

QualPro

Recommendations for

ACT Test Score Improvement

Student Version



We feel confident that any student that follows this program will increase their average ACT Scores by at least three points.



QualPro General Recommendations*

1. Learn key vocabulary words
2. Use better test-taking strategies for reading and science reasoning
3. Learn essential math concepts
4. Take at least four practice exams

* These recommendations should be accomplished during the junior year.



ACT Test Prep Reading



Test-Taking Strategy for Reading

- For reading the answers are in the test.
- Spend one minute skimming the passages.
- Go immediately to the questions and then quickly find the answers. DO NOT follow the ACT instructions which says to read the passages and then try to answer the questions.



ACT Test Prep English



ACT Vocabulary — Words Required for English and Reading Tests* (Bare Minimum)

abstract	defiantly	generalize	lyricism	reluctantly	steerage
absurdity	definitive	generate	mainstream	remnant	stereotypical
acknowledge	delete	genre	mandate (v)	remote	stifle
acute	deletion	glib	matter of course	replenish	subjective
aesthetic	denote	humanitarian	means (n)	resemblance	succession
affluence	derive	hypothesis	mediocre	resistant	succumb
agenda	detached	idealistic	melancholy	resolution	superficial
allegedly	deterrence	ideological	mere	resonate	superimpose
ambiguity	detract	idiomatic	meticulous	resources	sustenance
ample	dialect	illogical	minuscule	respectively	syndicated
analogy	dilemma	illustrative	mischievous	revel	syringe
anomaly	diligent	imminent	misconception	reverent	taut
apathy	discern	implication	momentous	revisionist	taxed with
arbitrary	disdainful	imply	mutual	rift	tenet
articulate (v)	dispel	impose	narrative	rudimentary	terra firma
assert	dissonance	inaccurate	nevertheless	sacrilege	terrestrial
assertion	distract	inadvertently	nonetheless	sanctuary	theorize
authoritative	diverse	incentive	nostalgia	sapling	thereafter
auxiliary	drawback	inclination	noteworthy	satellite	thus
breadth	dry (humor)	inconsistency	notion	saturation	timber
chaos	eclectic	inconstant	obscure (v)	scholarly	tirade
chronic	editorial (adj)	indication	obtuse	scrunity	toxin
chronological	eloquent	indifference	omission	scrutinize	trajectory
cite	eminent	inevitable	omit	seascape	transcend
coherence	emphatically	inexplicably	on behalf of	seemingly	transition
coherent	enumerate	infer	one-dimensional	selectively	translucent
collaborating	escapist	inference	onus	seminal	treason
commendable	establishment	influential	outset	sensory	typesetting
compellingly	evaluative	ingenious	paradox	sentiment	tyranny
concede	evoke	ingenuous	parentetical	serenity	tyrant
concise	explanatory	inherent	perceptual	shrill	uncanny
concrete (adj)	explicit	initial (adj)	phenomenal	shrub	unparalleled
condescension	extent	inquiry	philosophy	shun	unprecedented
confer	façade	insight	plagiarism	simultaneous	unsolicited
conformity	facet	insignificant	populace	singular	urgency
connote	factual	insinuate	populous	site	urn
consequence	faculty	insistently	portray	sit-in	vaccine
consequently	feign	insufficient	preceding	sizable	vindicate
consistent	fictional	intent	precisely	skepticism	visionary
contemporary (n)	fictitious	intently	preconceived	slogan	vivid
context	figuratively	interpretation	previous	social order	voluptuous
controversial	finding (n)	intolerant	progressive	solace	vulnerable
conversely	foresight	intricacies	quasi-	sovereign	wherefore
convey	formality	intricate	quintessential	specific	whimsy
correlate (v,n)	format	intrigue (v)	randomly	speculate	withdrawn
cosmopolitan (adj)	frenzied	irreconcilable	rational	spin-off	worldview
counter (v)	frivolous	irrelevant	redundancy	stable	
criterion	furthermore	irrevocable	redundant	stationary	
cryptic	generalities	likewise	reinforce	stationery	
daunting	generalization	longstanding	relevant	status	



* All these words taken from the five practice tests in the real ACT Prep Guide, 3rd Ed. These are words that the students are REQUIRED to know just to process the answers

ACT Vocabulary Words Required for English and Reading Tests—Bare Minimum—Comprehensive List

abstract *adj*—not like anything physical; not representing a physical object; related to thought or imagination as opposed to nature. Opposite of *concrete*.

The two-year-old’s finger painting looked more like *abstract* art than a picture of a cow.

absurdity *n*—the state of being ridiculously impossible

Expecting Charles Barker, the retired basketball player, to wear a pink sequined tutu and walk a tight wire strikes me as the height of *absurdity*.

acknowledge *vt*—to admit to be true

Myra *acknowledged* that the grapes in the refrigerator would be colder than the ones on the counter.

acute *adj*—

1. in geometry, less than 90° and therefore pointed and sharp; keen

My Uncle Theo has an *acute* sense of humor.

2. immediate and in need of attention; said of a disease. Opposite of *chronic*

Paul was rushed to the hospital for an acute appendix attack.

aesthetic

adj—artsy; related to beauty or excellence

Japanese food is usually more *aesthetic* than Granny’s home cooking.

n—a standard for judging something’s goodness

The judge’s *aesthetic* for rating the divers included the height of the splash as well as the straightness of the divers’ legs.

affluence *n*—wealth

Most Americans do not appreciate their *affluence* when compared to the rest of the world.

agenda *n*—plan of accomplishments and the time needed to perform them

I did not have “stop at Bruster’s for ice cream” on my *agenda*, but I’m glad to add it.



ACT Vocabulary Words (continued)

allegedly *adv*—according to what people say but unproven

By the time you read this, the scandalous things people have *allegedly* done today will either be proved or disproved.

ambiguity *n*—ability to be understood in either of two ways

The Kinks' song "Lola" was famous for its *ambiguity*: "I know I'm not the most masculine man,/ But I know what I am, and I'm glad I'm a man / And so's Lola."

ample *adj*—adequate; plentiful; abundant

If the pants are too short, there is *ample* fabric in the hem to lengthen them.

analogy *n*—comparison; a way to show how one thing is like another

Calling Cruella DeVille's heart as cold and hard as a diamond is a good *analogy*.

anomaly *n*—something that doesn't fit or belong and can't be explained

The doctor was worried about an *anomaly* in Granny's heart rhythm.

apathy *n*—lack of feeling

My little brother had nothing but *apathy* for the socks he got for Christmas.

arbitrary *adj*—chosen at random; having no pattern

After trying to follow Pia's singing, Chuck gave up and started playing *arbitrary* chords.

articulate *v*—to say something clearly and in detail

Ms. Hall *articulated* to the noisy class that even a sigh would cause them to miss recess.

assert *vi*—to state strongly

Aunt June *asserted* that her peach pie always won the prizes at the fair.

assertion *n*—a statement made strongly

When Mike ate his pencil eraser, I believed his *assertion* that he was hungry.

authoritative *adj*—confident; sounding as if an expert had said it

Anything Dolly Parton says about wigs is considered *authoritative* advice.

auxiliary *adj*—additional; used as a substitute in case of need

Our home has an *auxiliary* power source in case we lose electrical service.

breadth *n*—width, wide range or extent

During the debate, the challenger demonstrated his *breadth* of experience in foreign affairs.

ACT Vocabulary Words (continued)

chaos *n*—complete confusion or disorder

The *chaos* that occurred after the hurricane included young men overturning vehicles, rioting, and looting.

chronic *adj*—ongoing; across time. Opposite of acute

Because my sister suffers from *chronic* headaches, she had to give up soccer.

chronological *adj*—arranged in date or time order

Jacob's diary provided a *chronological* account of his life.

cite *v*—to show the source of

My teacher makes us *cite* all our sources when we write a research paper.

➔ Note: do not confuse with *site*

coherence *n*— logical connection and clearness

Dr. Hackney's *coherence* on the witness stand caused the jury to believe her testimony.

coherent *adj*—logically connected

My English teacher insists that a paragraph must include a good topic sentence and several coherent supporting sentences.

collaborating *vi*—to work together with

The music, dance, and art departments are *collaborating* with the drama department to produce *Oklahoma*.

commendable *adj*—worthy of praise

We want to thank the art department, whose *commendable* work made our stage look like a wide-open prairie.

compellingly *adv*—in a manner that causes someone to consider believing

Because Joan presented her argument so *compellingly*, Mom let her go on spring break.

concede *vt*—to admit

Although the race was close, the losing candidate *conceded* defeat just before midnight.

concise *adj*—efficient with words; saying what needs to be said in as few words as possible.

Being *concise* makes sense when sending a telegram that charges by the word.

ACT Vocabulary Words (continued)

concrete *adj*—looking like something physical; representing a physical object; related to nature, as opposed to thought or imagination. Opposite of *abstract*.
Most people believe *concrete* evidence more than they believe gossip.

condescension *n*—the act of lowering oneself to do something considered too “low”
The movie star acted with *condescension* to her old school chums, who had known her when she was a second-string basketball player.

confer *vi*—to talk with on a particular subject
After the coach *conferred* with the referee, he took Calvin out of the game.

conformity *n*—the act of going along with what everybody else is doing
The rule at my school is *conformity* for the first three years, then everyone dresses as they please.

connote *vt*—to cause to think about, as opposed to plainly stating. Opposite of *denote*.
To many people, country music *connotes* cowboy boots, glittery clothes, and twangy voices.

consequence *n*—result; what follows due to something that went before
The *consequence* of going overboard with your credit card is a mountain of debts.

consequently *adv*—as a result
We have had little rain this summer; *consequently*, many crops are drying up.

consistent *adj*—

1. the same throughout; fair

Old Man Turner is mean, but at least he’s *consistent*; he yells at everybody.

2. in harmony; having the same principles

The kids’ new club rules are *consistent* with the Constitution.

contemporary *n*—someone who lived at the same time

Napoleon and Jane Austen were *contemporaries*, but I don’t think they ever met.

context *n*—the sentence that surround the words

Depending on the *context*, a “run” may be a point in baseball or a tear in a woman’s stocking.

controversial *adj*—causing much discussion or scandal

Letting eighteen-year-old soldiers drink alcohol is still *controversial*; they can give their lives for their country, but they can’t buy a drink to celebrate a victory.

