

Governor's School Academic Competition XXV

Round 8

TOSSUPS

1. **Mozart's seventh concerto for this instrument is uniquely scored for three of them. Beethoven's final concerto for one of these instruments contains a G-E flat-C-B flat theme in its first movement, and the Vienna premiere of that work was given by Carl (*) Czerny.** One piece for a solo one of these instruments begins with repetition of arpeggiated C-sharp minor triads. Concertos for this instrument include ones in D minor and C minor by Rachmaninoff and one by Beethoven nicknamed "Emperor". For 10 points, name this keyboard instrument that has three pedals and 88 keys.

ANSWER: pianoforte

2. **Megalocornea 1 and adrenoleukodystrophy are disorders linked to this structure. CGG trinucleotide repeats in this structure partially methylate the FMR1 gene, causing the namesake "fragile" syndrome of this chromosome. The inactivation of one of these in a human female, called (*) lyonization, results in a Barr body. Klinefelter's syndrome affects males who inherit two of these structures, and Turner syndrome affects females who inherit one. Hemophilia and red-green color blindness are recessive diseases of this chromosome.** For 10 points, name this sex chromosome, of which females have two and males have one.

ANSWER: X chromosome [prompt on "chromosome"]

3. **When this artist wrote critical letters to his enemies, his signature gained a scorpion's tail. One of his works depicts a red-haired woman sitting with two darkly-dressed men in front of the bustling activity of barges on the Thames; that work is *Wapping*. Another one of his works was likened to (*) "flinging a pot of paint in the public's face," inflaming him to pursue a libel case with the critic John Ruskin. To simulate feathers, he repeated an Asian wave pattern across the ceiling of The Peacock Room. For 10 points, name this American artist who painted *Nocturne in Black and Gold: Falling Rocket* and *Arrangement in Grey and Black No. 1*, also known as *[This Artist's] Mother*.**

ANSWER: James Abbott McNeill Whistler

4. **The perpetrators of this event were exonerated as a result of Plenty Horses' acquittal. The day following this event, the 9th Cavalry "Buffalo soldiers," had to rescue the 7th Cavalry. This event began after a deaf man refused to turn over his (*) rifle. Two weeks after this event, the Drexel Mission Fight, saw "hostiles" from the Rosebud come over to the Pine Ridge Reservation, where this event took place. This event largely ended the Ghost Dance movement, which was founded to resist white expansionism. For 10 points, name this massacre of 1890 that caused the deaths of up to 300 Lakota Sioux.**

ANSWER: Wounded Knee Massacre [accept Battle of Wounded Knee]

5. **A theorem interchanging the order of one type of this operation is named after Clairaut, and the divergence of a field equals the sum of all the values of this operation. The coefficient of the nth term in a Taylor series is the nth order of (*) this operation over n factorial. Calculating a curve's arc length involves the square root of one plus the square of this operation. It equals zero at critical points, and applying this operation on velocity with respect to time gives acceleration. For 10 points, name this operation often calculated by the chain rule that gives the instantaneous rate of change at a point.**

Answer: derivative [accept differentiation; accept partial derivative before "Taylor"]

6. **A formal declaration of war and preparations for this battle began after the opposing leader's will was published by the traitor Plancus. Before this battle, one leader traveled as far upland as Corsica, before retiring to winter at Patrae, while most of his forces were at the Ambracian Gulf. The "Liburnian" (*) vessels of the winning side of this battle outmaneuvered the opposition's quinqueremes and quadriremes. The commander Agrippa led those forces to victory in this battle. For 10 points, name this 31 BC naval battle, in which Octavian's forces defeated those of Marc Antony and Cleopatra.**

ANSWER: Battle of Actium

7. **This philosopher was influenced by Jean Bodin in his theory of indivisible sovereignty. In one work, this man argues that the only thing we can know about God is that He exists, prompting critics to label this man an atheist. This man produced his most famous work while in exile in the Netherlands during the (*) English Civil War, and argued for an absolute sovereign to govern based on a social contract. This philosopher characterized life in a state of nature as "war of all against all" and, most famously, "solitary, poor, nasty, brutish, and short". For 10 points, name this English political philosopher and author of *Leviathan*.**

