

# ABT OPEN 1995 Round 3

Questions written and edited by  
**TRIAD QUESTIONS**

1.

## TOSS-UP MATH

If the cosine of 60 degrees is one half, then what is the sine of the quantity 60 degrees plus 1260 degrees?

ANSWER---(Negative root 3 over 2)

1.

## BONUS MATH

Given the equation  $4Y^2$  squared minus  $12Y$  plus  $9x$  equals zero.

1. What conic section does it form?
2. What are the coordinates of its vertex?
3. What is the equation of its directrix?
4. What is the coordinates of the focus?

ANSWER---1.(Parabola)      2.(1, 3/2)      3.(X=Negative 9/16)      4.(7/16,3/2)

2.

## TOSS-UP LITERATURE

It is conducted every year on June 27th by Mr. Summers. Townsfolk draw slips of paper out of a black wooden box to determine the single winner. For ten points name this event won by Tess Hutchinson in a story by Shirley Jackson.

ANSWER---(The Lottery)

2.

## BONUS LITERATURE

Given a title name the author.

1. Little Women.
2. Jane Eyre.
3. One Hundred Years of Solitude.
4. Wolf.

ANSWER---1.(Louisa M. Alcott)      2.(Charlotte Bronte)      3.(Gabriel Garcia-Marquez)  
4.(Frank Norris)

3.

## TOSS-UP FINE ARTS

While traveling to Paris with his mother in search of a high-paying position, she passed away and he was so afraid of his father Leopold that he didn't tell him for six days, and when he did his father blamed him for her death. For ten points name this composer who never found his position but did compose The Shepherd King and the Jupiter symphony.

ANSWER---(Wolfgang Amadeus Mozart)

3.

## BONUS FINE ARTS

Identify the German composers of the following works.

1. The Art of Fugue.
2. Water Music.
3. Till Eulenspiegel's Merry Pranks.
4. St. Paul Oratorio.

ANSWER---1.(Johann S. Bach)      2.(George Handel)      3.(Richard Strauss)  
4.(Felix Mendelssohn)

4.

**TOSS-UP SCIENCE**

Construction is set to begin in 1997 and NASA, Russia, Canada, Japan and the European Space Agency will jointly work on it until its planned completion date in 2002. For ten points name this planned 40 billion dollar international space station, named after the first letter of the Greek alphabet.

ANSWER---(Alpha)

4.

**BONUS SCIENCE**

Answer the following questions about the Earth's tides.

1 + 2. Name the two bodies in the solar system that exert the most influence on creating the Earth's tides.

3. This highest type of tide occurs when the Earth and the other two bodies line up, thus combining their effects.

4. This lowest type of tide occurs when the two bodies form a right angle with the Earth, and their gravities cannot work together.

ANSWER---1 + 2. (Sun and Moon)    3. (Spring tide)    4. (Neap tide)

5.

**TOSS-UP SOCIAL STUDIES**

It contains nine of the world's ten largest resort hotels including Treasure Island, Bally's, the Imperial Palace, Circus Circus and the Flamingo Hilton. For ten points name this Nevada city which is also home of the Mirage and MGM Grand Hotel's.

ANSWER---(Las Vegas)

5.

**BONUS SCIENCE**

Identify in which US state the following geographic centers are located.

1. The geographic center of the 50 states.

2. The geographic center of the 48 contiguous states.

3. The geographic center of population of the 50 states.

ANSWER---1. (South Dakota)    2. (Kansas)    3. (Missouri)

6.

**TOSS-UP MISCELLANEOUS**

Designed by I. M. Pei [Pay], it contains such memorabilia as Jimi Hendrix's handwritten lyrics to "Purple Haze", a tribute to Jerry Lee Lewis, and replicas of autos used by U2. For ten points name this building located in Cleveland, OH which opened this summer.

ANSWER---(The Rock and Roll Hall of Fame)

6.

**BONUS MISCELLANEOUS**

Name the four highest choirs of angels in any order.