ACT Vocabulary Words (continued)

conversely *adv*—in the opposite order

Mom always puts milk first, then butter, then eggs in the refrigerator; *conversely*, she always removes eggs first, then butter, then milk.

convey *vt*—to make known; to serve as a means of communication

By his tears, DeShawn *conveyed* that the movie touched his heart.

correlate *vt*—to show how one thing relates to another

My favorite teacher can *correlate* what students like with what they need to learn.

cosmopolitan *adj*—worldly; educated in the ways of the world

Adding options like salsa, guacamole, and mushrooms gave Uncle Larry’s hot dog stand a *cosmopolitan* air.

counter *vt*—to oppose in response

When my brother said I didn’t know everything, I *countered* with, “Neither do you!”

criterion *n*—a standard or reason for judgment.

Bubba’s *criterion* for a good car is a teeth-rattling sound system, but Brad’s *criteria* are good mileage, rapid acceleration, and a color that matches his eyes.

→ Note: the plural is *criteria*.

cryptic *adj*—with a hidden meaning (its root word is crypt, meaning “hiding place”)

Because Beth always gives me a *cryptic* answer, I’m never sure what she wants.

daunting *adj*—big or scary enough to make a person think twice before going ahead

Nichole had a *daunting* amount of homework, but she finished it before 9:00.

defiantly *adv*—with an oppositional attitude.

Patrick Henry *defiantly* said, “Give me liberty or give me death.”

→ Note: do not confuse with *definitely*.

definitive *adj*—

1. the qualities that make something what it is

The quarterback’s *definitive* coordination earned him a full scholarship.

2. the most nearly complete and accurate

In Myra’s family, her mother’s rules are the *definitive* rules.

→ Note: do not confuse with *definite*.

ACT Vocabulary Words (continued)

delete *vt*—to take out; remove (said of words)

To make sure the handout of the Pledge of Allegiance was perfect, Gilda told Fred to *delete* “Richard Stands” and write “which it stands” instead.

deletion *n*—the act of marking something out

The boss made so many *deletions* that it would have been easier for me to start over.

denote *vt*—to state plainly; to give an exact meaning. Opposite of *connote*.

The “six-pack” my sister’s computer date bragged about was actually what it denoted—a half-dozen cans of Pepsi, not a muscular abdomen!

derive *vt*—to arrive at by computing or thinking

My big sister *derives* a lot of pleasure from watching my brother and me arguing.

deterrence *n*—something that keeps people from doing something

All those thorns provide *deterrence* against the theft of Mrs. Lorrimer’s prize roses.

detached *adj*—neither on one side nor the other; objective; without bias; not “attached” to one side of an argument

The policeman’s *detached* attitude made me believe he was listening to me fairly.

deterrence *n*—something that keeps people from doing something

All those thorns provide *deterrence* against the theft of Mrs. Lorrimer’s prize roses.

detract *vi*—to reduce the quality of

Jeremy’s handprints in the frosting *detract* from the eye appeal of his birthday cake.

dialect *n*—a form of language used by people of a certain region or group

Having always lived in East Tennessee, Ashley understood the *dialect* of the South.

dilemma *n*—a choice between two confusing alternatives

Madison was faced with the *dilemma* of losing sleep to study for the test or getting eight hours’ sleep but not reading the last two chapters.

diligent *adj*—hard-working

It wasn’t so much being smart as it was being *diligent* that earned Steve his first million.

discern *vt*—to recognize as separate or different

A smart daughter will *discern* her mother’s mood before she asks to stay out late.

ACT Vocabulary Words (continued)

disdainful *adj*—showing lack of respect

The student's *disdainful* behavior caused the entire class to miss recess.

dispel *vt*—to get rid of

Harold's performance in his latest movie *dispelled* the rumors that his success is due to his famous father.

dissonance *n*—unmatched, disturbing sounds; lack of harmony

There is too much *dissonance* between Butch's Butcher Shop and Veronica's Vegan Deli for them to share a courtyard.

distract *vt*—to draw attention away

Listening to hip hop while I study *distracts* me from my French homework.

diverse *adj*—having parts that are unlike each other

The Mortons have *diverse* pets: a hermit crab, a Great Dane, and a chicken.

drawback *n*—disadvantage of doing something; reason not to do something

One big *drawback* to being a medical examiner is the smell of the dead bodies.

dry *adj*—reserved and subtle, as opposed to broad and obvious (said of a sense of humor)

Steven Wright's *dry* humor leads him to write jokes like, "Right now I'm having amnesia and déjà vu at the same time. I think I've forgotten this before."

eclectic *adj*—having components from a wide variety of sources

Maeve's new living room is an *eclectic* mix of Louis XIV furniture, Disney character posters, and lamps made from cowboy spurs, saddles, and ropes.

editorial *adj*—having the qualities an editor might add, as opposed to fact-based news stories

Mr. Franklin's *editorial* comments made it clear that his newspaper would not be supporting Taft in the fall.

eloquent *adj*—graceful and skillful of speech

The committee chose Thomas Jefferson to write the Declaration of independence because he had written so many *eloquent* letters and proposals before.

eminent *adj*—famous; outstanding

The *eminent* surgeon, Dr. Phillip Easterly, spoke at my sister's graduation.

➔ Note: often confused with *imminent*

ACT Vocabulary Words (continued)

emphatically *adv*—with great emphasis

When the waiter asked Ted if he wanted anchovies, Ted *emphatically* said, “No!”

enumerate *vt*—to count out one by one

Carl *enumerated* Melissa’s charms: her eyes, her figure, and her quiet sense of humor.

escapist *adj*—literature or art that rejects the routine of the real world

Arliss and Ethan prefer *escapist* video games with dragons and wizards to playing ball.

establishment *n*—“The powers that be”—those who by their wealth or power make the social rules

The hippies rebelled against the *Establishment* by wearing long hair and blue jeans.

evaluative *adj*—helping to judge

The news is not supposed to be *evaluative*; it’s supposed to give information so that the viewers can make up their own minds.

evoke *vt*—to bring to the mind or the senses

The smell of hot buttered popcorn always *evokes* a dark theatre and a new movie.

explanatory *adj*—explaining; giving details about something in order to make it easier to understand

The recipe made more sense when Madison read the *explanatory* notes at the bottom.

explicit *adj*—obvious and detailed

The crime scene show was too *explicit* to watch while we were eating pizza.

extent *n*—a place as far as

People appreciate how hard people work for them only to the *extent* that they have done the job themselves.

façade *n*—false face; front; shallow covering of the real thing

Driving a fancy car was part of the *façade* that hid how poor he really was.

facet *n*—a particular side, as of a jewel; aspect

When Nat saw the photo of “The Pirates of Penzance” in his father’s yearbook, he appreciated a new *facet* of his father’s personality.

factual *adj*—based on proven knowledge

The skid marks provided *factual* evidence that the driver had tried to stop.

ACT Vocabulary Words (continued)

faculty *n*—individual parts that make up a whole person or institution

The school's *faculty*, every single one of the teachers, reminded Tommy of the *faculties* he had left after his blindness: memory, imagination, sense of humor, intelligence, and understanding.

feign *vt*—to pretend; to fake

Steve *feigned* sleep so his mother would leave him alone.

fictional *adj*—made up, as opposed to factual

The Wizard of Oz is a *fictional* character.

fictitious *adj*—made up, as opposed to factual

Oz is a *fictitious* country.

figuratively *adv*—in a way; so to speak; in a way that people understand but not literally true

Jodi Lee is a ray of sunshine at the retirement home, *figuratively* speaking.

finding *n*—what someone has found after much research. Usually plural: *findings*

In spite of all the *findings*, cigarette companies still say smoking does not cause cancer.

foresight *n*—the ability to understand beforehand, to “foresee”

With great *foresight*, Howie took his rain boots and his dusk goggles on vacation.

formality *n*—“dressed-up”-ness; the degree to which something follows social rules

Because of the *formality* of the courtroom, I decided not to wear cutoffs.

format *n*—shape, size, and general arrangement of a book, magazine, or other presentation

Granddaddy has trouble learning the *format* of his new iPhone.

frenzied *adj*—with hysterical agitation; wild

The middle school girls had a *frenzied* attack on the latest teen idol.

frivolous *adj*—not serious; silly

The dress had a *frivolous* bunny made out of ruffles on one sleeve.

furthermore *adv*—in addition

Purple is not a color that brides wear; *furthermore*, it's not my favorite color.

generalities *n*—the big ideas or qualities that smaller ideas share

The candidate spoke in *generalities* but never gave a single specific fact.

ACT Vocabulary Words (continued)

generalization *n*—an overall big idea drawn from a bunch of smaller ideas
Grandma’s *generalization* that all rock stars have long hair is no longer true.

generalize *vi*—to state the qualities that different things or ideas have in common
To *generalize* that all skaters are rebellious slackers is unfair.

generate *vt*—to cause to be made
That lemonade stand of Jerry’s *generated* \$120 in only one hour.

genre *n*—category
The horror film *genre* is not the only kind Stephen King’s books have inspired.

glib *adj*—quick-witted; smooth-tongued
Any *glib* salesman can sell anything to Aunt Becky.

humanitarian *adj*—having to do with those who serve mankind
Although being a billionaire takes a lot of time, Bill Gates is involved in many *humanitarian* efforts, like teaching adults to read.

hypothesis *n*—the unproven idea you start out with before you prove something
Greg tested his *hypothesis* that his sister was sneaking out at night by watching her.

idealistic *adj*—expecting the best; identified by ideals, rather than dreads
“The Sun’ll Come Out Tomorrow” from *Annie* is one of the most *idealistic* songs I know.

ideological *adj*—having to do with ideas, their nature and source
The differences between those two politicians aren’t personal; they are *ideological*.

Idiomatic *adj*—unique in language and thought; setting its own standard
Mama Lizabetta’s English is *idiomatic*, but all the grandkids know what she means.

illogical *adj*—lacking logic; not making sense
Washing your hair right before you go swimming in the lake is *illogical*.

illustrative *adj*—so descriptive that it draws a mental picture
The speaker’s examples of the beach were so *illustrative* that I could almost hear the ocean.

imminent *adj*—on its way; about to arrive
The weatherman says rain is *imminent*, so take your umbrella.

➔ Note—often confused with *eminent*

ACT Vocabulary Words (continued)

implication *n*—the idea a person gives without saying it directly

When three people offer you a Tic-Tac, the *implication* is that you've got bad breath.