ANSWER: Thomas Hobbes

8. **A character in one work by *this author* is frustrated that there are only twelve rhymes for the word "rod" while its protagonist lies about having razors. This person admonishes the overuse of foreign phrases and cliché metaphors in one essay and in another, he describes how he brought a (*) Winchester rifle to carry out the title action and "avoid looking a fool". The protagonist of his most famous novel learns that Charrington is part of the Thought Police and is tortured with rats by O'Brien in Room 101. For 10 points, name this English author of "Shooting an Elephant" and the dystopian novel *1984*.**

ANSWER: George Orwell [accept Eric Arthur Blair]

9. **In this play, one character interrupts the prologues of another by repeating the phrase, "lost his little flask of oil." In this play, a slave who has to walk around a lake instead of taking a ferry changes clothes with his master, who is dressed like Heracles. A scale is used to measure the (*) "weightiest lines" in another scene in this play, and the slave Xanthias argues over which jokes should open the play at the beginning. The chant "brekekekex koax koax" is heard by the title creatures as Dionysus travels to the underworld to judge a contest between Aeschylus and Euripides in, for 10 points, what comedy by Aristophanes?**

ANSWER: The Frogs

10. **An assassination attempt was made on two members of this family by the rival Salviati and Pazzi families during an Easter service. One ineffectual ruler from this family carried the epithet “the gouty”, and a woman of this family married the son of Pope (*) Innocent VIII for political reasons. This family first accrued wealth via the textile trade and gained political power away from their early rivals, the Albizzis. Popes Leo X, Leo XI, and Clement VII were members of this family. For 10 points, name this wealthy Italian banking family which ruled Florence during the Renaissance.**

ANSWER: Medici family

11. **In one chapter of this book, a vignette of a turtle crossing the road is told. In this novel, Ivy and Sairy Wilson offer their tent to the protagonist’s Grandfather, who soon passes away. A service station attendant buries a dog in this novel, at the request of the pregnant wife, (*) Rose of Sharon. That character is later abandoned by her husband Connie. The protagonist of this work kills a man with an axe and becomes a fugitive after witnessing the death of the preacher Jim Casey. For 10 points, name this novel about the Joad family’s journey to California during the Dust Bowl, written by John Steinbeck.**

ANSWER: *The Grapes of Wrath*

12. **Regarding this structure, the architect Louis Kahn once remarked, “The sun did not know how beautiful its light was until it was reflected off this building.” Inspired by the subtle grain of Japanese ceramics, the designer of this building hired Hōganäs to create similar clay tiles to match both his vision and his (*) “Spherical Solution” for the roof of this building. The architect Peter Hall made changes to the interior design of the auditorium seating in this building, to fit legal requirements. Jørn Utzon designed, for 10 points, what building with white, sail-like, interlocking arches, located in Australia?**

ANSWER: Sydney Opera House

13. **The Northern plains region of this country contains Lake Rudolf and another of its regions is the White Highlands. This nation’s Ukambani region is home to a large Kamba population, and several smaller rivers in this country begin in the foothills of the Eastern Highlands in the (*) Tana River basin. This country’s namesake mountain is the second-tallest in Africa. This country home to the Kikuyu and is bordered to the south by Tanzania and has its largest trading port at Mombasa. For ten points, name this country on the eastern coast of Africa that has its capital at Nairobi.**

ANSWER: Kenya

14. **In one episode of this show, Johnny Fairplay lies about his grandmother dying. Another person on this show buries a pair of shorts, forcing Phillip Sheppard to wear his pink underwear. One person in this show ends up paying \$500 for a rock rather than an advantage at the Cagayan auction. (*) Fan favorites on this show include Ozzy and Boston Rob, who finally won in the *Redemption Island* season. Participants in this show can use immunity idols to save themselves from being voted out. Jeff Probst hosts, for 10 points, what CBS reality show whose motto is “Outwit, Outplay, Outlast”?**

ANSWER: Survivor

15. **This empire used both the mansabdar and jagirdar systems to raise troops for the army and taxes for the treasury. The founder of this empire achieved a major victory in a battle in which he used cannons to scare war elephants. Nadir (*) Shah defeated this empire at the Battle of Karnal. One emperor created a hybrid religion called Din-i Ilahi, while other emperors, such as Aurangzeb, discouraged the free practice of Hinduism. For 10 points, name this Indian empire founded by Babur, whose leader Shah Jahan built the Red Fort and the Taj Mahal.**