ANSWER---(Seraphim, Cherubim, Thrones and Dominations)

7.

**TOSS-UP LITERATURE**

His decision to leave school and join the Marines at the age of 17 is reflected in his first novel, Battle Cry, in which he describes the training and combat of Marines in WWII. He went on to write a novel about a Muslim's pilgrimage to Mecca in The Haj and a fictional account of the Protestant-Catholic battles in Northern Ireland titled Trinity. For ten points name this author who also wrote Exodus.

ANSWER---(Leon Uris)

7.

**BONUS LITERATURE**

Identify the following concerning King Arthur.

1. The name of his sword.
2. The name of his father.
3. The name of his wife.
4. The name of his, depending on the source, illegitimate son or evil nephew.

ANSWER---1. (Excalibur)    2. (Uther Pendragon)    3. (Guinevere)    4. (Mordred or Modred)

8.

**TOSS-UP SCIENCE**

It has a kind of upper lip called a prostomium and a distinct swelling called a clitellum. Each segment of its body has 4 pairs of bristles called setae. For ten points name these organisms, members of the class Oligochaeta and phylum Annelida.

ANSWER---(Earthworm or Lumbricus terrestris)

8.

**BONUS SCIENCE**

Identify the following types of lizards.

1. They are the largest type of lizard, of which the Komodo Dragon is an example.
2. They are the only lizards which can make loud noises and are among the most primitive of them.
3. & 4. They are the only two types of poisonous lizards, one living in the US and Mexico and the other only in Mexico.

ANSWER---1. (Monitor Lizard)    2. (Geckos)    3 & 4. (Beaded Lizards & Gila Monsters)

9.

**TOSS-UP MATH**

Coming in two basic types, IDE and SCSI [Suzzy], more than 25 million of them were sold after market last year even though most new computers come installed with them. Major manufacturers include Panasonic, Mitsumi, Teac, Plextor and Toshiba and they come in double, quad and six speeds. For ten points name these computer components for which software titles such as Microsoft Encarta and Encyclopedia Britannica are now available.

ANSWER---(CD-ROM)

9.

**BONUS MATH**

Given the equation  $Y$  equals 6 times the cosine of the quantity  $\pi/2$  times  $X$  minus  $\pi$  quantity closed. Answer the following.

1. What is the period.
2. What is the amplitude.
3. What is the phase shift.

ANSWER---1. (4)    2. (6)    3. ( $\pi/2$ )

10.

**TOSS-UP SOCIAL STUDIES**

This famous message was intercepted by the British and then released by the US State Department on March 1, 1917. One of the major factors in influencing public opinion against Germany, it promised the removal of Texas, New Mexico and Arizona as US states. For ten points name this message from Germany to Mexico which promised Mexico a northward expansion if they would enter a war against the US and try to encourage Japan to do the same.

ANSWER---(Zimmerman Telegram)

**10.**

**BONUS SOCIAL STUDIES**

Answer the following questions about the famous quote "I have not yet begun to fight."

1. This line was supposedly spoken by what famous American commander.
2. Aboard what ship was the line spoken.
3. The naval battle in which this line was spoken was against what British ship, which was eventually captured.
4. In what decade was this line spoken.

**ANSWER**—1. (John Paul Jones)    2. (Bonhomme Richard)    3. (H.M.S. Serapis)  
4. (1770's)

## Half-Time

**11.**

**TOSS-UP FINE ARTS**

When critics criticized Michelangelo while he was working on this painting, he responded by painting their likeness' into the section of the souls in eternal damnation. In the painting The Blessed and the damned alike huddle together in clumps pleading for mercy before a wrathful god. Straddling a cloud just below God is the apostle Bartholomew who is holding a human skin to represent his martyrdom. For ten points name this 44 by 48 foot fresco in the Sistine Chapel.

**ANSWER**—(The Last Judgment)

**11.**

**BONUS FINE ARTS**

Identify the following famous paintings from a description.

