

Weather Numbers

Answer Bank

A. 1 B. 2 C. 3 D. 4 E. 5 F. 25 G. 35 H. 36 I. 40 J. 46 K. 54 L. 58
M. 72 N. 74 O. 75 P. 80 Q. 100 R. 910 S. 1000 T. 1010 U. 1013 V. $\frac{1}{2}$ W. $\frac{3}{4}$

1. Minimum wind speed for a hurricane in mph **N 74 mph**
2. Flash-to-bang ratio. For every 10 second between lightning flash and thunder, the storm is this many miles away
B 2 miles as flash to bang ratio is 5 seconds per mile
3. Minimum diameter of a hailstone in a severe storm (in inches) **A 1 inch (formerly $\frac{3}{4}$ inches)**
4. Standard sea level pressure in millibars **U 1013.25 millibars**
5. Minimum wind speed for a severe storm in mph **L 58 mph**
6. Minimum wind speed for a blizzard in mph **G 35 mph**
7. 22 degrees Celsius converted to Fahrenheit **M 72** $22 \times \frac{9}{5} + 32$
8. Increments between isobars in millibars **D 4mb**
9. Minimum water temperature in Fahrenheit for hurricane development **P 80 F**
10. Station model reports pressure as 100, what is the actual pressure in millibars **T 1010 (remember to move decimal to left and then add either 10 or 9 100 become 10.0 910.0mb would be extreme low so logic would tell you it would be 1010.0mb)**

Multiple Choices I

1. A dry line front is also known as a:
a. **dew point front** b. squall line front c. trough front d. Lemon front e. Kelvin front
2. The semi-permanent high/low that is responsible for directing US hurricanes either up the East coast or into the Gulf of Mexico
a. Icelandic Low b. Aleutian Low c. North Pacific High d. Siberian High **e. Bermuda High**
3. Leading edge of a thunderstorm downdraft
a. Roll cloud b. wall cloud **c. gust front** d. flanking line e. front sheared anvil
4. Typically, how long is the lifespan of a thunderstorm?
a. Seconds to minutes b. **minutes to hours** c. hours to days d. days to weeks
5. Just prior to a cloud-to-ground lightning strike, the ground has this prevailing charge
a. **Positive** b. Negative c. Neutral d. Overdraft
6. The air pressure within the eye of a hurricane is often so drastically different than surrounding air pressure, that the sea water level within the eye is:
a. lower than the water outside the eye
b. higher than the water level outside the eye (low pressure vacuum in eye actually acts to "suck" the sea level slightly upward. This actually will increase the storm surge at landfall)
c. unchanged relative to water levels outside the eye
d. similar to that of a flushing toilet
7. Winds that follow isobar contours are called:
a. Gradient Winds b. **Geostrophic Winds** c. Zonal Winds d. Isowinds e. Parallel Winds

8. Air mass originating in the Gulf of Mexico
a. mT b. mP c. **cT** d. cP e. Ca
9. State with the highest occurrence of thunderstorms
a. Hawaii b. Oklahoma c. Texas d. New York e. **Florida**
10. General latitude where the ITCZ is found
a. 0-10 b. 30-40 c. 60-70 d. near each pole
11. When adjusting station pressure to sea level, the ratio is 1 mb for every _____ meters.
a. 5 b. **8** c. 15 d. 16
12. Nearly 50% of all flash flood fatalities are related to this...
a. Trapped in a canyon b. Landslide/mudslide c. **motor-vehicle related** d. debris-related injuries
13. Which is NOT a form of obscuration: (**obscuration is non-precipitation that obscures vision**)
a. Fog b. Smoke c. Mist d. **Rain** e. Volcanic Ash
14. **You are at the base of a 2,000 mountain. The present temperature is 50° F. Before you hop on your bike you want to make sure you have the proper attire when you arrive at the summit. What is your projection for the summit temperature (in ° F)?**
a. 55.4° F b. **43.0° F** c. 39.0° F d. 47.0° F **With the environmental lapse rate being 3.5 degrees per 1,000 ft., the correct answer to the problem is 43° F.**