ANSWER: Mughal Empire

16. **Chapter 40 of this book describes a monster that can “draw the whole Jordan into a mouth.” Saint Thomas Aquinas thought that the behemoth of this book of the Tanakh was an elephant. In the Ketuvim [kuh-too-VEEM], this book is last of the poetry, before the Five Megillot [muh-GIL-uh]. In the Old Testament, this book precedes (*) Psalms. A man in this book exclaims “man is born unto trouble, as the sparks fly upwards” in response to his friend Eliphaz. For 10 points, name this book whose title character is tormented by Satan with God’s permission.**

ANSWER: The Book of Job [accept Iyov]

17. **This author acknowledges the Lady Truth in the preface of a secret dialogue between himself and St. Augustine. This author delivered the “Coronation Oration” when he became poet laureate and his two collections of letters, which included the “Letter to Posterity”, were inspired by the (*) Cicero letters he discovered in 1345. The first poem of a 366-poem collection by this man addresses a woman who “[hears] the sound in scattered rhymes”. For 10 points, name this Italian Humanist who wrote about his love for Laura in the poetry collection *Il Canzoniere* and is the namesake of a type of sonnet.**

ANSWER: Petrarch [accept Francesco Petrarca]

18. **Rotational invariance is the associated symmetry of this quantity by Noether’s theorem. The quantum operator for this quantity equals negative $i \hbar$ times the cross product of radius and the gradient. Torque is equal to the time derivative of this quantity which is equal to the (*) cross product of radius with a similarly named quantity. The conservation of this quantity is often demonstrated through a figure skater pulling in her arms. For 10 points, name this quantity equal to moment of inertia times angular velocity, often symbolized L .**

ANSWER: angular momentum

19. **The Winkler test measures dissolved oxygen using this technique on a thiosulfate solution. Its “complexometric” form forms a colored complex of metal ions and its “zeta potential” type acts on colloids and emulsions. A starch indicator forms a blue complex with iodide in a (*) redox-based version of this procedure. A point of inflection occurs at the equivalence point on a curve named for this technique, and phenolphthalein is used as an indicator when this technique is performed on acids and bases. For 10 points, name this lab technique used to find the concentration of an unknown solution.**

ANSWER: titration

20. **Odin sends one of this deity's children to Niflheim and throws another of his children into the ocean surrounding Midgard. After insulting the Aesir at a feast, he flees Aegir's hall in the form of a salmon. Skadi binds him under a serpent whose venom causes him to writhe in pain upon contact, causing earthquakes. He gives a (*) mistletoe-tipped spear to Hodr, and then tricks him into killing his brother Baldr. In the form of a mare, he births Odin's eight-legged horse Sleipnir. He and Heimdall will kill each other at Ragnarok, where his children Jormungandr and Fenrir will also die. For 10 points, name this Norse trickster god.**

ANSWER: **Loki**

TIEBREAKER

21. **Auguste Chapdelaine's execution prompted French involvement in one of these events. Superintendent Eliot's decision to hold a trial on a warship regarding the murder of a villager by two British sailors led to another of these events. Lin Zexu wrote an open letter to (*) Queen Victoria questioning British morality preceding one of these conflicts. France, Russia, and the US could establish legations in Beijing as a result of these wars. The Qing Dynasty signed the Treaty of Nanking as a result of these wars, ceding Hong Kong to Britain. For 10 points, name these Anglo-Chinese Wars fought over the smuggling of their titular drug.**

ANSWER: **opium wars** [prompt on "Anglo-Chinese Wars" before mentioned]

BONUSES

1. Numerous glaciations during the Quaternary Period shaped this European archipelago, whose largest two islands dwarf the other roughly 6,000. For 10 points each:

[10] Give the two-word term for this collection of islands, which consist of two countries with capitals at Dublin and London.

ANSWER: The **British Isles**

[10] The Strait of Dover is the narrowest point in this body of water south of the Isles, also known as the Sea of Brittany. It separates France and England.

ANSWER: The English **Channel**

[10] The largest of the Channel Islands is this one, with capital at St. Helier.

ANSWER: Bailiwick of **Jersey**

2. Carrageenans are polysaccharides that make up this structure in algae, for 10 points each:

[10] Name this rigid structure that surrounds the cell membrane in plant cells. The primary type of this structure in plants is composed of pectin and cellulose.

