



Headquarters Air Cadets Examination

Senior Cadet
Air Navigation
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Serial: 57

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 Distance on the Earth's surface is measured in Nautical Miles (nm). Which of the following is true:

a ☐ One nm is equal to one minute of latitude

b ☐ One nm is equal to 5280 feet

c ☐ One nm equals 1/10,000 of the distance from the North Pole to the Equator

d ☐ One nm is equal to one minute of longitude
- 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 ☐ 445nms

b ☐ 453nms

c ☐ 554nms

d ☐ 454nms
- 3 The Air Speed Indicator (ASI) calculates speed by:

a ☐ Measuring the pressure difference between pitot and static pressures

b ☐ Measuring the pitot pressure

c ☐ Multiplying pitot pressure by static pressure

d ☐ Measuring the static pressure
- 4 A Tornado flies from its base to a target in 30 minutes. If the distance is 250nms, what speed is it flying at:

a ☐ 800kts

b ☐ 750kts

c ☐ 125kts

d ☐ 500kts

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

a ☐ The time of the country over which the aircraft is flying

b ☐ European daylight saving time

c ☐ British summer time

d ☐ Greenwich mean time (Universal time)
- 6 A vector is a line, drawn to represent a velocity. This is achieved by:

a ☐ The length represents mph at all times

b ☐ The bearing represents knots at all times

c ☐ The bearing of the line represents the direction and the length of the line representing the speed

d ☐ The bearing represents speed and the length represents direction
- 7 In the Air Triangle of velocities, DRIFT is:

a ☐ The bearing of the wind vector

b ☐ The angle between heading and wind vectors

c ☐ The angle between the wind and track vectors

d ☐ The angle between heading and track vectors
- 8 You are flying at 120knots groundspeed. How long will it take to fly 20nms:

a ☐ 2 minutes

b ☐ 10 minutes

c ☐ 60 minutes

d ☐ 6 minutes

- 9 An aircraft departs from base, but does not arrive at the destination, on its Estimated Time of Arrival. What action will Air Traffic Control take:

a ☐ No immediate action is required

b ☐ Close down

c ☐ Contact the departure base

d ☐ Initiate overdue action
- 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 ☐ Revised track

c ☐ Track required

d ☐ Track made good
- 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 ☐ 2nms

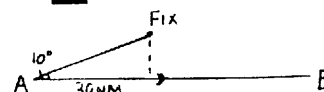
d ☐ 4nms
- 12 An aircraft flies from A to B. After flying 30nms, a fix shows the aircraft to have a track error of 10 degrees. How far is the aircraft off track at the time of the fix:

a ☐ 5nms

b ☐ 2nms

c ☐ 6nms

d ☐ 3nms



13 An aircraft is flying from A to B, a distance of 120nms. Halfway, a fix shows the aircraft to be 4nm right off track. What leading change does the pilot require to reach point B:

- a ☐ 4 degrees to the left
- b ☐ 8 degrees to the right
- c ☐ 4 degrees to the right
- d ☐ 8 degrees to the left

14 20nm after take-off for a pre-planned destination, a pilot finds that he is 3nm off track. By how much does the pilot need to turn to regain the intended track after flying a further 20nm:

- a ☐ 9 degrees
- b ☐ 18 degrees
- c ☐ 6 degrees
- d ☐ 3 degrees

15 An aircraft flying from A to B finds that after 30nm it is 4nm left off track. If it has further 40nm to travel, by how much does the pilot need to turn, to regain the intended track at B:

- a ☐ 14 degrees to the left
- b ☐ 14 degrees to the right
- c ☐ 12 degrees to the left
- d ☐ 16 degrees to the right

16 When would a Direct Indicating Compass be most accurate:

- a ☐ In a steady climb
- b ☐ In a steady descent
- c ☐ In unaccelerated flight
- d ☐ In a turn

17 Which of the following, is not a component within a Gyro-magnetic system:

- a ☐ A turn/acceleration cut out switch
- b ☐ A flux valve magnetic detector
- c ☐ A suspended magnet
- d ☐ A gyroscope

18 As a compass nears the Magnetic North Pole, the compass detector will try to point at the magnetic material inside the Earth. This tilting is called:

- a ☐ Variation
- b ☐ Drop
- c ☐ Dip
- d ☐ Wander

19 Within an Inertial Navigation System, the movement of the aircraft is measured by sensors called:

- a ☐ Accelerometers
- b ☐ Accelerators
- c ☐ Axis
- d ☐ Inertials

20 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

21 Why does an aircraft take off into wind:

- a ☐ To decrease the length of take off run
- b ☐ To take off at a lower airspeed
- c ☐ To use the full length of the runway
- d ☐ To increase groundspeed at take off

22 During periods of poor visibility due to fog, Air Traffic Control will advise the pilot of the start visibility along the runway. This visibility is measured carefully, and is called:

- a ☐ Runway Visual Range
- b ☐ Radar Visual Range
- c ☐ Runway Range
- d ☐ Glide Slope Visibility

23 The collective noun for rain, sleet, snow and hail is:

- a ☐ Precipitation
- b ☐ VMC
- c ☐ Participation
- d ☐ IMC

24 What can be the effects of heavy icing, on an aircraft's performance:

- a ☐ It will fly much slower
- b ☐ Loss of aerodynamics only
- c ☐ Loss of aerodynamics and reduced engine performance
- d ☐ There is no adverse effect on the aircraft's performance

25 Which way does the Earth revolve on its axis:

- a ☐ East to West
- b ☐ West to East
- c ☐ South to North
- d ☐ North to South