



# Headquarters Air Cadets Examination

Staff Cadet  
32/4 Pilot Navigation  
Generated 12-Aug-03

Serial: 552

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

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

2 When the temperature drops to the dew point, but is still above freezing, what kind of weather can you expect:

- a  Rain  
b  Fog  
c  Sleet  
d  Thunderstorms

3 How is drift shown in the triangle of velocities:

- a  The angle between track and heading  
b  The angle between track and wind direction  
c  The angle between heading and wind direction  
d  It is not shown at all

4 Flying at a typical airliner cruising level of 34000 feet, what would you expect the atmospheric pressure outside the a/c to be:

- a  Three quarters of sea level pressure  
b  One tenth of sea level pressure  
c  One quarter of sea level pressure  
d  One half of sea level pressure

5 In a TAF what would -SHSN mean:

- a  Heavy snow  
b  Snow all day  
c  Light snow showers  
d  Sleet

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

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

7 What is the best defence against enemy detection of active navigation systems in fast jet a/c:

- a  Use only passive systems  
b  Use only astro navigation  
c  Climb to service ceiling  
d  Scramble/unscramble the signals

8 In a 3-position line fix what is the ideal angle between position lines:

- a  30 degrees  
b  60 degrees  
c  45 degrees  
d  90 degrees

9 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

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

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

11 As well as solving the triangle of velocities, what other information is logged on the Pilot Navigation log card:

- a  Met forecast of icing and thunderstorms  
b  Time for each leg and a/c registration  
c  Amount of fuel received from tanker  
d  Time for each leg and fuel required

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

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

13 In the northern hemisphere, if you stand with your back to the wind, where is the higher pressure air:

- a  On your right
- b  Above you
- c  In front of you
- d  On your left

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

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

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

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

16 In the triangle of velocities, which vector represents the track and groundspeed:

- a  The vector with two arrowheads
- b  The shortest one
- c  The longest one
- d  The vector with one arrowhead

17 What units would you expect to see on the fuel gauge of a Eurofighter

- a  Pounds
- b  Kilogrammes
- c  Imperial gallons
- d  US gallons

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

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

19 Which units are used to measure pressure in the atmosphere throughout Europe:

- a  Hectonewtons
- b  Atmospheres
- c  Millibars
- d  Inches of mercury

20 What are clouds made of:

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

21 What is the major variable in the atmosphere which affects weather:

- a  Temperature
- b  Pressure
- c  Cigarette smoke
- d  Water in all its forms

22 What is the major disadvantage of radar in combat a/c:

- a  It only works at night
- b  It only works at low level
- c  It gives away your location
- d  You need a weapon systems operator to use it

23 In the early days of aviation what did pilots have to rely on for navigation:

- a  The navigator
- b  Map reading
- c  The observer
- d  The stars

24 What must a pilot do in order to complete the Pilot Navigation log card:

- a  Measure the tracks with dividers and the distances with a protractor
- b  Measure the tracks with a protractor and the distances with dividers
- c  Ensure the a/c has the correct equipment fitted
- d  Extract the tower frequencies from the navigation handbook

25 Outside the USA, what units are used to measure atmospheric pressure:

- a  Millibars
- b  Pounds per square inch
- c  Inches of mercury
- d  Millimetres of mercury