



2022 Middle School National  
Championship Tournament  
Packet 1

Questions

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1. A 1386 treaty of this name established the oldest alliance in the world between England and Portugal. St. George's Chapel is in a castle of this name in Berkshire [BARK-shur]. The House of Saxe-Coburg and Gotha [GOH-tuh] (\*) changed its name to—for 10 points—what name of the current royal house of Britain?

answer: Windsor (accept Treaty of Windsor or Windsor Castle or House of Windsor or Windsors)

<556444>

1. A British organization for members of this field publishes a journal called *Ibis* ["EYE"-biss]. For 10 points each—

A. Name this branch of zoology that studies birds.

answer: ornithology [OR-nih-THAH-luh-jee] (accept ornithologists)

B. Before 2021 a journal now called *Ornithology* was named after this flightless bird that went extinct in the 19th century. It lived in coastal areas of the North Atlantic, including Canada and Iceland.

answer: great auk [awk] (or Pinguinus impennis; accept The Auk[: Ornithological Advances])

C. A sister journal, also renamed *Ornithological Applications* in 2021, was previously named for this type of vulture. This bird's "California" species has the largest wingspan of any bird in North America.

answer: condor (accept California condor; accept The Condor[: Ornithological Applications])

<560059>

2. At the end of this novel, Granger recalls the myth of the phoenix after observing a nuclear strike. After reciting "Dover Beach," this novel's protagonist is told to destroy his house by Captain (\*) Beatty [BAY-tee]. Guy Montag works as a "fireman" who burns books in—for 10 points—what Ray Bradbury novel?

answer: Fahrenheit 451

<557070>

2. Many authors have voiced a debt of gratitude to Edgar Allan Poe. For 10 points each—

A. This creator of Sherlock Holmes said that Poe's character C. Auguste Dupin ["C" oh-GOOST doo-pan] "breathed life" into detective fiction.

answer: Arthur (Ignatius) Conan Doyle

B. An acrostic [uh-"CROSS"-tik] poem dedicated to Poe is among the rare poems by this horror author, who is better known for creating the evil deity Cthulhu [kuh-THOO-loo].

answer: H. P. Lovecraft (or Howard Phillips Lovecraft)

C. This author of the novel *It* claims that Poe "wasn't just a mystery-suspense writer. He was the first."

answer: Stephen (Edwin) King

<474778>

3. In 2018 this country unveiled the largest statue in the world, a depiction of a former deputy prime minister called the Statue of Unity in its state of (\*) Gujarat [GOO-juh-rahht]. Shah Jahan [juh-HAHN] used marble in a mausoleum [maw-zuh-LEE-um] complex for his wife near Agra [AH-gruh] in—for 10 points—what country that contains the Taj Mahal [TAHZH muh-"HALL"]?

answer: India (or Republic of India or Bharat(iya) Ganarajya) [The Statue of Unity depicts Vallabhbhai Patel.]

<555262>

3. For 10 points each—answer the following about the delta of the Danube River:

- A. Most of the Danube delta lies in this Eastern European country, which contains the historical regions of Moldavia [mohl-DAY-vee-uh] and Wallachia [wah-LAY-kee-uh].

answer: Romania

- B. The Danube River empties into this sea north of Turkey.

answer: Black Sea

- C. The Danube's delta is the second-largest in Europe; the largest river delta is that of this river, the longest in Europe, which empties into the Caspian Sea.

answer: Volga River

&lt;534643&gt;

4. **This president ordered the firing of special prosecutor Archibald Cox in the "Saturday Night Massacre." Carl Bernstein and Bob Woodward (\*)** investigated this president with help from the informant "Deep Throat." For 10 points—what president resigned in 1974 as a result of the Watergate scandal?

answer: Richard M(ilhou)s Nixon

&lt;537565&gt;

4. For 10 points each—answer the following about the various ways in which french fries are prepared:

- A. Gravy and cheese curds are poured over french fries in this dish, which is especially popular in Canada.

answer: poutine [POO-teen]

- B. In the Netherlands, fries are most commonly dipped in this condiment made from oil and egg yolks.

