Pressure Altitude And Density Altitude

Pressure altitude is indicated altitude corrected for non-standard pressure. It is determined by setting 29.92 in the altimeter setting window.

Density altitude is pressure altitude corrected for non-standard temperature. Performance tables for most aircraft are based on density altitude. Find density altitude using the E6B computer.

NOTE CONCERNING GRAPHS

Some graph charts have a sample shown on the chart. Use the sample to review the proper method of entering the chart and reading the data.

Read all notes. If the chart has a note regarding temperature, wind, aircraft configuration variations, percentage of distance, etc., expect a question that will require you to use the note.

Count off the graph scale very closely. The vertical and horizontal scale are usually different.

When you enter a graph, enter with the curves or tangent lines. Once you have found the data mark point, read the answers straight out.

NOTE CONCERNING TABULAR CHARTS

These charts are entered with certain known numbers and the answers are read directly as numbers.

Read all notes. Most test questions will require that all notes be used to get a correct answer.

There are many numbers on these charts. Use a straight edge to ensure you are reading the correct data.

If a question uses numbers that are in-between the numbers given on the chart, be sure to interpolate. Do not round off numbers.

If your interpolation is a midpoint interpolation, you can average the two numbers. If you must interpolate between four numbers, (between two temperatures and two aircraft weights), if it is a midpoint interpolation, you can again just average the four numbers.

5306. H317 COM
GIVEN:
Pressure altitude 12,000 ft
True air temperature +50 °F

From the conditions given, the approximate density altitude is
A) 11,900 feet.
B) 14,130 feet.
C) 18,150 feet

5307. H317 COM
GIVEN:
Pressure altitude 5,000 ft
True air temperature +30 °C

From the conditions given, the approximate density altitude is
A) 7,800 feet.
B) 8,100 feet.
C) 8,800 feet.

5308. H317 COM
GIVEN:
Pressure altitude 6,000 ft
True air temperature +30 °F

From the conditions given, the approximate density altitude is
A) 9,000 feet.
B) 5,500 feet.
C) 5,000 feet.

5309. H317 COM
GIVEN:
Pressure altitude 7,000 ft
True air temperature +15 °C

From the conditions given, the approximate density altitude is
A) 5,000 feet.
B) 8,500 feet.
C) 9,500 feet.

5451. (Refer to figure 8.)
GIVEN:
Fuel quantity 47 gal
Power-cruise (lean) 55 percent

Approximately how much flight time would be available with a night VFR fuel reserve remaining?
A) 3 hours 8 minutes
B) 3 hours 22 minutes
C) 3 hours 43 minutes
5452. H317 COM
(Refer to figure 8.)
GIVEN:
Fuel quantity 65 gal
Best power (level flight) 55 percent

Approximately how much flight time would be available with a day VFR fuel reserve remaining?

A) 4 hours 17 minutes.
B) 4 hours 30 minutes.
C) 5 hours 4 minutes.

5453. (Refer to figure 8.) Approximately how much fuel would be consumed when climbing at 75 percent power for 7 minutes?

A) 1.82 gallons.
B) 1.97 gallons.
C) 2.15 gallons.

5454. (Refer to figure 8.) Determine the amount of fuel consumed during takeoff and climb at 70 percent power for 10 minutes.

A) 2.66 gallons.
B) 2.88 gallons.
C) 3.2 gallons.

5455. (Refer to figure 8.) With 38 gallons of fuel aboard at cruise power (55 percent), how much flight time is available with night VFR fuel reserve still remaining?

A) 2 hours 34 minutes.
B) 2 hours 49 minutes.
C) 3 hours 18 minutes.

5456. (Refer to figure 9.) H317 COM
(Refer to figure 9.) Using a normal climb, how much fuel would be used from engine start to 12,000 feet pressure altitude?
Aircraft weight 3,800 lb
Airport pressure altitude 4,000 ft
Temperature 26 °C

A) 46 pounds.
B) 51 pounds.
C) 58 pounds.

5457. H317 COM
(Refer to figure 9.) Using a normal climb, how much fuel would be used from engine start to 10,000 feet pressure altitude?
Aircraft weight 3,500 lb
Airport pressure altitude 4,000 ft
Temperature 21 °C

A) 23 pounds.
B) 31 pounds.
C) 35 pounds.