True / False

1. In the Northern Hemisphere, all semi-permanent highs and lows tend to shift northward during the summer **T**
2. Air masses are defined by their point of origin. **F Defined by moisture and temperature**
3. There are 5 levels of the Enhanced Fujita Scale. **F F0 to F5 6 total**
4. There are 5 levels of the Saffir-Simpson Scale **T**
5. All microburst are downburst, but not all downburst are microburst. **T**
6. The level directly below a “tropical storm” is called a “tropical disturbance.” **F Tropical Depression**
7. It doesn't have to be raining to experience a flash flood. **T man-made disaster such as a dam breaking**
8. The Venturi Effect explains why it is a bad idea to hide under and underpass from a tornado. **T (similar to putting your thumb over the end of a hose, pressure increases)**
9. The Lemon Technique, combined with radar images, helps determine thunderstorms strength. **T**
10. Hurricane season in the Atlantic Ocean runs from June 1 to November 30. **T**
11. Convergence is associated with low pressure and divergence is associated with high pressure. **F it s the opposite**
12. If both parcels of air are uniform in temperature and volume, the moist air parcel is less dense than the dry air parcel. **T moist air is actually less dense because H2O molecules are lighter than N2 and O2 molecules**
13. The National Weather Service states that the number 1 weather-related killer in the US is heat-related fatalities. **T formerly storm surge/flash flood was number 1**
14. The difference between a dust storm and a sand storm is the size of the particles in the air. **T dust storms/Haboobs can rise to heights of 30,000 ft whereas sand storms are surface issues of usually less than 100 ft.**

15. If the temperature outside is -5°F and the wind chill temperature is -31°F , then your car's radiator temperature will be -31°F **F just -5**
16. A key ingredient to hurricane formation is warm water and a strong upper wind shear. **F weak shear, strong shear will break up rotation**
17. A dart leader is a secondary lightning strike, made up of “leftover” static charges. **T**
18. Generally speaking, the larger the hurricane eye, the more intense the hurricane. **F Smaller eye, more intense. Analogy of the figure skater performing a spin. As they bring their arms closer to their body, the rotation speeds up.**

Special Topics

Question #1, Identify in chronological order (oldest to most recent – 1 oldest, 4 most recent)

Hurricane Sandy ___4___ East Coast Derecho ___2___ Joplin Tornado ___1___ Arizona Haboob ___3___

1. ___4___ - ___2___ - ___1___ - ___3___ (Hurricane Sandy is often referred to as the “Frankenstorm” because of this fact: **Landfall on Halloween**)
2. Primary hazard created by the Arizona Haboob was this: **Near zero visibility, car several car accidents**
3. The Joplin tornado leveled their high school. What event had taken place their less than an hour prior to the tornado touchdown? **HS Graduation**
4. The East Coast Derecho actually started near Chicago, Illinois, effecting more than 13 states with high winds and power outages. What other meteorological “event” intensified its impact on the affected population? **Heat Wave on east coast, temps over 100 degrees, 10 million without power**
5. By definition, a Derecho produces severe storm level winds over a minimum expanse of **240** miles.
6. What was the highest category achieved by Hurricane Sandy. **Cat 3**

Short Answer

1. Rain-shadow side of a mountain range. **Leeward**
2. When warm air is above cold air **Inversion**
3. Scale greater than synoptic **Global**
4. Horizontal, slow spinning cloud behind a gust front **Roll Cloud**
5. Death of a mid-latitude cyclone is called _____. **Dissipating**
6. The “feeler” downward lightning **Stepped Leader**
7. When water at the bodies surface begins to freeze **Frost Bite**
8. The Enhanced Fujita is based on _____, not wind speed. **Destruction**
9. Unique feature of a super-cell vs. non super cell thunderstorms **Rotation**
10. Wind direction is a result of pressure gradient and _____. **Coriolis Effect**
11. Pushes Atlantic hurricanes west to east. **Trade Winds**
12. The birth of a mid-latitude cyclone is called _____. **Cyclogenesis**
13. A low hanging, non-rotating cloud, often mistaken for a developing tornado is a _____ cloud. **Scud**

14. Similar to “Tornado Alley” this Southeast US area often spawns very unique and devastating tornadoes. **Dixie Alley**