answer: mayonnaise

- C. In 2016 McDonald's restaurants in Japan began selling fries coated with this ingredient, which forms the outer layer of Pocky.

answer: chocolate

&lt;529160&gt;

5. **This team set a NFL playoff record with 28 first-quarter points in a January 2021 win over the Pittsburgh Steelers. This team reached the playoffs in 2020 three years after it lost (\*)** all 16 games it played in 2017. Baker Mayfield is the quarterback of—for 10 points—what NFL team in Ohio?

answer: Cleveland Browns (accept either underlined portion)

&lt;534031&gt;

5. This person was known as the "Maid of Orléans" [orr-lee-OWN]. For 10 points each—

- A. Name this person canonized in 1920, centuries after being burned at the stake by a pro-English bishop in 1431.

answer: (Saint) Joan of Arc (or Jeanne d'Arc; prompt on "Joan" or "Jeanne")

- B. Joan of Arc's birthplace at Domrémy [dohm-ray-MEE] is now located in this European country.

answer: France (or French Republic or République française)

- C. Joan assisted a French king with this name in reaching his coronation ceremony. The tenth French king with this name was overthrown in the July Revolution.

answer: Charles (accept Charles VII ["the seventh"] or Charles X ["the tenth"] or Charles-Philippe)

&lt;534063&gt;

6. **This plant family includes a night-blooming cereus [SIR-ee-uss] pollinated by bats. Plants in this New World family are mostly succulents ["SUCK-you-lints"] to help them (\*)** conserve water. The saguaro [suh-WAH-roh] belongs to—for 10 points—what family of plants which often have spines instead of leaves and usually grow in dry areas?

answer: cactuses (or cacti; accept Cactaceae)

&lt;556747&gt;

6. In the Gospel of John, this figure says “unless you see signs and wonders, you will not believe.” For 10 points each—
- A. What subject of the Gospels performs miracles including exorcisms, feeding a multitude, and walking on water?  
answer: Jesus (the) Christ (or Jesus of Nazareth or Yesua or Yeshua or Iesous; accept any underlined portion)
- B. Jesus miraculously turns water into wine while visiting this kind of celebration at Cana [KAY-nuh].  
answer: wedding (accept marriage ceremony; accept wedding feast or marriage feast; prompt on “feast”)
- C. Jesus tells Peter that he will find a coin for paying the tax of the temple at Capernaum [kuh-PUR-nay-um] in the mouth of one of these animals. Peter’s previous profession involved capturing these animals.  
answer: fish
- <538244>
7. **The final stanza of this poem notes that “all the world wondered” at the achievement of the title group, which is ordered to move “half a (\*) league onward.” “Into the valley of Death / rode the six hundred” is a refrain in—for 10 points—what poem by Alfred Tennyson set during the Crimean War?**  
answer: The Charge of the Light Brigade
- <534877>
7. The name of these features comes from a Norse word for “to gush.” For 10 points each—
- A. Name these geologic features that intermittently erupt superheated water and steam.  
answer: geysers [“GUY”-zurs]
- B. A geyser is a dramatic example of this geologic feature, which is a point where groundwater from an aquifer flows directly out on the surface.  
answer: spring(s) (accept hot springs)
- C. Geyserite [“geyser”-ite], which forms in the pipes of geysers, is mostly made up of this mineral. This material common in sand is often made into moisture-reducing, gel-like beads.  
answer: silica (accept silicon dioxide; prompt on “quartz” or “SiO<sub>2</sub>”; do not accept or prompt on “silicate(s)”)
- <534184>
8. **On the shores of this lake, the Nordhouse Dunes Wilderness is in Manistee National Forest. A strait connecting to this lake which is called “Death’s Door” is the namesake of Door (\*) County, Wisconsin. For 10 points—the shores of what Great Lake are home to the cities of Milwaukee and Chicago?**  
answer: Lake Michigan
- <560216>
8. As of April 2022, there are less than 40 inmates at this location. For 10 points each—
- A. Name this detention camp created in 2002 during the “War on Terror.” Located in the Caribbean, this place remains open despite calls for the president to shut it down.  
answer: Guantánamo [gwahn-TAH-nah-moh] Bay detention camp (accept Gitmo; accept Camp Delta)
- B. The Guantánamo Bay camp is on this island, which an American-backed force attacked in the Bay of Pigs invasion.  
answer: Cuba (or Republic of Cuba or República de Cuba)
- C. This other prison was central to an Iraq War scandal in which U.S. soldiers were photographed mocking and torturing naked prisoners.  
answer: Abu Ghraib [AH-boo GRAYB]
- <480764>
9. **The SI base unit for this quantity is defined in terms of the hyperfine [“hyper-fine”] transition of cesium-133 [SEE-zee-um “one thirty-three”]. Special relativity is set in a four-dimensional manifold that combines (\*) space and this quantity. Distance traveled equals speed multiplied by—for 10 points—what quantity measured in seconds?**  
answer: time (accept spacetime after “space”; do not accept or prompt on “second(s)”)
- <559737>

