



Headquarters Air Cadets Examination

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Staff Cadet
32/4 Pilot Navigation
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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

552 32/4 Pilot Navigation

Page 1 of 2

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