1. Of the three panels in this triptych work, only the left one has a clearly recognizable subject, the Garden of Eden. The landscape is filled with animals such as elephants and a giraffe as well as hybrid monsters of odd and sinister kinds. The center panel has countless nude men and women who are engaged in a variety of activities and in the center of the center panel they parade around a circular basin on the backs of many different of beasts.
2. In the center of this painting by Botticelli a nude woman stands on half of a clam shell. In the upper left hand quarter are two wind gods who appear much like angels, and on the right is a clothed woman who personifies spring.
3. A group of famous Greek philosophers are gathered around Plato and Aristotle, each in a characteristic pose or activity. Each philosopher reveals the intention of his soul which distinguishes the relations among groups and individuals and links them in formal rhythm. With its lofty dome, barrel vault and colossal statuary, it is classical in spirit without being at all Greek in appearance.

**ANSWER**—1. (The Garden of Earthly Delights)    2. (The Birth of Venus)  
3. (The School of Athens)

**12.**

**TOSS-UP SOCIAL STUDIES**

In 1874 he set out from Zanzibar with a party of 400 on an exploration of the rainforests of central Africa. Nine hundred and ninety-nine days later he emerged on the Atlantic with only one third of his party and one of the greatest adventures stories ever told. For ten points name this explorer better known for discovering David Livingston.

**ANSWER**—(Henry Stanley)

**12.**

**BONUS SOCIAL STUDIES**

Every year around January fighting breaks out between two South American countries over the anniversary of the US imposed Rio de Janeiro Protocol which settled a land dispute by awarding 200,000 square miles of rain forest to one of the countries.

1 + 2. Name the two countries who are involved in this border dispute, one of which does not border Brazil.

3. Name the country that won the dispute with the Protocol.

4. Name the important river that the losing country lost access to, when half of its territory was taken away.

ANSWER---1 + 2. (Peru + Ecuador)    3. (Peru)    4. (Amazon)

**13.**

**TOSS-UP MATH**

What is the inverse of the function  $f$  of  $X$  equals  $X$  divided by three plus two-thirds?

ANSWER---( $Y = 3X$  minus 2)

**13.**

**BONUS MATH**

Given the following points find the distance between them in simplest form.

1. (2, negative 3) & (2,5)

2. (5,1) & (2, negative 3)

3. (1, negative 7) & (3,1)

4. (2a, a) & (0,0)

ANSWER---1. (8)    2. (5)    3. (2 times root 17)    4. (Root 5 times a)

**14.**

**TOSS-UP LITERATURE**

He wrote a play about Andrew Jackson titled First Flight as well as a play about Sir Henry Morgan titled The Buccaneer. He also wrote The Bad Seed, a story about an intensely evil little girl which has been used for the basis for many movies. His most famous subject however was the Sacco and Vanzetti case. His first play about the case was Gods of Lightning, but he became best known for his second play about the case titled Winterset. For ten points who is he?

ANSWER--(Maxwell Anderson)

**14.**

**BONUS LITERATURE**

Given a line from a Shakespearean play name the play in which it appears.

1. "All the world's a stage."

2. "Frailty, thy name is woman."

3. "Beware the ides of March."

4. "Out damned spot!"

ANSWER---1. (As You Like It)    2. (Hamlet)    3. (Julius Caesar)    4. (Macbeth)

**15.**

**TOSS-UP SCIENCE**

His principle states that the acceleration of an object cannot be measured relative to absolute space, but must be measured against all matter in the universe and that the inertia of an object is determined by all matter around it. For ten points name the Austrian physicist who proposed this, who better known for his number which measures jet aircraft speeds.

ANSWER---(Ernst Mach)

15.

**BONUS SCIENCE**

Answer the following questions related to some theories of planet formation in the solar system.