ANSWER: **cell wall**

[10] This outermost layer of the cell wall forms the boundary between two plant cells, adhering them together. During fruit ripening, enzymes degrade this layer.

ANSWER: **middle lamella**

[10] This polymer forms the cell wall of most bacteria. It is responsible for 90% of the dry weight of Gram-positive bacteria.

ANSWER: **peptidoglycan** [accept **murein**]

3. This quantity is measured in teslas, for 10 points each:

[10] Name this type of field that can be created by objects with a north and south pole. It is symbolized B or H.

ANSWER: **magnetic** field

[10] This law relates the magnitude, direction, and length of an electric current to its induced magnetic field.

ANSWER: **Biot-Savart** law

[10] This law, named for a Frenchman, states that the magnetic field around a closed loop is proportional to the current in the loop. It is one of Maxwell's equations.

ANSWER: **Ampère**'s circuital law

4. This philosopher argued that mental states were connected to environments by using the sentences "It's five o'clock here" and "It's five o'clock on the sun." For 10 points each:

[10] Name this Austrian philosopher and student of Bertrand Russell who published *Tractatus Logico-Philosophicus*.

ANSWER: Ludwig **Wittgenstein**

[10] Wittgenstein formulated the idea of these entities, which he claimed "can be known only to the speaker; to his immediate...sensations" but argued did not exist with the "beetle in the box".

ANSWER: **private language**(s) argument [prompt on partial answer]

[10] The private language argument appears in this posthumously published work by Wittgenstein, which also includes a thought experiment involving five red apples.

ANSWER: **Philosophical Investigations**

5. According to Dante, Attila the Hun and Alexander the Great are up to their eyebrows in this river, in accordance with their violent deeds in life. For 10 points each:

[10] Name this river of fire that, according to Plato, “coils around the earth and flows into the depths of Tartarus.”

ANSWER: **Phlegethon**

[10] The Phlegethon flows parallel to this river, which separates Earth from the Underworld. Greek deities frequently swore oaths upon this river.

ANSWER: **Styx**

[10] This river of the Underworld borders Elysium and flows through the cave of Hypnos. This river is named after the goddess of forgetfulness and oblivion.

ANSWER: **Lethe**

6. Buchner funnels are often used to perform this action in the presence of a vacuum, for 10 points each:

[10] Name this mechanical process used to separate solids from liquids.

ANSWER: **filtration** [accept specific answers like **gravity filtration** and **vacuum filtration**]

[10] These solids absorb water, and are often used to remove water from solvents. Examples of them include silica gel, activated charcoal, and calcium chloride.

ANSWER: **desiccants**

[10] These desiccants, widely used to dry laboratory solvents, have pores of uniform size and absorb small molecules. These porous spheres are also used in chromatography.

ANSWER: molecular **sieves**

7. A year after painting the Coca-Cola logo over a Han-era vase, this artist created a three-panel triptych showing him dropping and shattering a million-dollar Han vase. For 10 points each:

[10] Name this eccentric artist. He was an artistic consultant for the “Bird’s Nest” Olympic stadium, although he refuses to be associated with it.

ANSWER: **Ai Weiwei**

[10] Ai Weiwei hails from this country, where he was arrested in 2011 due to his open criticism of this country’s government.

ANSWER: The People’s Republic of **China**

[10] One of Ai’s works consists of a hundred million of these namesake porcelain items, each handmade and painted from scratch.

ANSWER: **Sunflower Seeds**

8. Skurge replaces Heimdall as the Bifrost guardian in this movie, for 10 points each:

[10] Name this 2017 Marvel film, the third starring a hammer-wielding Asgardian as its lead.

ANSWER: **Thor: Ragnarok**

[10] This actor plays the Grandmaster in *Thor: Ragnarok*. Since he already played a blue-colored character in *Earth Girls Are Easy*, his character did not retain his blue skin from the comics.

ANSWER: Jeff **Goldblum**

[10] This giant threatens to destroy Asgard by initiating Ragnarok. Thor defeats this figure and steals his crown, which Loki later places in the Eternal Flame to resurrect him.

ANSWER: **Surtur**

9. At the Seneca Falls convention, Elizabeth Cady Stanton read a document that parodied this text ratified on July 4th. Answer some questions about feminist clapbacks, for 10 points each:
[10] The Declaration of Sentiments and Resolutions mirrored this text by beginning “When in the course of human events” and describing the “repeated injuries and usurpations” of man toward woman.