→ Note: different from *inference*

imply *vt*—to give an idea indirectly, without coming out and saying

When Brian offered Hugo a bigger chair, he was *implying* that Hugo was overweight.

→ Note: different from *infer*

impose *vt*—to cause unnecessary trouble to

"It's after midnight, Mrs. Kane, so we won't *impose* in you any longer. Good night."

inaccurate *adj*—wrong; faulty

After the ball game was rained out, it was obvious that Channel 9's weather report prediction of 100% sunshine was *inaccurate*.

inadvertently *adv*—without having been planned; by not being careful

The waiter *inadvertently* knocked the cherry off my sundae when he reached for the dirty plate.

incentive *n*—a reward or prize offered to get someone to behave a certain way

Hanging a nice, juicy carrot in front of a donkey's nose is a good *incentive* to make him move forward.

Inclination *n*—leaning; tendency

Two of the Gregory children show a definite *inclination* towards music.

inconsistency *n*—lack of "sameness"; difference in substance or texture

Waiter, there is an *inconsistency* between what I ordered and what you brought me.

inconstant *adj*—unsteady; wavering

Walter, that jerk, is an *inconstant* boyfriend; he dates three girls besides Jodi.

indication *n*—hint; sign

With a tilt of her head, Kiki made an *indication* that she wouldn't mind talking to Bob.

Indifference *n*—absence of caring

Whether you go or stay is a matter of complete *indifference* to me.

inevitable *adj*—unavoidable

One *inevitable* result of eating dessert at every meal is weight gain.

ACT Vocabulary Words (continued)

inexplicably *adv*—“un-explain-ably”

“Nobody broke the vase, Mom,” Jimbo said. “It just *inexplicably* shattered into a million pieces.”

infer *v*—to come up with an idea based on what someone said

When Lee handed me a comb, I *inferred* that my hair looked messy.

→ Note: different from *imply*

inference *n*—an idea that comes from what someone else said

When I saw Nana looking under the bed, my *inference* was that she had lost something.

→ Note: different from *implication*

influential *adj*—having influence; having “pull”

The Beatles were highly *influential* in the recording industry, being the first to make their own technical decisions.

ingenious *adj*—clever and inventive

My little brother developed an *ingenious* way to let the dog out without leaving the sofa.

→ Note: often confused with *ingenuous*

ingenuous *adj*—innocent, trusting, simple

“Why does Buck like to look at the girls in the short skirts, Daddy?” the *ingenuous* little girl asked.

→ Note: often confused with *ingenious*

inherent *adj*—built-in naturally

While vitamin pills can be useful, the vitamins *inherent* in fresh vegetables are healthier.

initial *adj*—first; at the beginning

At our *initial* meeting, Van seemed boring; when I knew him better, though, he made me laugh.

inquiry *n*—question-asking

The police’s *inquiry* into the robbery revealed nothing except that the thief had red hair.

insight *n*—ability to see or understand the inner nature

Although she’s eighty-three, Nana has a lot of *insight* into the problems of teenage girls.

insignificant *adj*—unimportant; too small to matter

Except for a few *insignificant* details, Gina had finished planning the entire wedding.

ACT Vocabulary Words (continued)

insinuate *vt*—to hint or suggest indirectly

When Marcy looked at me and locked her desk, she was *insinuating* that I was nosy.

insistently *adv*—refusing to give up

The salesman *insistently* knocked at the door until Grandpa wheeled his wheelchair to the door and answered.

Insufficient *adj*—not enough

The police announced that they had *insufficient* evidence to make an arrest.

intent

adj—determined to; focused

Grace was so *intent* on following the traffic laws that she did not notice what Luke was saying.

n—purpose

By bringing Kate a dozen roses, Bill's *intent* was to express his love, not to make her sneeze.

intently *adv*—with great concentration

The boys played Masters of Destruction so *intently* that they did not hear Mom call them for dinner.

interpretation *n*—way of saying something in a different language or for a different listener

A Sesame Street *interpretation* of Shakespeare's play *Romeo and Juliet* would probably leave out the deaths.

intolerant *adj*—unwilling or unable to put up with

Since Donna is *intolerant* of milk products and Uncle Todd is *intolerant* of hippies, they did not attend the opening of the new Woodstock Ice Cream Parlor.

intricacies *n*—complicated details

Caitlyn hates to dust around the *intricacies* of her mother's miniature glass animal collection.

intricate *adj*—delicate and complicated

Norman has no problem with the *intricate* workings of the inside of a computer.

intrigue *vt*—to fascinate

Uncle Steve told Quint, "No matter how old I get, the mind of a woman will always *intrigue* me."

ACT Vocabulary Words (continued)

irreconcilable *adv*—un-matchable; that cannot be brought into agreement
Since Matt bred beef cattle and Kiki was a vegetarian, their differences were *irreconcilable*.

irrelevant *adj*—unrelated; not important to the matter at hand
Whether you pay me back with two five-dollar bills or ten ones is *irrelevant*, as long as you pay me back today.

irrevocable *adj*—unchangeable
Dad's decree that no daughter of his will date until she is fifteen is final and *irrevocable*.

likewise *adv*—in the same way
Her friends like Jane because she's so positive; *likewise*, strangers like her for her friendliness.

longstanding *adj*—having been established a long time
Some of the council members were uneasy changing the *longstanding* town boundaries.

lyricism *n*—graceful, musical quality
Even voters who disagreed with his views were swayed by the *lyricism* of his speeches.

mainstream *n*—majority; common idea
The vegans want Friday to be Tofu Day, but kids in the *mainstream* want it to stay Pizza Day.

mandate *v*—to cause to be demanded
The alarming increase in stray dogs *mandated* a crackdown by the Humane Society.

matter of course *n*—thing that people just accept without thinking
Mom began washing the dishes as a *matter of course*, even though it was Mother's Day.

means *n*—stuff needed; way
I had the need and the desire to buy a car, but not the *means*, so I got a job.

mediocre *adj*—neither high- nor low-quality; in-between; average
The pie was *mediocre*; it wasn't as delicious as Granny's, but it wasn't as nasty as mine.

melancholy *adj*—sad and thoughtful; gloomy
Rainy days like this make me so *melancholy* that I need to watch a good comedy.

ACT Vocabulary Words (continued)

mere *adj*—only; nothing more or other than

Nobody expected that a *mere* five-year-old could play the piano like Elton John.

meticulous *adj*—picky and extremely careful

The guy who washes my car is so *meticulous* that he goes over the interior with a Q-tip.

minuscule *adj*—very tiny

Grandpa didn't see the *minuscule* insect on his potato salad before he put it in his mouth.

mischievous *adj*—fond of playing jokes and causing harmless trouble

Both puppies and kittens can seem *mischievous* because of their curiosity.

misconception *n*—mistaken idea

After she saw the mail deliverer put the mail in the mailbox, Jenna got the *misconception* that he wrote all the letters, bills, and catalogues.

momentous *adj*—important in a life-changing way

The invention of the electric light bulb was a *momentous* step in modern civilization.

mutual *adj*—as much from one side as the other; agreeable to both sides; from both sides

Buzz likes Liz, and Liz likes Buzz; their feelings are *mutual*.

narrative *n*—the telling of a story

Barack Obama's *narrative* includes growing up in a single-parent family.

nevertheless *adv*—unlike what you might expect; nonetheless

I slept for nine hours; *nevertheless*, I was still tired.

nonetheless *adv*—unlike what you might expect; nevertheless

Sam was careful; *nonetheless*, he spilled the coffee.

nostalgia *n*—an emotional feeling about the past

When the movie *Grease* came out in the 1970s, America felt *nostalgia* for the 1950s.

noteworthy *adj*—worth paying attention to

The only *noteworthy* event from my week at camp occurred when the pool caught fire.

notion *n*—small part of an idea

Madison had no *notion* that the surprise party was for her.

ACT Vocabulary Words (continued)

obscure

adj—hard to find

Sophie was shocked to find an *obscure* law saying that a husband could not beat his wife with a stick any larger than his thumb.

vt—to hide

Unfortunately, the clouds *obscured* the full moon.

obtuse *adj*—dull; not sharp; said of an angle that is greater than 90° because it isn't "sharp"

Because Ryan was so *obtuse*, Jill and Sam had to come out and tell him they wanted to be alone.

omission *n*—the leaving out of something

Due to a famous *omission*, one version of the Bible said, "Thou shalt commit adultery."

omit *vt*—to leave out

If you *omit* the eggs when making meat loaf, it won't stick together. Don't ask me how I know!

on behalf of *prep*—for the sake of; to represent

Kayla gave Ms. Prosser a box of chocolates *on behalf of* all the students she tutored after school.

one-dimensional *adj*—having neither depth nor width; a spot only, without any development

Even though everyone likes him, the Road Runner is a *one-dimensional* character.

onus *n*—burden

Although the fashion world makes being too skinny seem glamorous, the *onus* of teaching girls to have a healthy view of their bodies is on their parents.

outset *n*—beginning; the place from which one "sets out"

I never liked Gordy, even from the *outset* of his relationship with Sheila, and I was right.

paradox *n*—the relationship between two statements that do not seem to be able to be true at the same time

The novel *Catch-22* was based on the *paradox* that you had to be crazy to get out of the army, but you had to be crazy to be in the army in the first place!

ACT Vocabulary Words (continued)

parenthetical *adj*—

1. inside parentheses: words inside curved marks (like those around these words)

Takesha’s play is full of *parenthetical* instructions that tell the actors how to say the lines.

2. that which is said off to the side; not the main idea but one that is worth sneaking in

Christi was famous for her *parenthetical* comments, as when she said, “Lowell, that new teacher, the one you said that looks like Taylor Swift, wants to see you.”

perceptual *adj*—relying on the senses, as opposed to the mind

Watching a spinning black-and-white spiral can cause *perceptual* confusion.

phenomenal *adj*—like nothing else; unique

Most fans thought *Avatar* was a *phenomenal* movie.

philosophy *n*—way of thinking that guides other thoughts and actions

Unfortunately, the *philosophy* of many tobacco companies is to make as much money as possible, with no regard for the health of their customers.

plagiarism *n*—the using of someone else’s words or ideas without giving that person credit; stealing words or ideas

Rob claimed that it was coincidence, not *plagiarism*, that explained why his report was identical to Fred’s.

populace *n*—the people of a region or group

To most Westerners’ surprise, the *populace* of Indonesia is mostly Muslim.