9. For 10 points each—name these countries with unusual flags:

- A. Mount Everest is on the border of China and this country, which features the world's only non-quadrilateral [kwahd-ruh-LAT-uh-rul] flag.

answer: Nepal (or Federal Democratic Republic of Nepal or Sanghiya Loktantrik Ganatantra Nepal)

- B. An AK-47 is featured on the flag of this country, which shares its name with the channel separating Madagascar from mainland Africa.

answer: Mozambique [moh-zam-BEEK] (or Republic of Mozambique or República de Moçambique; accept Mozambique Channel)

- C. In 2009 this country adopted a dual flag called the Wiphala [wih-PUH-luh] to represent its indigenous people. The colonial Spanish silver mines at Potosí [poh-toh-"SEE"] were in what is now this country.

answer: Bolivia (or Plurinational State of Bolivia or Estado Plurinacional de Bolivia)

10. **This hero gave up control of Argos [AR-gohss] to his cousin Megapenthes ["mega"-PEN-theez] after accidentally killing his own grandfather Acrisius [uh-KRIH-see-us] with a discus. This hero carried a helm of (\*) invisibility and a reflective shield when he decapitated a Gorgon. For 10 points—name this hero who slew Medusa.**

answer: Perseus [PUR-see-uss]

10. In 2019 a brick thrown by protestors killed janitor Luo Changqing [loo-OH chang-CHING] in this city. For 10 points each—

- A. Name this “special administrative region” that is currently led by Carrie Lam, who in April 2022 announced she would not seek another term.

answer: Hong Kong (or Hong Kong Special Administrative Region or Xianggang Tebie Xingzhengqu)

- B. The protests were sparked by a bill that would have added China to the list of countries with which Hong Kong could engage in this legal process.

answer: extradition (accept extradite or extraditing; do not accept or prompt on “deportation”)

- C. Despite the protests, this president of China ensured the passage of the Hong Kong National Security Law in June 2020.

answer: Xi Jinping [shee jin-peeng] (or Xi Jinping; do not accept or prompt on “Jinping”)

11. **After this monarch's envoys were killed by Shah Muhammad II, this man's general Subutai [SOO-buh-"tie"] brutally conquered the Khwarazmian [kwah-REZ-mee-un] Empire. This man's third son, (\*) Ogedei [OH-guh-dye], finished off the conquest of the Jin Dynasty that this man started in 1211. For 10 points—name this founder of the Mongol Empire.**

answer: Genghis Khan [GENG-giss kahn] (or Chingis Khan or Jenghiz Khan or Borjigin Temüjin [TEM-oo-jin] or Yuan Taizu or Fatian Qiyun Shengwu)

11. This illness is sometimes colloquially called “hydrophobia.” For 10 points each—

- A. Name this disease transmitted by the bite of an infected mammal.

answer: rabies

- B. In the 1800s this French scientist developed the first effective human vaccine for rabies with Émile Roux [ay-meel ROO]. He also advanced the germ theory of disease.

answer: Louis Pasteur [LOO-ee pass-TUR]