ANSWER: **Declaration of Independence**

[10] This French feminist and playwright wrote the Declaration of the Rights of Woman and the Female Citizen, and was guillotined as a result.

ANSWER: Olympe **de Gouges**

[10] In *A Vindication of the Rights of Woman*, Mary Wollstonecraft attacked this French philosopher, who argued that women should be educated for the pleasure of men.

ANSWER: Jean-Jacques **Rousseau**

10. The adopted boy Sohrab appears to smile at the end of this novel, as the protagonist performs the title action. For 10 points each:

[10] Name this novel, in which Amir’s relationship with the Hazara boy Hassan is altered after watching the wicked Assef rape him, causing Amir to frame Hassan for theft.

ANSWER: *The **Kite Runner***

[10] *The Kite Runner* was the first novel written by this Afghan-American author, who followed that story with his novel *A Thousand Splendid Suns*.

ANSWER: Khaled **Hosseini**

[10] This third novel by Hosseini, told from multiple perspectives, focuses on the relationship between Abdullah and his sister Pari, who is sold by their father to a couple in Kabul.

ANSWER: ***And the Mountains Echoed***

11. Answer the following about the Judges of Israel. For 10 points each:

[10] This judge was the last mentioned in the Book of Judges in the Hebrew Bible, and lost his miraculous strength when his lover Delilah cut his hair, before God granted it to him once more.

ANSWER: **Samson**

[10] This judge was the first to lead Israel under a period of Midianite rule, and won a shocking victory after his 300 men rushed the enemy camp blowing trumpets to simulate a larger force.

ANSWER: **Gideon**

[10] The period of judges ended when Saul, who hailed from this tribe of Israel, ruled over the Kingdom of Israel and Judah. The judge Ehud came from this tribe, as did the apostle Paul.

ANSWER: Tribe of **Benjamin**

12. The Romans defeated these people at the Battle of Bibracte. For 10 points each:

[10] Name this tribe of Celtic people who in the 2nd Century B.C. migrated south into what is now Switzerland.

ANSWER: **Helvetii** [accept **Helvetian** people; prompt on, BUT DO NOT REVEAL “Gauls”]

[10] The Helvetii, under the leadership of Orgetorix, later migrated west to this region. The Roman Empire eventually lost this province to forces of the Franks, Visigoths, and Burgundians.

ANSWER: **Gaul**

[10] This man was governor of Gaul at the time of the Helvetian migration. This Roman dictator famously crossed the Rubicon and ushered in the transition from Republic to Empire.

ANSWER: Gaius Julius **Caesar**

13. The Venetian island of Murano specializes in producing products involving this technique, for ten points each:

[10] Name this technique created in the middle of the first century, in which “gaffers” heat and fashion a certain amorphous solid using air.

ANSWER: **glassblowing**

[10] This American glassblower created large scale art pieces out of glass, including works like *The Sun* and the glass ceiling at the Bellagio hotel in Las Vegas.

ANSWER: Dale **Chihuly**

[10] Chihuly fashioned many of these intricate glass light fixtures. Bohemian and Venetian glassmakers created many of these fixtures that hang from ceilings.

ANSWER: **chandeliers**

14. This character and his servant Ithamore poison an entire nunnery after his daughter Abigail converts to Christianity. For 10 points each:

[10] Name this character, who dies by falling into a boiling cauldron intended for the Turkish prince Calymath.

ANSWER: **Barabas** [prompt on, BUT DO NOT REVEAL “The Jew of Malta”]

[10] The wealthy merchant Barabas is the title character of this play, in which Barabas’ gold is taken by the Turkish governor Ferenze after he refuses to convert to Christianity.

ANSWER: **The Jew of Malta**

[10] *The Jew of Malta* was written by this English playwright, who also wrote *Doctor Faustus*.

ANSWER: Christopher **Marlowe**

15. Dave Moss and Shelley Levene are two salesmen who plan to steal the title leads in this play. For 10 points each:

[10] Name this play which sees the hotshot salesman Ricky Roma convince James Lingk into buying real estate in its first act.

ANSWER: **Glengarry Glen Ross**

[10] *Glengarry Glen Ross* was written by this American playwright, who also wrote about a plan to steal a coin collection in *American Buffalo*.