1. Nearly four centuries ago this French philosopher proposed his vorticy theory that said planets were formed when whirlpools collected the dust around the sun into their centers.
2. The theory was supposedly discredited when this explainer of gravity published his Principia Mathematica.
3. The theory is now making a comeback with some scientists who are speculating that a combination of gravity and this force operating in a whirlpool could cause planets to form. Name this force which is the apparent deflection of an object due to the rotation of the body containing it.
4. Other scientists contend that these whirlpools would be to unstable to form planets, citing the unevenness in the Great Red Spot on this planet as an example.

ANSWER---1.(Rene Descartes) 2.(Isaac Newton) 3.(Coriolus effect) 4.(Jupiter)

16.

**TOSS-UP LITERATURE**

A student kills an old pawn broker and her sister for money. The rest of the novel deals with the psychological breakdown of the student until he finally confesses his crime to the authorities. For ten points name this novel concerning Alyona, Lizaveta and Raskolnikov, written by Fyodor Dostoevsky.

ANSWER--(Crime and Punishment)

16.

**BONUS LITERATURE**

Answer the following questions about what happens to the human body and soul after death in Greek mythology.

1. At the moment of death, Thanatos appears to snip off this part of the head which releases the soul from the body.
2. This messenger of the gods then appears to lead the soul off to the shores of the river Styx.
3. To cross the river, the dead soul must give this ferryman of the dead a gold coin and then the soul is allowed to cross in his boat.
4. The soul is then judged by Hades and is sent to Tartarus, the Elysian fields or this plain, where most of the souls end up.

ANSWER----1.(Hair) 2.(Hermes) 3.(Charon) 4.(Asphodel)

17.

**TOSS-UP MATH**

What name is given to lines which intersect two other lines in different points?

ANSWER----(Transversal)

17.

**BONUS MATH**

Expand each of the following binomials.

1. The quantity  $x$  minus  $2y$  quantity closed raised to the 4<sup>th</sup> power.
2. The quantity  $x$  minus  $y$  quantity closed raised to the 6<sup>th</sup> power
3. The quantity  $2$  plus  $b$  quantity closed raised to the 5<sup>th</sup> power.

ANSWER---1.( $X$  raised to the 4<sup>th</sup> power minus  $8X$  cubed  $Y$  plus  $24X$  squared  $Y$  squared minus  $32X$   $Y$  cubed plus  $16 Y$  raised to the 4<sup>th</sup> power))

2.( $x$  raised to the 6<sup>th</sup> power minus  $6x$  to the 5<sup>th</sup>  $y$  plus  $15x$  to the 4<sup>th</sup>  $y$  squared minus  $20x$  cubed  $y$  cubed plus  $15 x$  squared  $y$  to the 4<sup>th</sup> minus  $6 x y$  to the 5<sup>th</sup> plus  $y$  raised to the 6<sup>th</sup> power))

3.( $32 + 80B + 80B$  squared +  $40B$  cubed +  $10B$  raised to the 4<sup>th</sup> power +  $B$  raised to 5<sup>th</sup> power))

18.

**TOSS-UP SOCIAL STUDIES**

Evacuated in 1946, twenty-three nuclear test took place on this atoll in the Marshall islands, including the first hydrogen bomb. Residents were allowed to return in 1972 but were relocated six years later when it was discovered that they had ingested large amounts of plutonium. For ten points name this US test site which shares its name with a type of swimsuit.

ANSWER---(Bikini atoll)

18.

**BONUS SOCIAL STUDIES**

Given an island group or a list of islands identify to what country they belong.

1. The Azore and Madeira islands.
2. The Orkney and Shetland islands.
3. The Mariana, Marshall and Caroline islands.
4. Quemoy and Matsu.

ANSWER---1. (Portugal)      2. (Great Britain)      3. (United States)  
4. (China or Taiwan [both countries claim them])

19.

**TOSS-UP SCIENCE**

The completion of a two year study with the liquid scintillator detector has revealed that this particle may have a mass of point 5 electronvolts, which would be a major contributor to the missing mass of the universe. For ten points name this particle which comes in the electron, muon and tauon varieties, which was first postulated by Wolfgang Pauli.