→ Note: often confused with *populous*

populous *n*—having a large population

New York City is far more *populous* than Knoxville.

→ Note: often confused with *populace*

portray *vt*—to display from a certain viewpoint

Val Kilmer *portrayed* Batman as a darker character than the Batman of the 1960s.

preceding *adj*—the one that went before; previous

The last tournament was much more exciting than the *preceding* ones.

precisely *adv*—exactly

Whether everyone has arrived or not, Aunt Lois always serves dinner at *precisely* 6:30.

ACT Vocabulary Words (continued)

preconceived *adj*—already thought of

Yankees have many *preconceived* ideas about Tennesseans: illiterate, barefoot moonshine makers who marry their cousins.

previous *adj*—that which came before; preceding

The receipt from the *previous* customer was still in the ATM when I got my cash.

progressive *adj*—socially or culturally different from a mainstream idea

Darcy’s kids go to a *progressive* school that does not divide students into grades.

quasi- *prefix*—sort of; somewhat

The roller coaster made Jenna *quasi*-queasy, but she still felt like riding the Ferris wheel.

quintessential *adj*—the absolute basic

Superman is the *quintessential* superhero: he has a mysterious origin, amazing powers, and one peculiar weakness.

randomly *adv*—not in any predictable order

The winning numbers on the Draw Five lottery are supposed to come out of the machine *randomly*, not in order.

rational *adj*—based on thought, not feeling; reasonable

Officer Hayes always stays *rational*, even when the victims and suspects appear crazy.

redundancy *n*—words that are unnecessary because they have been stated in another way

The phrase “3 a.m. in the morning” uses an obvious *redundancy*.

redundant *adj*—unnecessary because they have been stated in another way

The phrase “12 midnight at night” is *redundant*.

reinforce *vt*—to make stronger

Seeing Ron’s vanity license plate, which said “STUDLY,” *reinforced* my belief that he was conceited.

relevant *adj*—related to the important idea

In determining a woman’s fitness, her height is *relevant* to her weight.

reluctantly *adv*—not wanting to

The day after she got her braces, Taylor went *reluctantly* to school.

ACT Vocabulary Words (continued)

remnant *n*—leftover piece

Mama made a Kayce a doll's dress out of the *remnant* of the white satin she used for Gail's wedding gown.

remote *adj*—away from everything else

Don refused to stay in a Holiday Inn; he wanted a *remote* inn, far away from the shopping areas.

replenish *vt*—to fill back up; to restore to its original volume

Because Trace *replenished* the whiskey bottle with tea, it looked like no one had drunk any.

resemblance *n*—“looking-alike-ness”

Steve's *resemblance* to Stephanie made many people think they were brother and sister.

resistant to *adj*—able to avoid being infected or taken in by

Davy's mom need to find clothes that are *resistant* to mud, tears, and being left behind.

resolution *n*—strength of will

Bertha's *resolution* to avoid desserts was strong enough to survive five birthday parties.

resonate *vi*—to spread a sound or an idea

The thumps from Dwight's car stereo *resonated* into Mrs. McGregor's bedroom.

resources *n*—qualities or material that can be used

Even my mostly worthless brother has *resources*: his stomach makes a good pillow, and I can light a match on his unshaved chin.

respectively *adv*—in the same order as the items on the other list

Horn-rim glasses, platform shoes, and fedoras are fashionable accessories that have been recycled from, *respectively*, the Twenties, the Seventies, and the Fifties.

revel *v*—to enjoy indulgently

After six months at sea, the sailors *reveled* for three days in everything New York had to offer.

reverent *adj*—treating with great respect, as if holy

Andrew is usually hyper, but he was almost *reverent* at the Air and Space Museum, because he wants to be an astronaut.

ACT Vocabulary Words (continued)

revisionist *adj*—trying to change the accepted idea

Since she was always old school, Prof. Wallace fought against the *revisionist* movement.

rift *n*—a space that divides

After three months of harmony, the roommates developed a *rift* over Fred's new girlfriend.

rudimentary *adj*—just enough to get by

Dad threw together a *rudimentary* meal of crackers, cottage cheese, and applesauce.

sacrilege *n*—a supreme insult to something held holy

My uncle, the chef, thinks using Cool Whip instead of freshly whipped cream is a *sacrilege*.

sanctuary *n*—

1. a place that provides protection and safety because it has been set aside by a religious authority

Most weddings are held in the *sanctuary* of a church.

2. the status of someone who depends on the protection of a sanctuary

In *The Hunchback of Notre Dame*, the gypsy girl found *sanctuary* in the cathedral.

sapling *n*—a young tree

The gardener had to prop up the maple *sapling* with ropes and stakes.

satellite *n*—something that orbits around something else

The moon is a *satellite* of the Earth, and photographers are *satellites* of Jennifer Lopez.

saturation *n*—being so full that it is impossible to hold any more

The advertisers created complete *saturation* of the media by running ads for the new candy bar in every TV station, every magazine, and every radio station.

scholarly *adv*—like someone who enjoys school; academic; bookish

My teacher wants us to use *scholarly* articles, not just whatever we find on Google.

scrutinize *vt*—to examine closely

Aunt Nelda found a great deal by *scrutinizing* the want ads every day.

scrutiny *n*—careful observation

Mr. Pierre puts every wedding gown through close *scrutiny* before each bride arrives.

ACT Vocabulary Words (continued)

seascape *n*—a painting or drawing of the sea and features in it or nearby; compare to *landscape*

While we were walking on the beach, we met an artist who was painting a *seascape*.

seemingly *adv*—apparently; giving the appearance of

Myra was *seemingly* calm, although she had just been in a car wreck.

selectively *adv*—in a picky, careful way

Aunt Reba always chooses her fruit *selectively*; she never buys the big bag.

seminal *adj*—a basic part of what comes after

The invention of the wheel was *seminal* to most forms of transportation.

sensory *adj*—having to do with seeing, hearing, tasting, smelling, or feeling (as opposed to thinking)

Good writers use lots of *sensory* details, like “velvety,” “granite-hard,” and “coal-black.”

sentiment *n*—an expression of feeling; an opinion colored by emotion

Sara could not find a card with the right *sentiment* after she let the Smiths’ cat run away.

serenity *n*—the state of being serene: beautifully calm

After a week in the city, the *serenity* of the woods was just what I needed.

shrill *adj*—high, piercing, and grating on the ear

Everyone on the playground knew Ms. Skelly’s *shrill*, demanding voice.

shrub *n*—any bushy plant, smaller than a tree, often used for decoration or as a fence

Uncle Billy always hides the Easter egg with the five-dollar bill in the *shrub* by the back door.

shun *vt*—to avoid deliberately and systematically

All the girls in Ms. Knowles’ class *shunned* Renee after she tattled on them.

simultaneous *adj*—occurring at the same time

The fireworks show timed the starbursts so that they were *simultaneous* with the music.

singular *adj*—unusual; not like anything else

Adele won several Grammy Awards because of her *singular*, throaty voice.

site *n*—a place where something happened or is planned to be

People kept staring at the *site* of the wreck, even though it had been cleaned up.

➔ Note: do not confuse with *cite*

ACT Vocabulary Words (continued)

sit-in *n*—a form of protest in which participants sit in a targeted place until their demands are met.

Many civil rights protesters held *sit-ins* at the drugstore counters where they were forbidden to sit because of their race.

sizable *adj*—big

After he caught the burglar, Officer O’Leary got a *sizable* reward.

skepticism *n*—tendency to doubt

Uncle Don’s *skepticism* about the weather report explains why he takes his umbrella.

slogan *n*—a saying that identifies a movement or person

During the Fifties, “I Like Ike” was the *slogan* on buttons that Eisenhower supporters wore on their skinny lapels.

social order *n*—“the way things are”; the unwritten rules for how a society works

The *social order* of the Fifties did not allow women to have a career and a family.

solace *n*—emotional comfort

After Mark broke up with her, Lana found *solace* by learning tae kwon do.

sovereign *adj*—all-powerful; in control of the entire unit

King Henry VIII gained the *sovereign* power over the English by forming the Church of England.

specific *adj*—exact; of a particular kind

My irritating brother always has to choose *specific* potato chips; he can’t just reach in and grab.

speculate *vi*—to invest money or ideas in something you aren’t sure about; to gamble

Uncle Reggie *speculated* on gold, hoping the price would continue to rise.

spin-off *n*—a TV show originated as a feature of another TV show

The Andy Griffith Show was a *spin-off* of an episode of *The Danny Thomas Show* in which Danny gets a speeding ticket driving through a poky Southern town.

stable *adj*—staying the same; neither getting better nor worse

After the accident, the doctors said DaShawn’s condition was *stable* enough for him to go home.

ACT Vocabulary Words (continued)

stationary *adj*—staying in one place

All of the furniture in the Lanes' living room is *stationary* except the rolling coffee table.

→ Note: do not confuse with *stationery*

stationery *n*—specialized, fine quality paper for writing letters and notes

My mother always uses monogrammed *stationery* for writing thank-you notes.

→ Note: do not confuse with *stationary*

status *n*—current state of being

On the medical report, Jenna claimed her marital *status* was “married.”

steerage *n*—the lowest level of a passenger ship, where those buying the cheapest tickets stay

The passengers in *steerage* rarely socialize with the first-class passengers.

stereotypical *adj*—matching what people expect because of one trait

Dr. Barbie Strickland, the astrophysicist, is not a *stereotypical* “dumb blonde.”

stifle *vt*—to repress; to hold down

The speech was boring, but I had to *stifle* all my yawns because I was sitting on the stage.

subjective *adj*—based on feelings and not on fact

Dr. Lyles was being a little *subjective* when he said broccoli was “yucky.”

succession *n*—a series

She established her star status by a *succession* of wildly popular movies.

succumb *vi*—to fall a victim (to)

After fighting it for five years, Mrs. Norris finally *succumbed* to cancer and died last night.

superficial *adj*—only on the surface; not deep

Even though the car was totaled, Manny's wounds were only *superficial*.

superimpose *vt*—to lay (something) on top of something else

If you *superimpose* a geological map on top of the street map, you can see why May Street is a dead end; it's practically on the edge of a cliff.

sustenance *n*—that which sustains; the stuff that keeps something alive

Sylvester the Cat justifies his attempts to eat Tweety Bird by saying, “I'm in need of *sustenance*.”

