Reading Practice Drill #2

Fire Tornadoes

➔ Fire tornadoes—also known as fire whirls, firenados, or fire twisters—look like tornadoes but are made up of fire. Therefore, they aren't really tornadoes at all. Tornadoes are formed when just the right weather elements combine: moist, warm air lying close to the ground; an unstable atmosphere; and air fronts that collide and propel moist air vertically into the sky.

A fire tornado has two parts: the core, which is actually on fire, and an invisible, rotating air pocket. It can reach temperatures of nearly 2,000°F, which is hot enough to even reignite ashes that have been sucked into the vortex from the ground. While real tornadoes occur as a result of atmospheric conditions high above, fire tornadoes result from hot, dry air rising quickly away from the ground. When hot, strong winds come into contact with an already-burning brushfire, updrafts of hot air catch the fire and surrounding winds and send it whirling into the air. This whirling air forms columns; as more and more hot air is pulled into a column, the column begins to swirl, very much like a real tornado.

A fire twister's spinning column creates a vortex thanks to angular momentum. The law of angular momentum states that when an object is inside a spinning column it will move faster and faster the closer it gets to the center of rotation. The fire tornado picks up flaming embers, combustible gases, burning debris, and ash. When sucked up by the firenado, unburned gases travel up the core until they reach an area where there is enough oxygen to ignite them. This ultimately creates a spinning fire tower that can be hundreds of feet tall.

While fire whirls move pretty slowly, they can cause significant damage. Anything—or anyone!—unfortunate enough to be in a fire whirl's path will likely either be set ablaze or flung vigorously from its location. But it's not just the fire that's dangerous—the winds it generates can create wind speeds of more than 100 mph, which is strong enough to knock down trees. Fire whirls also typically don't last very long, but when they do they can wreak havoc and leave disaster in their wakes.

➔ There have been numerous major firenados in the last 150 years, many of which have proved lethal. In 1871, the great Peshtigo Fire in Northeastern Wisconsin and Upper Michigan resulted from inauspicious conditions: dry weather during the summer, slash-and-burn farming practices, and a vigorous cold front that brought strong winds. Together, these three contributing factors created firenados that turned a few small prairie fires into a furious conflagration. The town of Peshtigo, with hundreds of wooden structures and lumberyards, sat in the middle of a forest of pine and hardwood. When the fire reached the town, it found abundant fuel. In just minutes, 100-mph winds and ambient temperatures of more than 700°F caused what is still recognized as the worst fire disaster in the history of the United States. As best as anyone could tell, nearly 2,000 people lost their lives.

More recently, a fire twister was recorded in January 2003 on Mount Taylor in Canberra, Australia. It had a diameter of almost 1,600 feet and winds of more than 160 mph. In April 2016, a fire tornado nearly claimed the life of a firefighter in Alberta, Canada. His team was fighting a blaze that started as an out-of-control campfire. The firefighter's teammate yelled at him to watch out. Without thinking, he jumped in the nearby river, saving his own life.

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45 Unfortunately, we still don't know much about fire twisters. Because they can arise in any part of a fire, there is no way to predict where one might appear. And because they don't usually last very long, it's reasonable to consider that even firefighters can't identify where a fire twister has touched ground. Even with that information, we would still be left with the question of whether the fire caused the vortex or whether the vortex was helped by the fire. Perhaps someday we'll find out!

1. It can be inferred from paragraph 1 of the passage that fire tornadoes

   a. are truly tornadoes
   b. form easily
   c. look like tornadoes
   d. result only from an unstable atmosphere

   Paragraph 1 is marked with an arrow [➔]

2. The word whirling in the passage is closest in meaning to

   a. spinning
   b. working
   c. flying
   d. jumping

3. The word it in the passage refers to

   a. the fire
   b. the air pocket
   c. the fire tornado
   d. the ashes

4. The word reignite in the passage is closest in meaning to

   a. remove
   b. char
   c. quench
   d. light again

5. Which of the following is NOT mentioned as a characteristic of a fire tornado?

   a. Column
   b. Core
   c. Air pocket
   d. Angular momentum

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6. The word vortex in the passage is closest in meaning to

   a. spinning column
   b. angular momentum
   c. unburned gases
   d. center of rotation

7. Which of the following is an example of angular momentum?

   a. A runner running faster the further she runs
   b. A tennis player hitting harder earlier in the game
   c. An ice skater spinning faster as she pulls her arms in to her body
   d. A swimmer swimming faster at a higher altitude

8. The phrase flung vigorously in the passage is closest in meaning to

   a. burned quickly
   b. moved slowly
   c. thrown forcefully
   d. tossed gently

9. The author implies that

   a. fire whirls don't move quickly
   b. fire whirls don't cause damage
   c. fire whirls can't knock down trees
   d. fire whirls can last for days

10. The phrase wreak havoc in the passage is closest in meaning to

    a. start sizeable fires
    b. last forever
    c. move quickly
    d. cause significant damage

11. According to paragraph 5 of the passage, firenados

    a. have happened more than once
    b. have never been documented
    c. first occurred in Peshtigo
    d. are always lethal

Paragraph 5 is marked with an arrow [➔]

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12. The word inauspicious in the passage is closest in meaning to

    a. lucky
    b. fortunate
    c. unlucky
    d. dangerous

13. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. This question is worth 2 points.

    A firenado is one example of a natural phenomenon that is as uncommon as it is dangerous.

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Answer Choices	
Firenados require a unique combination of conditions in order to occur.	A firefighter escaped a firenado by jumping in a river.
Firenados suck up ashes and gases into their core.	Scientists don't know much about firenados because it is hard to predict where or when they will occur.
Firenados can cause significant damage.	The firenado in Peshtigo was the first firenado on record.

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