- C. Pasteur and Roux also developed the first vaccine for this bacterial infection, whose name refers to the coal-black lesions it forms on the skin. Sheep are particularly susceptible to this disease.

answer: anthrax (accept Bacillus anthracis)

12. **This type of mathematical construct can be called “telescoping” if most of its terms can be canceled. If the partial sums of this type of construct approach a (\*) limit, it is called “convergent.” For 10 points—name this type of mathematical construct formed by adding the terms of a sequence.**

answer: infinite series (accept telescoping series; do not accept or prompt on “sequence”)

12. In 2021 a book named for this street was withdrawn from publication by the author's estate, due to "hurtful" imagery. For 10 points each—

A. In a 1937 children's book, Marco imagines an increasingly fantastical procession along what title street?

answer: Mulberry Street (accept And to Think That I Saw It on Mulberry Street)

B. *And to Think That I Saw It on Mulberry Street* was the first children's book by this writer and illustrator, who later wrote *The Cat in the Hat*.

answer: Dr. Seuss [sooss or soyss] (or Theodor Seuss Geisel)

C. The second children's book by Dr. Seuss was named for this boy, whose "500 Hats" incur the wrath of King Derwin.

answer: Bartholomew Cubbins (accept either underlined portion; accept The 500 Hats of Bartholomew Cubbins)

&lt;534092&gt;

13. **In 2022 unrest spread from this country's city of Zhanaozen [ZAH-"now"-ZEN] after it ended price caps on gas. Kassym-Jomart Tokayev's [kah-SEEM yoh-MART TOH-kah-yev's] regime shot protesters in this country who opposed its ex-president (\*) Nursultan Nazarbayev [noor-sul-TAHN nah-zar-"BYE"-eff].** For 10 points—name this central Asian nation led from a city once named Astana [ah-stah-NAH].

answer: Kazakhstan [KAH-zak-stan] (or Republic of Kazakhstan or Qazaqstan Respublikasy) [Kazakhstan's capital is now known as "Nur-Sultan" to honor former president Nazarbayev.]

&lt;553364&gt;

13. This religious movement began in the early 1900s with the Azusa [ah-ZOO-suh] Street Revival. For 10 points each—

A. The fastest-growing religious movement in the world is what evangelical Protestant movement whose practices include speaking in tongues?

answer: Pentecostalism (accept (classical) Pentecostal movement or Pentecostals)

B. The Azusa Street Revival took place in this most populous city in Southern California.

answer: Los Angeles, California (or L.A.)

C. Pentecostalism arose from the teachings of this man and his brother Charles, who were the British co-founders of the Methodist church.

answer: John Wesley

&lt;560597&gt;

14. **This constitutional amendment is the only ratified one to be signed by the president. This amendment banned practices like peonage [PEE-uh-nidge] "except as a punishment for (\*) crime."** The first "Reconstruction" amendment was—for 10 points—what 1865 amendment that abolished "involuntary servitude" and slavery?

answer: Thirteenth Amendment (or Amendment 13; accept 13th)

&lt;537116&gt;

14. The wheel on the center of the Indian flag symbolizes this concept. For 10 points each—

A. Name this Hindu concept which refers to living in proper accord with the cosmic order.

answer: dharma [DAR-muh]

B. Dharma is also one of the Three Jewels of this Indian religion founded by Siddhartha Gautama.

answer: Buddhism (accept Buddhist religion; accept branches such as Mahayana or Theravada Buddhism)

C. One of the earliest references to dharma occurs in this oldest of the Vedas [vay-duz], which begins with the Gayatri ["GUY-uh-tree"] mantra.

answer: Rigveda [RIG VAY-duh]

&lt;538062&gt;

15. **Pencil and paper ready. Amy needs to know how many nickels she has, given she has 3 times as many pennies as nickels, and the total value of her coins is 48 cents. By expressing the number of nickels as  $x$  and the number of pennies as  $3x$ , she computes (\*)** —for 10 points—what number of nickels?

answer: 6 nickels (and 18 pennies) [One nickel and its accompanying 3 pennies are worth  $5 + 3 = 8$  cents; there must be  $48/8 = 6$  such groups, and thus 6 nickels.]

