



Headquarters Air Cadets Examination

Senior Cadet
32/3 Air Navigation
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Serial: 556

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 One degree of latitude is equal to:

- a 60km
- b 1/10,000 part of the distance from the North Pole to the Equator
- c 360nms
- d 60nms

2 Oslo Airport (Norway) is due north of Braunschweig airfield, near Hannover (Germany). If their latitudes are 59 53N and 52 20N respectively, how far are they apart:

- a 453nms
- b 554nms
- c 454nms
- d 445nms

3 In aviation, speed is measured in:

- a Knots (kts)
- b Miles per hour (mph)
- c Kilometres per hour (km/hr)
- d Metres per hour (m/hr)

4 A Nimrod flies on patrol for 9 hours, at a speed of 300kts. How far does it travel in this time:

- a 2400nms
- b 3000nms
- c 2700nms
- d 3900nms

5 What time is used as standard in military and commercial aviation:

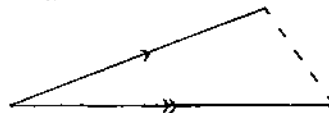
- a British summer time
- b European daylight saving time
- c The time of the country over which the aircraft is flying
- d Greenwich mean time (Universal time)

6 A Velocity consists of:

- a Several speed vectors together
- b Speed and direction together
- c Direction only
- d Speed only

7 In the Air Triangle shown here, name the components of the 3rd side, represented by a dotted line:

- a Drift
- b Wind direction and speed
- c Drift and groundspeed
- d Heading and true airspeed



8 You are flying in a Tornado at 420kts groundspeed. How many nms do you travel each minute:

- a 7nms
- b 6nms
- c 8nms
- d 42nms

9 Aircrew are always aware of their Estimated Time of Arrival (ETA). Why is this:

- a ETA is important for fuel calculations and air traffic control purposes
- b Fuel flow rate depends on ETA
- c A revised ETA tells them that the wind has changed
- d It is the Easiest calculation to do

10 An aircraft is flying from Point A to Point B. A pinpoint fix shows it to be off track. A line from the pinpoint fix, to point B would be known as:

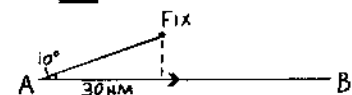
- a Heading required
- b Track required
- c Track made good
- d Revised track

11 Using the 1 in 60 rule, calculate how many miles off track an aircraft will be, if it flies 60nms with a track error of 2 degrees:

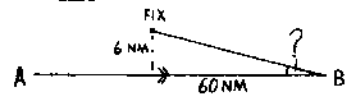
- a 6nms
- b 60nms
- c 4nms
- d 2nms

12 An aircraft flying from A to B. After flying 30nms, a fix shows the aircraft to have a track error of 10 degrees. How far is the aircraft off track at the time of the fix:

- a 3nms
- b 5nms
- c 2nms
- d 6nms



- 13 An aircraft flying from A to B finds itself 6nms off track. It has a further 60nms to travel. What is the required closing angle:
- a 10 degrees
 - b 6 degrees
 - c 3 degrees
 - d 2 degrees



- 14 An aircraft is flying from A to B, a distance of 120nms. Halfway, a fix shows the aircraft to be 4nms right of track. What heading change does the pilot require to reach point B:
- a 4 degrees to the left
 - b 4 degrees to the right
 - c 8 degrees to the left
 - d 8 degrees to the right

- 15 An aircraft flying from A to B finds that after 40nms it is 4nms off track. If it has a further 60nms to travel by how much does the pilot need to turn to regain the intended track at B:
- a 4 degrees
 - b 6 degrees
 - c 10degrees
 - d 12 degrees

- 16 An aircraft flying from A to B finds that after 20nms, it is 2nms right of track. If it has a further 40nms to travel, by how much does the pilot need to turn, to regain the intended track at B:
- a 6 degrees left
 - b 6 degrees right
 - c 9 degrees left
 - d 12 degrees left

- 17 When would a Direct Indicating Compass be most accurate:
- a In a steady descent
 - b In unaccelerated flight
 - c In a turn
 - d In a steady climb

- 18 Which of the following, is not a component within a Gyro-magnetic system:
- a A flux valve magnetic detector
 - b A suspended magnet
 - c A turn/acceleration cut out switch
 - d A gyroscope

- 19 Where are variation values at their greatest:
- a In polar regions
 - b In the Northern hemisphere
 - c At the equator
 - d In the Southern hemisphere

- 20 Within an Inertial Navigation System, the movement of the aircraft is measured by sensors called:
- a Accelerometers
 - b Accelerators
 - c Inertials
 - d Axis

- 21 Beginners may only fly in good weather conditions. The conditions are called:
- a Runway Visual Range
 - b Instrument Meteorological Conditions
 - c Visual Circuits
 - d Visual Meteorological Conditions

- 22 During periods of poor visibility due to fog, Air Traffic Control will advise the pilot of the slant visibility along the runway. This visibility is measured carefully, and is called:
- a Glide Slope Visibility
 - b Runway Range
 - c Radar Visual Range
 - d Runway Visual Range

- 23 What problems can be caused by heavy rain:
- a Restricted visibility and flooded runway
 - b Heavy snow
 - c Thunderstorms
 - d Runway Visual Range

- 24 A flight briefing indicated icing conditions on route. The aircraft has no ice protection. What advice would you give to a novice pilot:
- a Fly above the cloud
 - b Go faster because the icing will have less effect
 - c Plan a near route avoiding icing conditions, or cancel the flight
 - d Go slower because the icing will have less effect

- 25 One minute of latitude on the Earth's surface is equal to:
- a 60 nautical miles
 - b 1km
 - c 1 nautical mile
 - d 1 knot