ACT Vocabulary Words (continued)

syndicated *adj*—a group of similar businesses owned by one company

Most newspapers are *syndicated*, although a few are still independently owned.

syringe *n*—a device for putting a small amount of a liquid into a small space, like a medicine into a vein, in which a tube with a closed end is pushed inside a tightly fitting tube with a narrow opening at the end, usually attached to a hollow needle through which the liquid is delivered

I stared at the *syringe* on the tray in front of me, waiting for the dentist to return.

taut *adj*—tightly stretched

Sam made the sides of the tent so *taut* that you could bounce a nickel off them.

taxed with *vt*—given the responsibility for

Now that Mindy has moved back home with her baby, her parents are *taxed with* two mouths to feed.

tenet *n*—any opinion, principle, or doctrine that a person or group holds

One of the *tenets* of the Boy Scouts is “Be prepared.”

terra firma *n*—Latin for “solid earth”

I loved flying in the helium balloon, but I admit I was glad to get back to *terra firma*.

terrestrial *adj*—having to do with the earth

A farmer’s interests are mainly *terrestrial*, while a sailor prefers the water.

theorize *vi*—to propose an explanation for

In the ancient world, philosophers *theorized* that maggots came from dead flesh.

thereafter *adv*—from then on; starting at that point and then going on

Max likes to eat all the meat off the bone and *thereafter* to bury the bone in the garden.

thus *adv*—

1. like this; in this way

To curl paper ribbon, hold it *thus*: with your thumb on top of the ribbon and a scissors blade underneath.

2. therefore; because of what has just been said

I had seven slices of pizza; *thus*, I didn’t really want dessert.

timber *n*—trees that have been felled and are to be used for wood for furniture, paper, etc.

Oregon and Washington provide much of the *timber* for America’s wood.

ACT Vocabulary Words (continued)

tirade *n*—a long speech in which the speaker fusses or complains

When twenty out of twenty-seven students failed the test, Mr. Dorris went into a long *tirade* about studying.

toxin *n*—a poison that comes from a plant or animal

Some mushrooms contain a *toxin* called coprine, which causes hangover-like symptoms.

trajectory *n*—the curved path of something hurtling through space

The *trajectory* of the bullet proved it could not have come from the policeman's gun.

transcend *vt*—to go beyond or above

Being voted Most Valuable Player *transcended* Philip's dreams of making the team.

transition *n*—a graceful easing from one thing to another

I hope Kelsey can make the *transition* from being an only child to living in a dormitory.

translucent *adj*—able to let light through but diffusing it enough to conceal any object behind it

The fogged-up windshield was too *translucent* for me to drive.

treason *n*—an act of betrayal against one's own country

Benedict Arnold is famous for his act of *treason*, betraying the United States to England.

typesetting *n*—the art of placing tiny metal letters and numbers in place to be covered with ink and pressed against paper to make a printed page

Now that many homes have their own laser printers, the art of *typesetting* is threatened.

tyranny *n*—any government controlled by a single person

"Taxation without representation is *tyranny*" was the rallying cry of the American revolution.

tyrant *n*—one who has absolute power over a country

Mussolini, who later joined forces with Hitler, was a *tyrant* over Italy in the 1930s.

uncanny *adj*—"un-explainable"; something for which no one knows the reason

Chester was afraid to spend the night in his aunt's old house because of the *uncanny* noises in the wall.

unparalleled *adj*—unmatched; too extreme to be equaled

Michael Phelps' *unparalleled* number of Olympic gold medals has won him a place in history.

ACT Vocabulary Words (continued)

unprecedented *adj*—original; having nothing similar that came before

Franklin D. Roosevelt ran for an *unprecedented* third term as president—and then a fourth!

unsolicited *adj*—“un-asked-for”

I’m thinking of putting a trash can beside the mailbox for all those *unsolicited* advertisements.

urgency *n*—need for action

When I understood the *urgency* of your need, I rushed right over.

urn *n*—a large vase, sometimes with a lid

My Aunt Frieda’s favorite possession is a Chinese *urn* made of carved yellow jade.

vaccine *n*—a preventive medicine made from the disease-causing essence itself; by introducing a small amount of the germ into the body, the body forms antibodies to fight the disease, and can thus resist further exposure to the disease. Louis Pasteur’s *vaccine* against anthrax saved millions of cows from dying.

vindicate *vt*—to prove innocent after having been blamed

If Zia swells up after eating that peanut butter sandwich, she will be *vindicated* against the suspicion that she has been sneaking peanuts every night.

visionary *n*—one who imagines how the future can be

Someone said that all children are *visionaries*, and all old men are historians.

vivid *adj*—strongly colored; standing out from the background

A report of three drive-by shootings in one week was a *vivid* reminder of the crime rate.

voluptuous *adj*—heavily fleshed in a beautiful way

Francesca was pretty and *voluptuous* enough to be a model for Lola’s Large Lady Fashions.

vulnerable *adj*—easily wounded or hurt

Even a big guy like Bruno is more *vulnerable* after a breakup with a girl like Vanessa.

wherefore *conj*—why; for what reason

When Juliet says, “*Wherefore* art thou Romeo?” she is asking why the only boy she has ever loved has to be one of her family’s enemies, not “Where are you, sweetie?”

ACT Vocabulary Words (continued)

whimsy *n*—a lighthearted, playful attitude

If you like *whimsy*, you'll love *Alice in Wonderland*.

withdrawn *adj*—shy; staying away from people

The poor abused dog was *withdrawn* until Jamie gave it some food.

worldview *n*—an overall way of looking at the world

Hitler's *worldview* was that the "right people" should control the world.

Irregular Plurals

antenna, antennae

axis, axes

criterion, criteria

datum, data

focus, foci

matrix, matrices

millennium, millennia

nucleus, nuclei

radius, radii

thesis, theses

vertex, vertices

Most of these words taken from the five practice tests in *The Real ACT Prep Guide*, 3rd Ed.

Math Vocabulary

area of a circle
chord
circumference
collinear
complex number
congruent
consecutive
diagonal
directly proportional
endpoints
function $y = R(x)$
hypotenuse
integer
intersect
irrational number
least common denominator
logarithm
matrix
mean
median
obtuse
perimeter
perpendicular
pi
polygon
prime number
quadrant
quadratic equation
quadrilateral
quotient
radian
radii
radius
rational number
real number
slope
standard coordinate plane
transversal
trapezoid
vertex
x-intercept
y-intercept



ACT Test Prep Math



Math Section of the ACT

60 Questions in 60 Minutes

Goal: Answer 70% correctly (42 out of 60)

This means you need a strategy to confidently answer 42 questions correctly in 60 minutes.



Math Section Content

- Pre-algebra
- Elementary algebra
- Intermediate algebra
- Coordinate geometry
- Plane geometry
- Trigonometry
- Miscellaneous topics
- Math test-taking strategy



Math Vocabulary

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polygon
prime number
quadrant
quadratic equation
quadrilateral
quotient
radian
radii
radius
rational number
real number
slope
standard coordinate plane
transversal
trapezoid
vertex
x-intercept
y-intercept



Math Vocabulary

area of a circle— $A = \pi r^2$

chord—a line drawn from the vertex of a polygon to another non adjacent vertex of the polygon

circumference—the perimeter of a circle = $2 \pi r$

collinear—passing through or lying on the same straight line

complex number—is an expression of the form $a+bi$, where a & b are real numbers and $i^2 = -1$

congruent—corresponding; equal in length or measure

consecutive—uninterrupted sequence

diagonal—a line segment joining two nonadjacent vertices of a polygon or solid (polyhedron)

directly proportional—increasing or decreasing with the same ratio

endpoints—what defines the beginning and end-of-line segment

Function $y = R(x)$ —a set of number pairs related by a certain rule so that for every number to which the rule may be applied, there is exactly one resulting number

hypotenuse—the longest side of a right-angle triangle, which is always the side opposite the right angle

integer—a member of the set $\dots, -2, -1, 0, 1, 2, \dots$

intersect—to share a common point

irrational number—cannot be expressed as a ratio of integers, eg., $\sqrt{3}$, π , etc.

least common denominator—the smallest number (other than 0) that is a multiple of a set of denominators (for example, the LCD of $\frac{1}{4}$ and $\frac{1}{3}$ is 12)

logarithm— $\log_a x$ means $a^y = x$

matrix—rows and columns of elements arranged in a rectangle

mean—average; found by adding all the terms in a set and dividing by the number of terms

median—the middle value in a set of ordered numbers

obtuse—an angle that is larger than 90°



Math Vocabulary (continued)

perimeter—the distance from one point around the figure to the same point

perpendicular—lines that intersect and form 90-degree angles

pi— = 3.14 ...

polygon—a closed, plane geometric figure whose sides are line segments

prime number—a positive integer that can only be evenly divided by 1 and itself

quadrant—any one of the four sectors of a rectangular coordinate system, which is formed by two perpendicular number lines that intersect at the origins of both number lines

quadratic equation— $Ax^2 + bx + C = D$, $A \neq 0$

quadrilateral—a four sided polygon

quotient—the result of division

radian—a unit of angle measure within a circle

radii—the plural form of radius

radius—a line segment with endpoints at the center of the circle and on the perimeter of the circle, equal to one-half the length of the diameter

rational number— r can be expressed as $r = \frac{m}{n}$ where m & n are integers and $n \neq 0$

real number—all numbers except complex numbers

slope— $m = \frac{y^2 - y^1}{x^2 - x^1}$

standard coordinate plane—a plane that is formed by a horizontal x-axis and a vertical y-axis that meet at point (0,0) (also known as the *Cartesian Coordinate Plane*)

transversal—a line that cuts through two or more lines

trapezoid—a quadrilateral (a figure with four sides) with only two parallel lines

vertex—a point of an angle or polygon where two or more lines meet

x-intercept—the point where a line on a graph crosses the x-axis

y-intercept—the point where a line on a graph crosses the y-axis



Pre-Algebra – Word Problems

Converting a word problem into an equation:

If a discount of 20% off the retail price of a desk saves Mark \$45, how much did Mark pay for the desk?