&lt;557751&gt;

15. This epoch's name comes from Greek words meaning "whole" and "new." For 10 points each —

- A. Name this geological epoch that followed the Pleistocene ["PLY"-stuh-"seen"] and which most scientists reckon we are still currently in.

answer: Holocene [HAH-luh-seen] Epoch

- B. "Holocene" is a song by this indie folk band whose debut album is called *For Emma, Forever Ago*. This band fronted by Justin Vernon is featured on Taylor Swift's song "Exile."

answer: Bon Iver [bohn ee-VAIR]

- C. The later part of the Holocene is sometimes called the Anthropocene [ANN-thruh-puh-SEEN] due to the impact of this species on the world's ecosystems.

answer: modern humans (or Homo sapiens)

&lt;560124&gt;

16. **In one game, this character fights robots called EMMIs ["Emmys"] and Raven Beak, a Chozo [CHO-zoh] leader. The planet Zebes [ZEE-beez] explodes after a fight between Mother (\*) Brain and this woman, whose Power Suit can form a Morph Ball. A 2021 game partly named *Dread* stars—for 10 points—what hero of the *Metroid* series?**

answer: Samus Aran [SAM-iss "AIR"-in] (accept either underlined portion; accept Zero Suit Samus)

&lt;556752&gt;

16. This composer's dissatisfaction with the helicon [HEL-ih-"con"] led to the creation of his namesake variant of the tuba. For 10 points each —

- A. Name this composer of works named after *The Washington Post* and the Marine Corps motto "Semper Fidelis" [SEM-pur fih-DEH-liss].

answer: John Philip Sousa (prompt on "sousaphone" by asking "Who's the composer?")

- B. Sousa was dubbed the "king" of this genre often performed by military bands.

answer: march(es) (accept March King)

- C. This Sousa march, originally intended for his operetta [ahp-uh-RET-uh] *The Devil's Deputy*, was renamed after a U.S. landmark. It was later used as the theme tune for *Monty Python's Flying Circus*.

answer: Liberty Bell March

&lt;560228&gt;

17. **This animal's "dynamism" [DYE-nuh-mizm] titles a Futurist painting by Giacomo Balla [JAH-koh-moh BAH-lah]. One of these animals sleeps at the feet of the *Venus of Urbino*. A (\*) *Friend in Need* is one of a series that anthropomorphizes these animals. For 10 points—Cassius Marcellus Coolidge painted what animals "playing poker?"**

answer: dogs (accept Dynamism of a Dog on a Leash or Dogs Playing Poker)

&lt;545749&gt;

17. The gamma function shifts and extends this function to complex numbers. For 10 points each —

- A. Name this function that, for a positive integer  $n$ , is defined as " $n$ , times  $n$  minus 1, times  $n$  minus 2, and so on down to 1."

answer: (n) factorial function

- B. The factorial function is denoted by this punctuation mark.

answer: exclamation point or exclamation mark (accept bang)

- C. This is the only value that is the result of the factorial function for two different numbers.

answer: 1 [ $0! = 1! = 1$ ]

&lt;555595&gt;

18. **Studies of this body led to predictions of an unseen body by John Couch Adams and Urbain Le Verrier**

[oor-BAN luh vair-YAY]. **Shakespearean characters name many of this planet's (\*) moons, such as Miranda and Oberon [OH-bur-ahn]. An axial tilt of over 90 degrees is exhibited by—for 10 points—what seventh planet from the Sun?**

answer: Uranus [Adams and Le Verrier independently predicted the existence of Neptune before its discovery, based on its gravitational effects on Uranus's orbit.]

