

Class: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_

Figures needed for this test— Figures 8, 33, 34, 35, 36, 37, 38, 39, 41, 61, 62.  
See FAA Computer Testing Supplement for Recreational Pilot and Private Pilot (FAA-CT-8080-2E) Appendix 2 for figures.

Supplement is on-line at  
[http://www.faa.gov/training\\_testing/testing/airmen/test\\_questions/media/FAA-CT-8080-2E.pdf](http://www.faa.gov/training_testing/testing/airmen/test_questions/media/FAA-CT-8080-2E.pdf).

Do all problems on below. Provide answers and show how answers were derived.  
Refer to corresponding ASA question for help. (Also you may call instructor.)

**IMPORTANT NOTE—the problems are similar to those in ASA 2008 TESTPREP; answers are different. Refer to ASA TESTPREP for help with solutions; ask instructor if still cannot answer.**

This work will be graded in class at start of class (same as with quizzes).

Except for questions 17 and 18, score five (5) points for each correct answer.  
For questions 17 and 18, score one point for each correct T or F answer.

**If you correct missed questions by next class session after assigned is returned, and demonstrate understanding of missed subject matter, I will upgrade your score by giving you half the value of missed questions.**

## # ANSWER QUESTION

1. \_\_\_\_\_ **1\_3663-1.** (Refer to Figure 62.) If 60 pounds of weight is located at point X and 120 pounds at point Z, how much weight must be located at point Y to balance the plank?

A—400 B—360 C—300.

2. \_\_\_\_\_ **1\_3663-2.** (Refer to Figure 61.) If the plank weighed 300-pounds (instead of 200-pound). How should the 500-pound weight be shifted to balance the plank on the fulcrum?

A—1" to left B—1" to right C—4" to left

3. \_\_\_\_\_ **2\_3664.** GIVEN:
- |                                     | WEIGHT<br>(LB) | ARM<br>(IN) | MOMENT<br>(LB-IN) |
|-------------------------------------|----------------|-------------|-------------------|
| Empty weight                        | 1,495.0        | 101.4       | 151,593.0         |
| Pilot and passengers                | 380.0          | 64.0        | _____             |
| Fuel (30 gal usable-<br>no reserve) | _____          | 96.0        | _____             |
| Baggage                             | 25.0           | 120.0       | _____             |

**Find the CG.** \_\_\_\_\_

(A—94.3", B—94.01", C—119.8")

4. \_\_\_\_\_ **2\_3677.** (Refer to Figures 33 and 34.) With the airplane loaded as follows, what action can be taken to balance the airplane?

Front seat occupants..... 411 lb  
Rear seat occupants ..... 100 lb  
Main wing tanks ..... 44 gal  
Baggage ..... 25 lbs

A—Fill the auxiliary wing tanks.

B—Add a 75-pound weight to the baggage compartment.

C—Transfer 10 gallons of fuel from the main tanks to the auxiliary tanks.

5. \_\_\_\_\_ **3\_3669.** (Refer to Figure 35.) What is the maximum amount of baggage that may be loaded aboard the airplane for the CG to remain within the moment envelope?

A—105 lbs, B—57 lbs, C—110 pounds

	WEIGHT (LB)	MOM/1000
Empty weight	1,350	51.5
Pilot and front passenger	250	_____
Rear passengers	400	_____
Baggage	_____	_____
Fuel, 38 gal	_____	_____
Oil, 8 qt	_____	-0.2
 TOTAL	 _____	 _____

6. \_\_\_\_\_ **3\_3673.** (Refer to Figure 35.) Determine the aircraft loaded moment and the aircraft category.

A—81.6, normal B—79.2, utility C—80.4, outside envelope

	WEIGHT (LB)	MOM/1000
Empty weight	1,350	51
Pilot and front passenger	380	_____
Fuel, 48 gal	288	_____
Oil, 8 qt	_____	_____
Baggage	30	_____

7. \_\_\_\_\_ **4\_3294.** (Refer to Figure 8.) Determine the density altitude for these conditions: (A—8,500 B—9,200 C—4,600)

Altimeter setting .....29.25  
Runway temperature..... +90 °F  
Airport elevation ..... 5,250 ft MSL

8. \_\_\_\_\_ **4\_3297.** (Refer to Figure 8.) Determine the pressure altitude at an airport that is 1,386 feet MSL with an altimeter setting of 29.97.

A—1,262 feet MSL.  
B—1,340 feet MSL.  
C—1,541 feet MSL.

9. \_\_\_\_\_ **5\_3706.** (Refer to Figure 41.) Determine the total distance required for takeoff to clear a 50-foot obstacle.

OAT..... Std  
 Pressure altitude..... Sea level  
 Takeoff weight..... 2,850 lbs  
 Headwind component..... Calm

A—1700 feet.  
 B—1400 feet.  
 C—1500 feet.

10. \_\_\_\_\_ **6\_3680.** (Refer to Figure 36.) What is the expected fuel consumption for a 600-nautical mile flight under the following conditions?

Pressure altitude .....4,000 ft  
 Temperature.....+29°C  
 Manifold pressure.....21.3" Hg  
 Wind..... Calm

Fuel Consumption (gph) \_\_\_\_\_?  
 True Air Speed, TAS (kts) \_\_\_\_\_?  
 Fuel consumption (gal) \_\_\_\_\_? (A—36.1, B—40.1, C—43.4 gal)

11. \_\_\_\_\_ **7\_3698.** (Refer to Figure 39.) Determine the approximate landing ground roll distance.