ANSWER: David **Mamet**

[10] Both *Glengarry Glen Ross* and *American Buffalo* are set in this midwestern city. Carl Sandburg wrote a poem titled after this city, calling it the “Hog Butcher for the world.”

ANSWER: **Chicago**

16. This period is named for a mountain range in the European Alps, for 10 points each:

[10] Name this geologic period, known for its dinosaurs, that followed the Triassic period and preceded the Cretaceous period.

ANSWER: **Jurassic** period

[10] The Triassic, Jurassic, and Cretaceous periods make up this era, known as the Age of Reptiles. It began with the Permian-Triassic extinction event.

ANSWER: **Mesozoic** era

[10] The Mesozoic era was also known as the “Age of [these organisms].” These plants make up the division Pinophyta.

ANSWER: **conifers** [accept **Coniferophyta** and **Coniferae**; prompt on “gymnosperms”]

17. The first movement of this piece is in B minor while the subsequent two are in C-sharp minor, the third being marked “animated and tumultuous”. For 10 points each:

[10] Name this set of three orchestral sketches including “Play of the Waves” and “Dialogue of the Wind and [the title entity]”.

ANSWER: *La Mer* [accept *The Sea*]

[10] This French impressionist composer wrote *La Mer*. The third movement of his suite bergamasque is “Clair de Lune”.

ANSWER: Claude **Debussy**

[10] Debussy also wrote this orchestral work, whose three movements are titled “Clouds”, “Festivals”, and “Sirens”.

ANSWER: *Three* **Nocturnes** [accept *Trois* **Nocturnes**]

18. This country lost 70% of its adult male population as a result of the War of the Triple Alliance, for 10 points each:

[10] Name this country, which attempted to take on the triple alliance of Argentina, Brazil, and Uruguay. Its capital is Asunción.

ANSWER: Republic of **Paraguay**

[10] Paraguay was led through that disastrous war by this dictator, who refused to capitulate to the triple alliance until he was killed at the Battle of Cerro Corá.

ANSWER: Francisco **Solano López** [prompt on partial]

[10] After the war, Argentina and Paraguay asked this US president to arbitrate ownership of some contested land. The region is now named for this president, who defeated Samuel Tilden in his bid for the presidency.

ANSWER: Rutherford B. **Hayes**

19. Name some members of America’s illustrious founding generation who all hail from the great Commonwealth of Virginia. For 10 points each:

[10] This man was secretary of state under John Adams before being appointed the fourth Chief Justice of the Supreme Court. Andrew Jackson challenged this man to enforce his decision in *Worcester v. Georgia*.

ANSWER: John James **Marshall**

[10] Marshall’s second cousin, with whom he often feuded, was this author of the Virginia Statute for Religious Freedom and winner of the election of 1800.

ANSWER: Thomas **Jefferson**

[10] While writing the Declaration, Jefferson ‘borrowed’ from this principle author the Virginia Declaration of Rights, a staunch Anti-Federalist.

ANSWER: George **Mason**

20. At the end of this play, Orgon finally realizes the title character is a fraud. For 10 points each:
[10] Name this comedy in which the title hypocrite pretends to be religious and pious while attempting to seduce Elmire, even though she is already engaged to Valere.

ANSWER: **Tartuffe**

[10] *Tartuffe* is by this French playwright who died after playing the title role of a hypochondriac in his play *The Imaginary Invalid*, which is ironic because he actually was sick with tuberculosis.

ANSWER: **Moliere**

[10] Moliere wrote a play titled *The School for* [these people], in which Arnolphe attempts to groom Agnes, who ends up falling in love with Horace.

ANSWER: **wives** [accept **les femmes**]

TIEBREAKER

21. A version of this law multiplies the compliance tensor by the strain tensor, for 10 points each:

[10] Name this law stating that the force needed to extend or compress a spring is proportional to its deformation.

ANSWER: **Hooke's** law

[10] These instruments measure the deformation of a spring using Hooke's law in order to measure mass or weight, which they can display in newtons, pounds, or kilograms.

ANSWER: spring **scales** [or spring **balances**]

[10] This quantity, the measure of the stiffness of a solid material, equals the ratio of stress to strain. It represents the factor of proportionality in Hooke's law.

ANSWER: **Young's modulus** [accept **elastic modulus**]