&lt;556832&gt;

18. For 10 points each—answer the following about the Battle of Actium [AK-tee-um]:

A. This future Roman emperor's fleet won the battle.

answer: Augustus Caesar (or Caesar Augustus or Octavian or Gaius Octavius or Gaius Julius Caesar Octavianus; do not accept or prompt on "(Julius) Caesar")

B. At Actium, Augustus's forces defeated his former ally Mark Antony, who was supported by this Egyptian queen.

answer: Cleopatra (VII Philopator)

C. While Octavian and Mark Antony were allies, they joined with Lepidus [LEP-ih-duss] to form this group of rulers.

answer: Second Triumvirate ["try"-UM-vih-rut] (prompt on "triumvirate")

&lt;447329&gt;

19. **In this city, Ellen Gates Starr founded a charitable institution based on London's Toynbee Hall that was later led by Jane Addams. (\*)** Hull House formed in this city in 1911, 40 years after it was mostly destroyed in a disaster blamed on Mrs. O'Leary's cow. For 10 points—name this Midwest city.

answer: Chicago, Illinois (accept Great Chicago Fire)

&lt;450142&gt;

19. This writer criticized "meaningless words" in his essay *Politics and the English Language*. For 10 points each—

A. Name this author who invented the word "doubleplusgood" ["double-plus-good"] for a novel set in the totalitarian [toh-tal-ih-TAIR-ee-un] state of Oceania [oh-shee-AY-nee-uh].

answer: George Orwell (or Eric Arthur Blair)

B. Oceania is the setting of this Orwell novel, which also introduced the words "doublethink" ["double-think"] and "unperson" ["un-person"]. This novel is named for a year.

answer: Nineteen Eighty-Four (or 1984)

C. In *Nineteen Eighty-Four*, "doubleplusgood" is an example of this restricted form of English, which the government imposes so dissent will become "literally unthinkable."

answer: Newspeak ["new-speak"]

&lt;545769&gt;

20. **In 2021 scientists proposed using this body to store an "ark" with the DNA of 6.7 million species. The billionaire Yusaku Maezawa [yoo-sah-koo mah-eh-zah-wah] plans to use a (\*)** SpaceX ["space-X"] craft to fly around this body. In 2020 China's Chang'e [chang-uh] 5 spacecraft landed on—for 10 points—what natural satellite of Earth?

answer: (Earth's) Moon (or Luna)

&lt;535082&gt;

20. For 10 points each—answer the following about H II ["H two"] regions:

A. They are examples of the "emission" type of these large clouds of gas found in galaxies. Their name comes from the Latin for cloud.

answer: nebulae or nebulae (accept emission nebulae or nebulae)

B. The phrase "H II" indicates that H II regions contain hydrogen in this state. It typically requires 13.6 eV ["E-V"] of energy to shift an atom of hydrogen to this state.

answer: ionized (accept answers indicating that the hydrogen is ionized or has lost an electron; accept H<sup>+</sup>; prompt on answers indicating "(the hydrogen is electrically) charge(d)"; do not accept or prompt on "excited")

C. H II regions are often found where these objects have recently formed. They include red dwarfs and blue supergiants.

answer: stars

&lt;560177&gt;

21. **In a 1748 work, this man divided governments into republics, monarchies, and despotisms. This man's treatise *The Spirit of the Laws* influenced the structure of the U.S. Constitution.** A (\*) separation of powers into three branches of government was proposed by—for 10 points—what French baron?

answer: Montesquieu [MAHN-tess-"skew"] (or Charles-Louis de Secondat, baron de la Brède et de Montesquieu)

&lt;559995&gt;

21. In 1982 chemist Leo Paquette synthesized a compound with formula  $C_{20}H_{20}$  ["C twenty H twenty"] whose carbon atoms form the vertices of one of these solids. For 10 points each—

A. Name this Platonic solid that has twelve faces.

answer: (regular) dodecahedron [doh-DEK-uh-HEE-drun] [ $C_{20}H_{20}$  is called dodecahedrane.]

