐ c One is for a longer time period than the other
- ☐ d One never includes the wind velocity

20 What are clouds made of:

- ☐ a Steam
- ☐ b Visible droplets of water
- ☐ c Water vapour
- ☐ d Scotch mist

21 When choosing natural (rather than man-made) features for map reading, what characteristic is most important:

- ☐ a Their size
- ☐ b Their contrast and colour
- ☐ c How they are shown on the map
- ☐ d Whether they are frozen or not

22 The first long range Navigation System to give world wide coverage was omega. This is now being replaced by what system:

- ☐ a GPS
- ☐ b LORAN
- ☐ c TCAS
- ☐ d ILS

23 The civilian equivalent of tacan is known as:

- ☐ a VOR/DME
- ☐ b OMEGA
- ☐ c LORAN
- ☐ d ADF

24 If you are flying an a/c at 2000' and you fly into cloud, to what altitude must you climb:

- ☐ a Flight level 40
- ☐ b 3000ft
- ☐ c To safety altitude or higher
- ☐ d Maintain altitude

25 An aircraft is flying at 2000 feet above sea level, towards a hill whose peak is 1000 metres above sea level. If the pilot takes no further action, will the a/c:

- ☐ a Hit the hill less than half way up the slope
- ☐ b Hit the hill near the peak
- ☐ c Miss the hill by 1000 feet
- ☐ d Miss the hill 1000 metres