Pre-Algebra

If a discount of 20% off the retail price of a desk saves Mark \$45, how much did Mark pay for the desk?

$$\text{Amount Paid (Sales Price)} = \text{Retail Price} - \text{Discount}$$

$$\text{Discount} = 20\% \times \text{Retail Price}$$

$$\$45 = 20\% \times \text{Retail Price}$$

$$\text{Retail Price} = \$45 / .2 = \$225$$

$$\text{Sales Price} = \$225 - \$45 = \$180$$



Pre-Algebra

A lawn mower is on sale for \$1600. This is 20% off the regular price. How much is the regular price?



Pre-Algebra

A lawn mower is on sale for \$1600 which is 20% off the regular price. How much is the regular price?

$$\text{Sales Price} = \text{Regular Price} - \text{Discount}$$

$$\text{Discount} = 0.20 \times \text{Retail Price}$$

$$\text{Sales Price} = \text{Regular Price} - 0.20 \times \text{Retail Price}$$

$$\$1600 = 0.80 \times \text{Regular Price}$$

$$\text{Regular Price} = \$1600 / 0.8 = \$2000$$



Pre-Algebra

If 45 is 120% of a number, what is 80% of the same number?



Pre-Algebra

If 45 is 120% of a number, what is 80% of the same number?

$$45 = 1.2 (X)$$

$$X = 45/1.2 = 37.5$$

$$Y = 0.8 (37.5) = 30$$



Elementary Algebra – Substitution, 2 Equations, 2 Unknowns

If $a - b = 14$, and $2a + b = 46$, then $b = ?$

$$a = 14 + b; \textit{ substitute}$$

$$2(14 + b) + b = 46$$

$$28 + 2b + b = 46$$

$$3b = 18$$

$$b = 6, a = 20$$



Elementary Algebra

$$\frac{a}{b} + \frac{c}{b} = (a + c) / b$$

$$\frac{a}{b} + \frac{c}{d} = (ad + bc) / bd$$

$$3x^3 + 9x^2 - 27x = 0; 3x (x^2 + 3x - 9) = 0$$

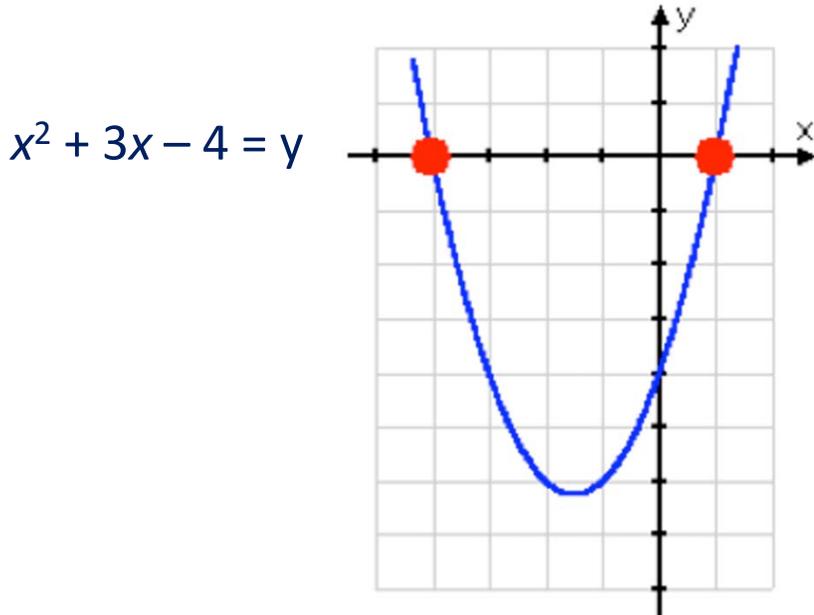
$$(x+2)^2 = (x+2)(x+2)$$

$$(x/y)^2 = x^2/y^2$$

$$x^0 = 1$$



Intermediate Algebra – Quadratics



$$x^2 + 3x - 4 = 0$$

Factoring:

$$(x - 1)(x + 4) = 0$$

$$X = 1, -4$$

For $ax^2 + bx + c = 0$, the value of x is given by:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Quadratic Formula

$$X = \frac{-3 + (3^2 - 4 \cdot 1 \cdot -4)^{.5}}{2} = 1$$

$$X = \frac{-3 - (3^2 - 4 \cdot 1 \cdot -4)^{.5}}{2} = -4$$



Intermediate Algebra – Factoring Polynomials, Solve for x

$$x^2 - 2x - 15 = 0$$

$$(x - 5)(x + 3) = 0$$

$$x = 5, -3$$



Intermediate Algebra – Factoring Polynomials

Example 1

$$x^3 + 3x^2 + 2x + 6$$

$$(x^3 + 3x^2) + (2x + 6)$$

$$x^2(x + 3) + 2(x + 3)$$

$$(x + 3)(x^2 + 2)$$

Example 2

$$x^3 + 3x^2 + 2x + 6 / (x + 3)$$

$$((x^3 + 3x^2) + (2x + 6)) / (x+3)$$

$$(x^2(x + 3) + 2(x + 3)) / (x+3)$$

$$((x + 3)(x^2 + 2)) / (x+3)$$

$$x^2 + 2$$



Intermediate Algebra – Exponents

$$x^3 * x^2 = x^5$$

$$x^2 * x^{.5} = ?$$

$$x^2 * x^{.5} = x^{2.5}$$

$$x^9 / x^2 = x^7$$

$$x^4 / x^8 = ?$$

$$x^4 / x^8 = x^{-4}$$

$$(x^2)^5 = x^{10}$$

$$(x^{.5})^2 = ?$$

$$(x^{.5})^2 = x$$

$$1/x^4 = x^{-4}$$

$$1/x^{-z} = ?$$

$$1/x^{-z} = x^z$$



Intermediate Algebra – Imaginary Numbers

$$i^2 = -1, i * i = -1$$

$$i = \sqrt{-1}$$

$$i = \sqrt{-1}$$

$$i^2 = -1$$

$$i^3 = -i$$

$$i^4 = 1$$

$$i^5 = i$$

$$i^6 = -1$$

$$i^7 = -i$$

$$i^8 = 1$$

$$\sqrt{-25} = \sqrt{-1 * 25} = 5i$$

$$\sqrt{-75} = \sqrt{-1 * 3 * 25} = 5i\sqrt{3}$$



Coordinate Geometry – Coordinates Equation of a Line

$y = mx + b$, equation of a linear (straight) line

m = slope of the line = change in Y / change in X

b = y intercept

If m is negative, the line is going down and if positive the line is going up (left to right).

What is the equation for the line between points, (1, -2) & (6, 8)?

$$m = \text{change in } y \text{ values} / \text{change in } x \text{ values} = (y_1 - y_2) / (x_1 - x_2)$$

$$m = [8 - (-2)] / (6 - 1) = 10/5 = 2$$

$$b = y - mx; b = 8 - (2) \times (6) = 8 - 12 = -4$$

$$y = 2x - 4$$



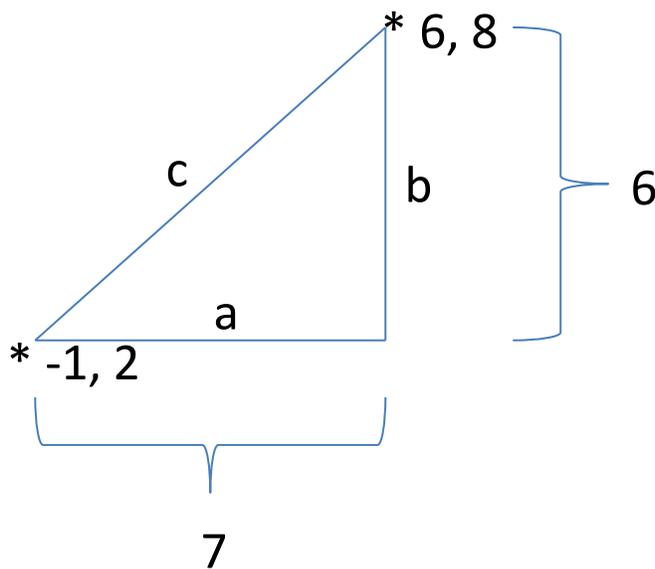
Coordinate Geometry – Coordinates

What is the distance between these points
 $(-1, 2)$ and $(6, 8)$?



Coordinate Geometry – Coordinates

What is the distance between these (-1, 2) and (6, 8)?



$$a^2 + b^2 = c^2$$

$$49 + 36 = c^2$$

$$c = \sqrt{85}$$

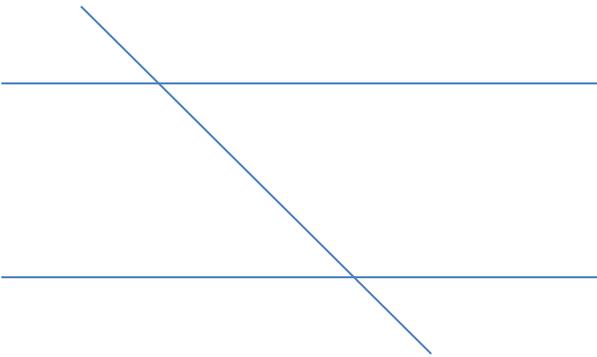
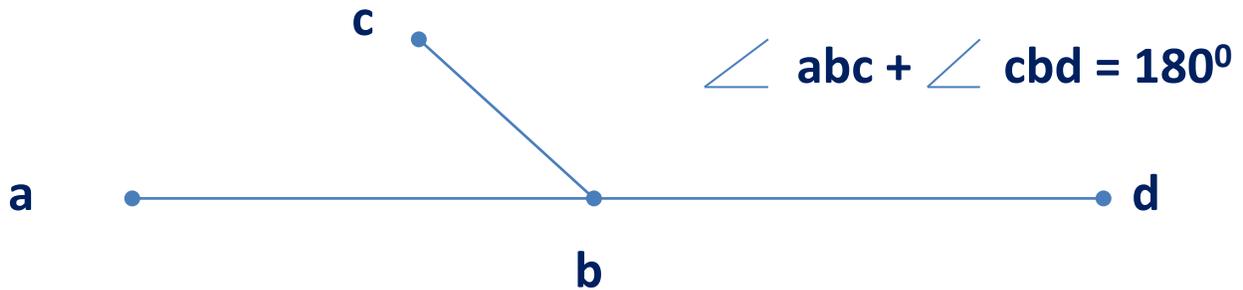


Plane Geometry

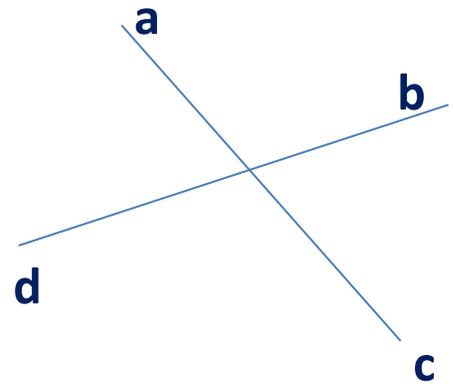
- Lines and Angles
- Triangles
- Circles
- Squares and Rectangles
- Multiple Figures



Plane Geometry: Lines



Transversal line thru two parallel lines creates equal opposite angles.

