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1. Instability is an atmospheric condition in which \_\_\_\_\_\_\_\_\_\_. (1.A.1)
2. air tends to rise easily
3. two air masses of equal strength meet
4. a thunderstorm is located within clouds
5. atmospheric pressure is too low
6. Convection creates patterns of \_\_\_\_\_\_\_\_\_\_ in the atmosphere and water in the ocean. (1.B.2)
7. energy and radiation
8. rising and sinking air
9. hot and cold vapor
10. wind and precipitation
11. All weather is the result of \_\_\_\_\_\_\_\_\_\_. (1.B.1)
12. temperature change
13. air humidity
14. heat exchange
15. cloud formations
16. The rate at which temperature decreases as \_\_\_\_\_\_\_\_\_\_ is known as adiabatic lapse rate. (1.B.3)
17. moisture condenses
18. altitude increases
19. clouds evaporate
20. wind increases
21. Which weather conditions are most likely to decrease visibility in flight? Select three correct answers. (1.A.1)
22. Clouds
23. Winds
24. Precipitation
25. Thunderstorms
26. Dry heat
27. What are two kinds of temperature inversion? Select two correct answers. (1.B.3)
28. Frontal inversion
29. High wind inversion
30. Moisture inversion
31. Surface-based temperature inversion
32. Unstable air inversion
33. Cold air can hold more water than warm air. (1.B.1)
34. True
35. False
36. Long frontal lines of thunderstorms are called \_\_\_\_\_\_\_\_\_\_. (1.B.5)
37. shear zones
38. isobars
39. weather lines
40. squall lines
41. As you rise from the earth’s surface through the atmospheric layers into space, temperatures continuously drop. (1.B.1)
42. True
43. False
44. Earth rotates faster at the equator than at the poles, resulting in \_\_\_\_\_\_\_\_\_\_. (1.B.2)
45. temperature inversion
46. mechanical turbulence
47. the Coriolis Effect
48. All of the above
49. What are the four types of fronts? Select four correct answers. (1.B.4)
50. Tropical
51. Cold
52. Occluded
53. Warm
54. Dry
55. Stationary
56. Sublimation occurs when \_\_\_\_\_\_\_\_\_\_. (1.B.3)
57. warm air rises over the ocean
58. high pressure area air flows to low pressure area
59. solid water transforms directly into vapor
60. water vapor turns into clouds
61. What kind of air mass is typical along the coast of Oregon? (1.B.4)
62. Continental Polar (cP)
63. Continental Tropical (cT)
64. Maritime Polar (mP)
65. Maritime Tropical (mT)
66. What is the weather just before a cold front? (1.B.4)
67. Rain showers
68. Fog
69. Cirriform clouds
70. Good visibility
71. The tropopause is the boundary between the \_\_\_\_\_\_\_\_\_. (1.B.1)
72. mesopause and stratopause
73. earth’s surface and troposphere
74. stratosphere and mesosphere
75. troposphere and stratosphere
76. Isobars are lines that show \_\_\_\_\_\_\_\_\_\_. (1.B.2)
77. where atmospheric layers change
78. regions with convective activity
79. where there is a stationary front
80. regions with equal atmospheric pressure
81. What three elements are required for a thunderstorm to form? Select three correct answers. (1.B.5)
82. Low cloud base
83. Heavy winds
84. Atmospheric instability
85. Lifting action
86. Moisture
87. Wind convergence is common in \_\_\_\_\_\_\_\_\_\_ areas. (1.B.5)
88. mountainous
89. polar
90. low pressure
91. coastal
92. Where can a pilot obtain aviation-specific weather information? Circle all that apply. (1.A.1)
93. www.aviationweather.gov
94. www.FAA.gov
95. www.1800wxbrief.com
96. Pilots can rely on television forecasts to determine if it is safe to fly. (1.B.3)
97. True
98. False

1. An aircraft accident occurred because of a series of thunderstorms between the aircraft and the destination. Aware of the thunderstorms ahead, the pilot relied only on one weather reporting device, his in-cockpit weather display, for updates about the thunderstorms. Explain how this could have contributed to the accident. (1.A.1)

He relied on only one source of weather reporting which most likely took too long to update. He didn’t know about the reporting lag between the imagery in the aircraft and the time the data was obtained. This error caused the aircraft to get dangerously close to the thunderstorm, which is what caused the accident. Using only one source of weather information is never a good idea, because no single source of information gives the full picture, and all types of weather information have limitations.

1. Explain how mountains can cause air to rise. (1.B.3)

Mountains cause air to rise when horizontal winds meet the mountains and are forced upward along the slope of the mountain. This causes the air to move upward more rapidly than typical surface heating does.

1. Explain the sea breeze cycle. (1.B.2)

The sea breeze cycle begins when warm air over the land rises and then cools. The cooler air is then drawn to the lower pressure area over the ocean. Then it sinks back down to the ocean’s surface and spreads out. As it spreads, some of the air is pushed back over the land, where it reheats, rises, and the cycle begins again.

1. Explain why atmosphere is less dense at higher altitudes. (1.B.1)

Air molecules closer to the surface of the earth are compacted by the gravitational pull of air molecules above them. This means that air closer to the earth’s surface has a higher density than air at higher altitudes. As altitude increases, there is less air above to press down on the lower air below, so density decreases at higher altitudes.

1. List four causes of weather phenomena such as clouds, winds, and precipitation. (1.A.1)

Possible responses include:

* atmospheric pressure differential
* heat exchange
* proximity to water
* proximity to mountains
* climate
* season