5458. H317 COM
(Refer to figure 10.) Using a maximum rate of climb, how much fuel would be used from engine start to 6,000 feet pressure altitude?
Aircraft weight 3,200 lb
Airport pressure altitude 2,000 ft
Temperature 27 °C

A) 10 pounds.
B) 14 pounds.
C) 24 pounds.

NOTE: CORRECT ANSWER IN BOLD ITALICS
Aircraft weight 3,800lb
Airport pressure altitude 4,000 ft
Temperature 30 °C

A) 28 pounds.
B) 35 pounds.
C) 40 pounds.

Aircraft weight 3,800lb
Airport pressure altitude 4,000 ft
Temperature 30 °C

A) 28 pounds.
B) 35 pounds.
C) 40 pounds.

5461. H317 COM
(Refer to figure 11.) What should be the endurance at an altitude of 7,500 feet, using 52 percent power?

A) 635 miles.
B) 645 miles.
C) 810 miles.

5461.
(Refer to figure 11.) What should be the endurance at an altitude of 7,500 feet, using 52 percent power?

A) 6.1 Hours
B) 7.7 Hours
C) 8.0 Hours

NOTE: (With 48 Gallons fuel-no reserve)
GIVEN:
Pressure altitude 18,000 ft
Temperature -41 °C
Power 2,500 RPM - 26" MP
Recommended lean mixture
Usable fuel 318 lb

What is the approximate flight time available under the given conditions? (Allow for VFR night fuel reserve.)

A) 2 hours 27 minutes.
B) 3 hours 12 minutes.
C) 3 hours 42 minutes.

GIVEN:
Pressure altitude 18,000 ft
Temperature - 1 °C
Power 2,200 RPM - 20" MP
Best fuel economy
Usable fuel 344 lb

What is the approximate flight time available under the given conditions? (Allow for VFR day fuel reserve.)

A) 4 hours 50 minutes.
B) 5 hours 20 minutes.
C) 5 hours 59 minutes.

Using a maximum rate of climb under the given conditions, how much fuel would be used from engine start to a pressure altitude of 16,000 feet?

A) 43 pounds.
B) 45 pounds.
C) 49 pounds.

Using a maximum rate of climb under the given conditions, how much time would be required to climb to a pressure altitude of 8,000 feet?

A) 7 Minutes
B) 8.4 Minutes
C) 11.2 Minutes

NOTE: CORRECT ANSWER IN BOLD ITALICS
5484.

Aircraft weight 3,700 lb
Airport pressure altitude 4,000 ft
Temperature at 4,000 feet 21 °C

Using a normal climb under the given conditions, how much fuel would be used from engine start to a pressure altitude of 12,000 feet?

A) 30 pounds.
B) 37 pounds.
C) 46 pounds.

5485.

(Refer to figure 13.)

5486. (Refer to figure 14.)

5487. (Refer to figure 15.)

GIVEN:

Temperature at 4,000 feet 14 °C

Using a normal climb under the given conditions, how much time would be required to climb to a pressure altitude of 8,000 feet?

A) 4.8 minutes.
B) 5 minutes.
C) 5.5 minutes.
5614. H317 COM
What effect does an uphill runway slope have on takeoff performance?

A) Increases takeoff speed.
B) Increases takeoff distance.
C) Decreases takeoff distance.

5615. H317 COM
(Refer to figure 31.) Rwy 30 is being used for landing. Which surface wind would exceed the airplane's crosswind capability of 0.2 VSO, if VSO is 60 knots?

A) 260° at 20 knots.
B) 275° at 25 knots.
C) 315° at 35 knots.

5616. H317 COM
(Refer to figure 31.) If the tower-reported surface wind is 010° at 18 knots, what is the crosswind component for a Rwy 08 landing?

A) 7 knots.
B) 15 knots.
C) 17 knots.

5617. H317 COM
(Refer to figure 31.) The surface wind is 180° at 25 knots. What is the crosswind component for a Rwy 13 landing?

A) 19 knots.
B) 21 knots.
C) 23 knots.

5618. H317 COM
(Refer to figure 31.) What is the headwind component for a Rwy 13 takeoff if the surface wind is 190° at 15 knots?

A) 7 knots.
B) 13 knots.
C) 15 knots.