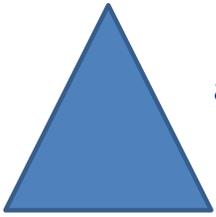


Opposite (vertical) angles are congruent (equal)

All angles combined = 360°

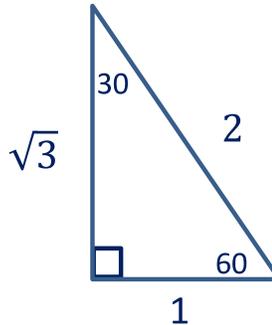


Plane Geometry: Triangles



Equilateral:
all angles = 60°

Sum of all angles = 180°

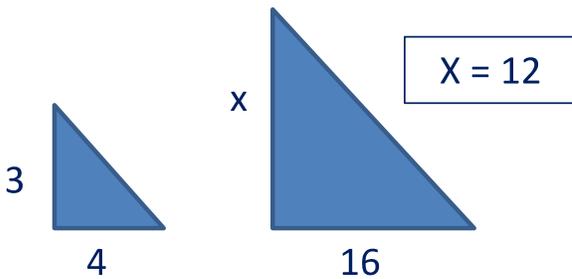


For a 30, 60, 90 triangle (only):

Short side = $\frac{1}{2}$ * Hypot

Long side = $\frac{1}{2}$ * H * $\sqrt{3}$

Recall: $a^2 + b^2 = c^2$

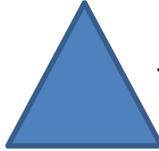


*Similar triangles,
proportions are equal*



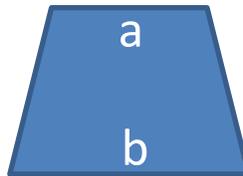
Plane Geometry

Area of a triangle = $\frac{1}{2}$ (base * height)



The sum of the three angles = 180°

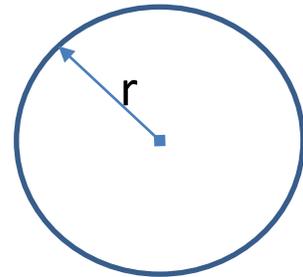
Area of a trapezoid = $\frac{1}{2}$ (a + b) * (height) where a and b are the lengths of the parallel sides



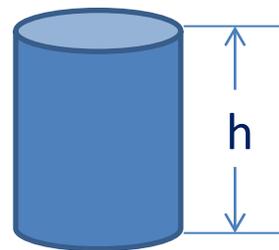
Diameter = 2 * radius of a circle

Circumference of a circle = $2\pi r$

Area of a circle = πr^2

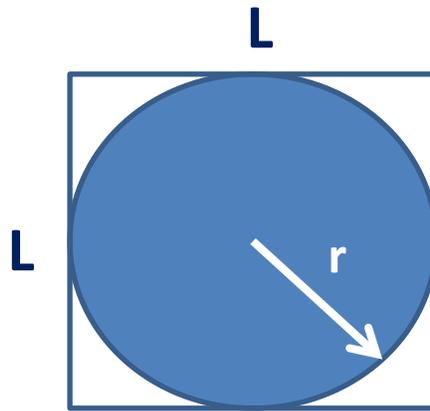


Volume of cylinder = area of circle * height



Plane Geometry Example

What is the area of the square if the radius equals 5?



Diameter = $2 \times r$

The diameter = 1 side of the square

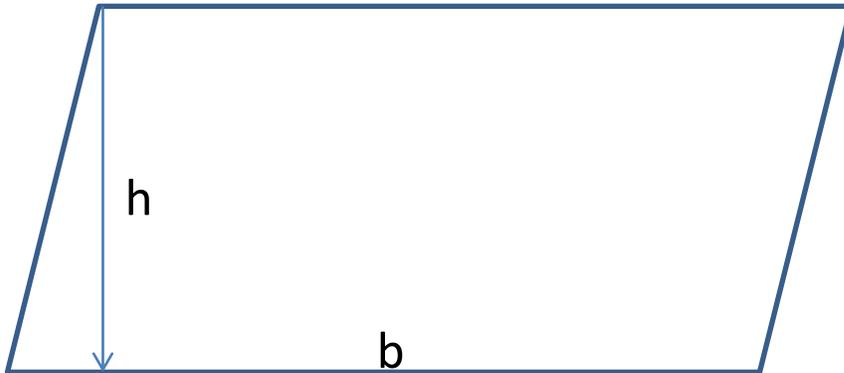
Area = $L \times L$

Diameter = 10 (same as a length of a side), Area = 100



Plane Geometry Parallelogram

Area = Base x Height

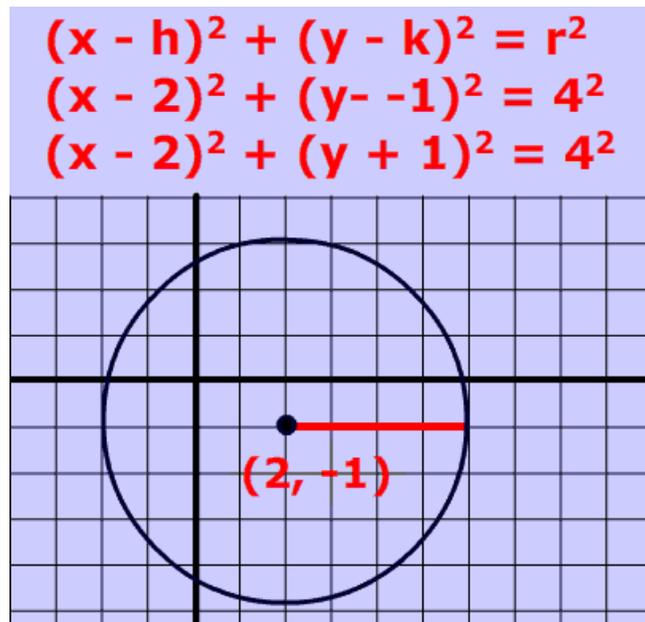
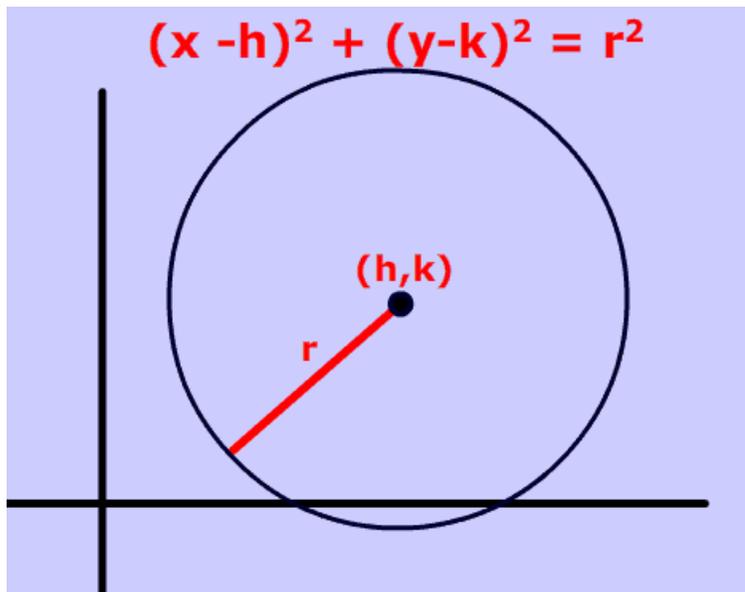


Note a rectangle is a parallelogram.

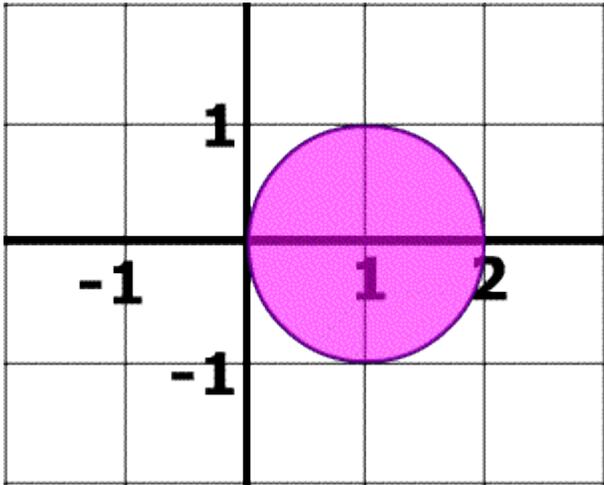
The sum of the angles = 360°



Plane Geometry Circles

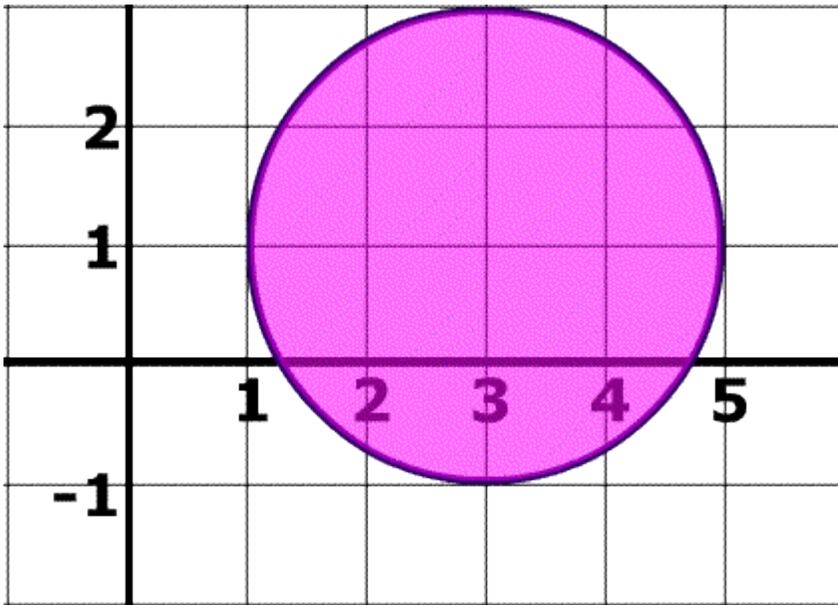


Plane Geometry Circles



What is the equation of these circles?