ANSWER---(Neutrino) *ie - a neutrino bears a very small mass*

19.

**BONUS SCIENCE**

Identify the following particles that are their own antiparticles from a description.

1. This particle is the transmitter of the electromagnetic force and uncounted billions strike the earth each day from the sun.
2. Not yet detected, this theoretical particle is the transmitter of the gravitational force.
3. The neutral version of this particle is its own antiparticle while the positive and negative versions have distinct antiparticles. A member of the meson family it was discovered in 1947 and decays into several gamma rays.

ANSWER---1. (Photon)      2. (Graviton)      3. (Pion or Pi-meson)

20.

**TOSS-UP MISCELLANEOUS**

Skate, Skipjack, George Washington, Lafayette, Sturgeon, Permit, Ohio, Seawolf and Los Angeles. For ten points these were all names given to different classes of what type of United States' naval vessel.

ANSWER---(Submarines)

20.

**BONUS MISCELLANEOUS**

There are currently a total of eight countries that are nuclear powers or have nuclear weapon capabilities, and are not planning on dismantling and destroying their stores. Besides the United States and Russia, name five of the other six.

ANSWER---(France, China, Great Britain, Israel, India and Pakistan)

## Replacement Questions

### TOSS-UP MATH

What is the simplified form of the sine of the quantity pi minus x?

ANSWER---(Sine of x)

### BONUS MATH

Give the second derivatives of the following in simplest form.

1.  $13X$  to the fifth plus  $43X$  cubed minus  $12X$  squared.
2.  $4X$  to the sixth plus  $5X$  cubed plus  $X$  squared minus  $3X$  to the negative first power plus  $5X$  to the negative second power
3.  $3X$  raised to the negative seventh n power, where n is a constant.
4. Sine of x

ANSWER--1. ( $260 X^3 + 258 X - 24$ )

2. ( $120X^4 + 30X^3 + 2 - 6X^{-3} + 20X^{-4}$ )

3. (The quantity  $147n + 21$  times  $X$  raised to the quantity negative  $7n - 2$  quantity closed power)

4. (Negative Sine of x)

### TOSS-UP SCIENCE

Containing either five or six carbon atoms, they are commonly called simple sugars, the most well known forms include galactose, glucose and fructose. For ten points name these compounds made up of only one unit.

ANSWER---(Monosaccharides)

### BONUS SCIENCE

Name the following parts of cells given a nickname.

1. Protein factories.
2. Protein packaging factories.
3. Power plant of the cell.
4. Suicide Sacs.

ANSWER---1. (Ribosomes)

2. (Golgi Apparatus)

3. (Mitochondria)

4. (Lysosomes)

### TOSS-UP SOCIAL STUDIES

He was an artist and teacher in the later 1920s when he met Anna Freud who encouraged him to pursue a career in psychoanalysis. He came to the US and worked at Harvard and Yale specializing in child psychoanalysis. Name this psychologist who observed Native American children to study the influence of culture and society on child development and wrote Childhood and Society.

ANSWER---(Erik Erikson)

### BONUS SOCIAL STUDIES

Given a description of a constitutional amendment tell what number amendment I have just described.

1. Right to bear arms.
2. Right to trial by jury.
3. Lowered the voting age to 18.
4. Prohibits poll tax.

ANSWER---1. (2)

2. (7)

3. (26)

4. (24)

### TOSS-UP LITERATURE

He founded the Triangle Club while at Princeton. He returned to Indiana to serve in the Indiana House of Representatives, but he is more known for his writing than his political career. His first novel In the Arena was not as successful as his Pulitzer Prize winning works Alice Adams and The Magnificent Ambersons. For ten points name this author.

ANSWER--(Booth Tarkington)

### BONUS LITERATURE

Given a title name the author.

1. Peter Pan.
2. The Lamb.
3. Bleak House.
4. Live and Let Die.

ANSWER---1. (James Barrie)

2. (William Blake)

3. (Charles Dickens)

4. (Ian Fleming)