5619. H317 COM
(Refer to figure 32.)
GIVEN:
Temperature 75 °F
Pressure altitude 6,000 ft
Weight 2,900 lb
Headwind 20 kts
To safely take off over a 50-foot obstacle in 1,000 feet, what weight reduction is necessary?

A) 50 pounds.
B) 100 pounds.
C) 300 pounds.

5620. H317 COM
(Refer to figure 32.)
GIVEN:
Temperature 50 °F
Pressure altitude 2,000 feet
Weight 2,700 lb
Wind Calm
What is the total takeoff distance over a 50-foot obstacle?

A) 650 feet.
B) 1050 feet.
C) 800 feet.
5621. H317 COM
(Refer to figure 32.)
GIVEN:
Temperature 100 °F
Pressure altitude 4,000 ft
Weight 3,200 lb
Wind Calm
What is the ground roll required for takeoff over a 50-foot obstacle?

A) 1,180 feet.
B) 1,350 feet.
C) 1,850 feet.

5622. (Refer to figure 32.)
Temperature 30 °F
Pressure altitude 6,000 ft
Weight 3,300 lb
Headwind 20 kts
What is the total takeoff distance over a 50-foot obstacle?

A) 1,100 feet.
B) 1,300 feet.
C) 1,500 feet.

5623. H317 COM
(Refer to figure 33.)
GIVEN:
Weight 4,000 lb
Pressure altitude 5,000 ft
Temperature 30 °C
What is the maximum rate of climb under the given conditions?

A) 655 ft/min.
B) 702 ft/min.
C) 774 ft/min.

5624. H317 COM
(Refer to figure 33.)
GIVEN:
Weight 3,700 lb
Pressure altitude 22,000 ft
Temperature -10 °C
What is the maximum rate of climb under the given conditions?

A) 305 ft/min.
B) 320 ft/min.
C) 384 ft/min.

NOTE: CORRECT ANSWER IN BOLD ITALICS
GIVEN:
Pressure altitude 6,000 ft
Temperature +3 °C
Power 2,200 RPM - 22 inches MP
Usable fuel available 465 lb
What is the maximum available flight time under the conditions stated?

A) 6 hours 27 minutes.
B) 6 hours 39 minutes.
C) 6 hours 56 minutes.

GIVEN:
Pressure altitude 6,000 ft
Temperature -17 °C
Power 2,300 RPM - 23 inches MP
Usable fuel available 370 lb
What is the maximum available flight time under the conditions stated?

A) 4 hours 20 minutes.
B) 4 hours 30 minutes.
C) 4 hours 50 minutes.

5626. H317 COM
(Refer to figure 34.)
GIVEN:
Pressure altitude 6,000 ft
Temperature -17 °C
Power 2,300 RPM - 23 inches MP
Usable fuel available 370 lb
What is the maximum available flight time under the conditions stated?

A) 4 hours 20 minutes.
B) 4 hours 30 minutes.
C) 4 hours 50 minutes.

NOTE: CORRECT ANSWER IN BOLD ITALICS
5629. H317  COM  
(Refer to figure 35.)
GIVEN:
Temperature 85 °F
Pressure altitude 6,000 ft
Weight 2,800 lb
Headwind 14 kts
Determine the approximate ground roll.

A) 742 feet.
B) 1,280 feet.
C) 1,480 feet.

5630. H317  COM  
(Refer to figure 35.)
GIVEN:
Temperature 50 °F
Pressure altitude Sea level
Weight 3,000 lb
Headwind 10 kts
Determine the approximate ground roll.

A) 425 feet.
B) 636 feet.
C) 836 feet.

5631. H317  COM  
(Refer to figure 35.)
GIVEN:
Temperature 80 °F
Pressure altitude 4,000 ft
Weight 2,800 lb
Headwind 24 kts
What is the total landing distance over a 50-foot obstacle?

A) 1,125 feet.
B) 1,250 feet.
C) 1,325 feet.

5740. I04  COM  
To determine pressure altitude prior to takeoff, the altimeter should be set to

A) the current altimeter setting.
B) 29.92 inches Hg and the altimeter indication noted.
C) the field elevation and the pressure reading in the altimeter setting window noted.

NOTE: CORRECT ANSWER IN BOLD ITALICS