Pressure altitude .....6,250ft  
 Headwind ..... 8 kts  
 Temperature..... Std

A—406feet.  
 B—366 feet.  
 C—508 feet.

12. \_\_\_\_\_ **7\_3689.** (Refer to Figure 38.) Determine the total distance required to land.

OAT..... 32°F  
 Pressure altitude .....8,000 ft  
 Weight..... 2,600 lb  
 Headwind component..... 10 kts  
 Obstacle..... 50 ft

A—850 feet.  
 B— 1,400 feet.  
 C—1,750 feet.

13. \_\_\_\_\_ **8\_3688.** (Refer to Figure 37.) What is the crosswind component for a landing on Runway 19 if the tower reports the wind as 220° at 40 knots?

14. \_\_\_\_\_ **8\_3687.** (Refer to Figure 37.) With a reported wind of south at 20 knots, which runway (14, 21, or 23) is not appropriate for an airplane with a 13-knot maximum crosswind component?

- A—Runway 14.
- B—Runway 21.
- C—Runway 23.

15. \_\_\_\_\_ **TAS.** Which is true about TAS?  
[PHAK pages 7-9, 10-17. ASA page 3-4, 9-23]

- A—TAS is the terminal velocity (or air speed) of the aircraft.
- B—TAS increases when altitude increases.
- C—TAS decreases when altitude increases.
- D—as TAS increases, ground speed decreases.

16. \_\_\_\_\_ **High Altitude Airport.** When departing (or approaching a high altitude airport) expect which the following?

- A—high speed across the ground, longer runway needed, smaller rate of climb, shallower climb/descent angle, leaner mixture needed, slower acceleration, less drag.
- B—less power because carburetor cannot get as much oxygen, the need to fly faster indicated airspeed to prevent stall in the thinner air, steeper descent angle because airplane comes down faster, no ground effect because plane will not float in the thin air, faster acceleration due to less drag.
- C—faster turning propeller and more propeller noise in order for propeller to capture more of the air.

17. **Density Altitude 1.** Which of the following conditions reduce aircraft performance?

(Pages 3-3,7-6,10-3,11-5,10-18 of PHAK; page 8-21 of ASA).

Circle True (T) next to items below that reduce aircraft performance, and circle False (F) next to item if it does not result in reduced performance.

- |   |   |                        |
|---|---|------------------------|
| T | F | 1. low temperature     |
| T | F | 2. high humidity       |
| T | F | 3. low altitude        |
| T | F | 4. hot day             |
| T | F | 5. dry air             |
| T | F | 6. high altitude       |
| T | F | 7. thicker (dense) air |
| T | F | 8. thinner air         |
| T | F | 9. short runway        |
| T | F | 10. drag               |

**18. Density Altitude 2.** What is true or false about Density Altitude?

(Pages 3-3,7-6,10-3,11-5,10-18 of PHAK; page 8-21 of ASA)

Indicate True (T) or False (F) next to each item below.

- |   |   |   |
|---|---|---|
| T | F | 1. The altitude at which the plane acts like (or thinks) it is flying.  |
| T | F | 2. The air density divided by the altitude MSL.                         |
| T | F | 3. Pressure altitude correct for non-standard temperature.              |
| T | F | 4. Indicated altitude when Altimeter is set at 29.92" Hg.               |
| T | F | 5. Used in calculating airplane performance.                            |
| T | F | 6. Actual true altitude when cruise flight level is reached.            |
| T | F | 7. Very important consideration at high altitude airports.              |
| T | F | 8. As the density of the air increases, airplane performance decreases. |
| T | F | 9. As the density of the air increases the density altitude is lower.   |
| T | F | 10. Higher temperature yields a higher density altitude.                |

**ANSWERS SHEET (Please copy your answers from above to here)**

	ASA	Answer	
1	1_3663-1		
2	1_3663-2		
3	2_3664		
4	2_3667		
*	5_3669		
6	3_3673		
7	4_3294		
8	4_3297		
9	5_3706		
10	6_3680		
11	7_3698		
12	7_3689		
*	13_8_3688		
*	14_8_3687		
*	15_TAS		PHAK 7-9,10-17. ASA 3-4,9-23.
*	16_DA		PHAK 3-3,7-6,10-3,11-5,10-18.
	17_DA		ASA 8-21.
	18_DA		

		Ans	
17	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		

18	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		

Name: \_\_\_\_\_

**ANSWER / GRADING KEY**

<b>Questions 1 thru 16</b>		
5 points for each correct question		
Number correct	Number missed	Score
1	15	5
2	14	10
3	13	15
4	12	20
5	11	25
6	10	30
7	9	35
8	8	40
9	7	45
10	6	50
11	5	55
12	4	60
13	3	65
14	2	70
15	1	75
16	0	80

<b>Questions 17 and 18</b>		
1 point each correct T/F item		
Number correct	Number missed	Score
1	20	1
2	19	2
3	18	3
4	17	4
5	16	5
6	15	6
7	14	7
8	13	8
9	12	9
10	11	10
11	10	11
12	9	12
13	8	13
14	7	14
15	6	15
16	5	16
17	4	17
18	3	18
19	2	19
20	1	20

**If you correct missed questions by next class session, and demonstrate understanding of missed subject matter, I will upgrade your score by giving you half the value of missed questions.**

**END OF TAKE-HOME QUIZ 1.**