B. A large dodecahedron appears in *Reptiles*, a lithograph depicting tessellation [teh-suh-LAY-shun] by this Dutch artist. His print *Relativity* depicts unusually arranged doors and staircases.

answer: M. C. Escher [EH-shur] (or Maurits Cornelis Escher)

C. A character named the Dodecahedron leads the protagonists to the court of the Mathemagician in Digitopolis in this 1961 novel.

answer: The Phantom Tollbooth [by Norton Juster]

&lt;560387&gt;

22. **This adjective describes “love” in the title of a 1964 John Coltrane album. In the title of the head of state of Iran, this adjective modifies “leader.” In the name of a Taco Bell menu item, this adjective follows (\*)** “Crunchwrap.” For 10 points—what adjective describes the U.S.’s highest court?

answer: supreme (accept A Love Supreme or Supreme Leader or Crunchwrap Supreme or Supreme Court)

&lt;560063&gt;

22. This man was known as the “Hero of the Two Worlds” for his roles in both the French Revolution and the American Revolution. For 10 points each—

A. Name this French marquis [mar-KEE], who received a serious leg wound at the Battle of Brandywine.

answer: Marquis de Lafayette [lah-“fie”-ET] (or Marie-Joseph Paul Yves Roch Gilbert du Motier)

B. Lafayette and George Washington forced the surrender of Charles Cornwallis at this final major engagement of the American Revolutionary War.

answer: Battle of Yorktown (or Siege of Yorktown)

C. The first joint operation between American and French forces was an indecisive siege of Newport, an important port in this New England state.

answer: Rhode Island (accept RI [“R-I”]; accept Battle of Rhode Island)

&lt;458846&gt;

23. **While developing a numerical model to perform this task, Edward Lorenz [loh-RENZ] pioneered chaos theory and proposed the “butterfly effect.” “Nowcasting” is a short-term form of this task. It is often aided by data from (\*) NOAA [“noah”] supercomputers.** For 10 points—identify this predictive task in meteorology.

answer: weather forecasting (accept atmospheric modeling; accept answers indicating forecasting the weather or predicting the weather or modeling the atmosphere; prompt on partial answers; prompt on “meteorology” before “meteorology”)

&lt;560081&gt;

23. Pencil and paper ready. For 10 points each—answer these questions about an urn holding 7 purple marbles, [pause] 8 blue marbles, [pause] and 1 white marble:

A. If a single marble is randomly drawn, what is the probability that it is blue?

answer: 1/2 or 50% or 0.50 or 1 in 2 [There are  $7 + 8 + 1 = 16$  total marbles, of which 8 are blue;  $8/16 = 1/2$ .]

B. How many white marbles need to be *added* to raise the probability of drawing a white marble to one-fourth, or 25 percent? You have 10 seconds.

answer: 4 white marbles [There is currently 1 white marble out of 16. If  $w$  is the number of white marbles added,  $(1 + w)/(16 + w) = 1/4$ , so  $4 + 4w = 16 + w$ , so  $3w = 12$ , and  $w = 4$ .]

C. What *minimum* number of purple marbles must be added to raise the probability of drawing a purple marble to a value *strictly greater than* the probability of drawing a blue marble?

answer: 2 purple marbles [This requires having more purple marbles than blue marbles; adding 1 purple would make their count equal (8 each), but adding 2 would yield a greater number of purple marbles (9 versus 8).]

&lt;536160&gt;

24. **This book’s protagonist finds a stick that is “just right for smacking” a tree before he goes sliding. Its collage [koh-LAHZH] illustrations received a 1963 Caldecott [“CALL-duh-cot”] Medal, a first for a book with a (\*) Black protagonist.** Peter plays outdoors in—for 10 points—what Ezra Jack Keats book set during winter?

answer: The Snowy Day

&lt;560388&gt;



24. This state's Senate Bill 8, which was signed into law in 2021, allows private citizens to file a lawsuit against anyone who assists a pregnant woman in getting an abortion after six weeks. For 10 points each —

A. Name this state led by Greg Abbott.

answer: Texas (accept TX ["T-X"])

B. The law as passed is named for this physical process, because it bans abortions after this is detectable. North Dakota passed the first such law in 2013.

answer: heartbeat (accept Texas Heartbeat Bill; accept answers that refer to the heart beating)

C. In April 2022 this northeastern state, which is led by Ned Lamont, introduced a law that would prevent state courts from enforcing judgments under the Texas law.

answer: Connecticut (accept CT ["C-T"])

<560008>