$$(x-1)^2 + y^2 = 1$$



$$(x-3)^2 + (y-1)^2 = 4$$



Plane Geometry Terms

Congruent = equal lengths

Co-linear = on same line

$\angle abc$ = the angle of b in the triangle abc

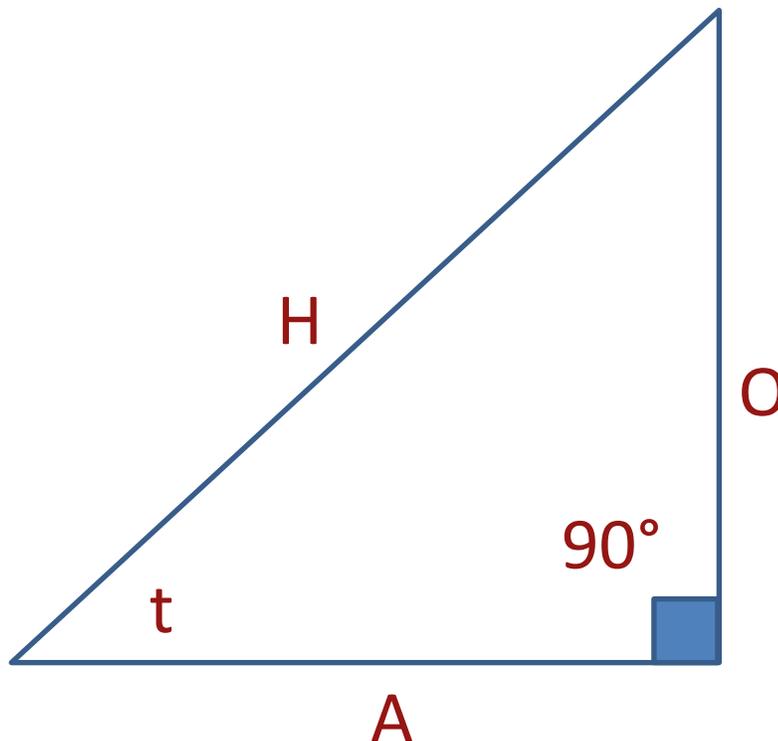
Acute = less than 90 degrees
(A cute little angle)

Obtuse = greater than 90 degrees



Trigonometry

For all right triangles



Memory Aid
SOH CAH TOA

$$\sin (t) = \text{sine } t = \frac{\text{opposite side}}{\text{hypotenuse}} = \frac{O}{H}$$

$$\cos (t) = \text{cosine } t = \frac{\text{adjacent side}}{\text{hypotenuse}} = \frac{A}{H}$$

$$\tan (t) = \text{tangent } t = \frac{\text{opposite side}}{\text{adjacent side}} = \frac{O}{A}$$

$$\cot (t) = \text{cotangent } t = \frac{1}{\text{tangent } t} = \frac{\text{adjacent side}}{\text{opposite side}} = \frac{A}{O}$$

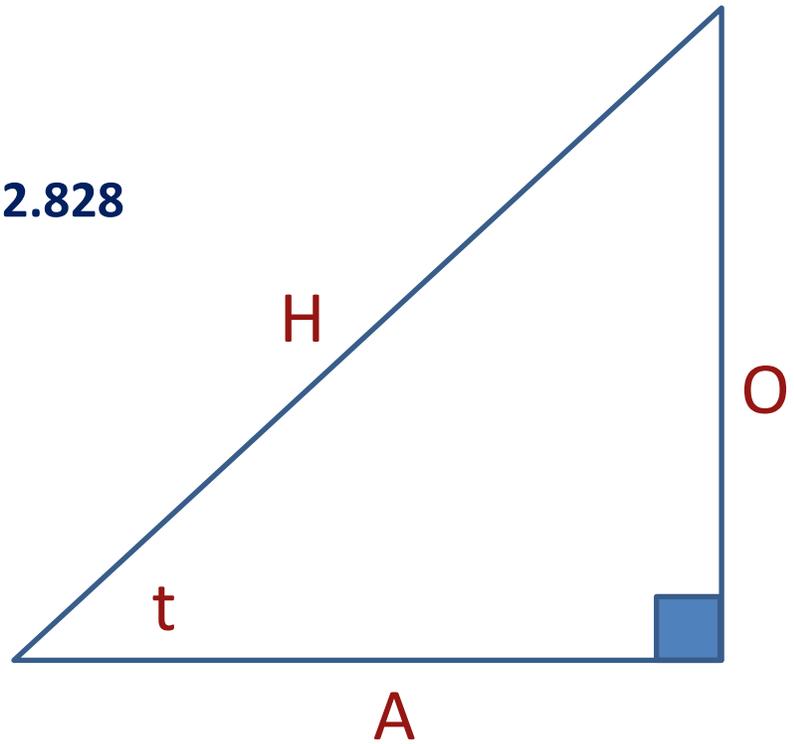


Trigonometry

$$\cos(t) = A/H$$

$$\text{if } O = 2 \text{ and } A = 2, \text{ then } H = \sqrt{8} = 2.828$$

$$\cos(t) = 2/2.828 = 0.707$$



$$H^2 = A^2 + O^2$$

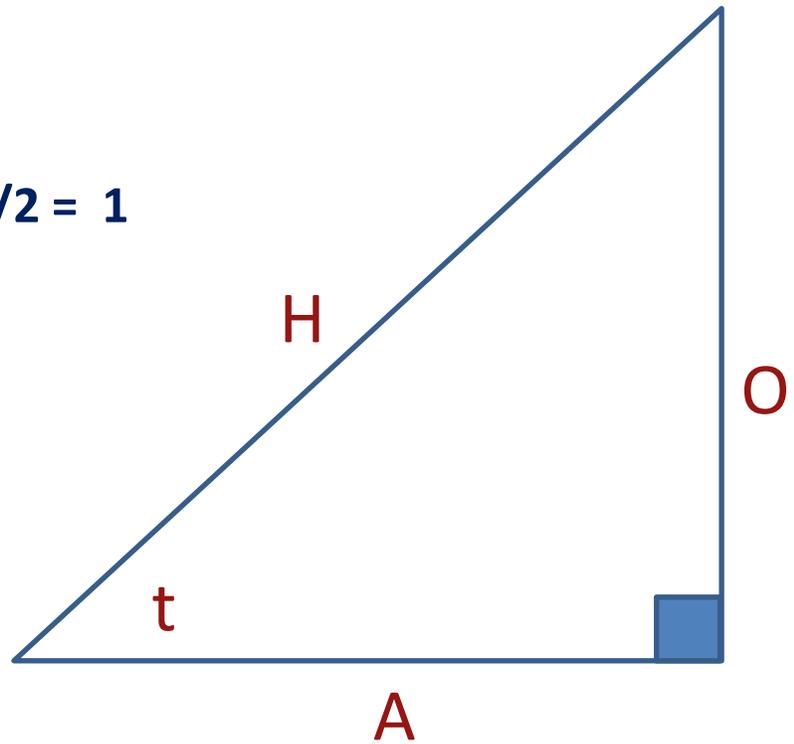


Trigonometry

$$\text{Tan } (t) = O/A$$

if $O = 2$ and $A = 2$, then $O/A = 2/2 = 1$

$$\text{Tan } (t) = 1$$



$$H^2 = A^2 + O^2$$



Miscellaneous Topics – You May See These On The ACT Math

Fundamental Counting Principles

3 shirts, 2 pairs of pants, 4 sweaters – how many days with a different outfit?

$$(3)(2)(4) = 24 \text{ day of a unique combination}$$

How many different and unique phone numbers of a 7 digit number?

$$(10)(10)(10)(10)(10)(10)(10) = 10^7$$



Miscellaneous Topics – Probabilities – Examples

Given: 5 red marbles are placed in a bag along with 6 blue marbles and 9 white marbles:

Question: if three white marbles are removed, what is the probability the next marble removed will be white?

- *Originally, there were 9 white marbles out of 20; with 3 white marbles removed, there are 6 out of 17 remaining. The probability the next marble removed is white = $6/17$.*

Question: if 4 blue marbles are added to the original amount, what is the probability the first marble removed is NOT white?

- *Now there are 24 marbles total with 15 non-white. The probability that the first marble removed is not white is $15/24$.*



ACT Test Prep Science



Science Section of the ACT

40 Questions in 35 Minutes

Goal: Answer 75% correctly (30 out of 40)

This means you need a strategy to confidently answer 30 questions correctly in 35 minutes.



Science Reasoning Vocabulary

2-butanone	condensation	extinction	long-term	parts per
2-propanol	conductivity	Fahrenheit	LiCl	million
$\mu\text{mho/cm}$	continental drift	failed burn	mammal	peat
[theta]	continental ice	flask	manometer	peer (n)
absorbance	sheet crater	formula	mapping function	permeable
Alpha, alpha decay	crown fire	frequency	marine (adj)	photosynthesi
amino acid	cytoplasm	$^{\circ}\text{F}$	Mass, massive	c
ammonium nitrate	$^{\circ}\text{C}$	ft/sec	meiosis	pinnate
asteroid	CaCl_2	gamma	mesopause	plume
average molecular	CaCO	gas chromatograph	mesosphere	plunger
mass	CaCO_3	genus	Methane,	plutonium
beta	Ch^3	glacier	methanol	polar
beta particles	CuO	groundwater	microscopy	pollen
biomass	denature	habitat	migrating	polymer
biosphere	density	helium	migratory	polyrhythm
biotic index	depth range	hexane	Milli-bar	polystyrene
bog	derived	high-frequency	model	pore water
buoyancy	diffuse	H_2	Mole, molecule	precipitate (v)
buoyant force	directly proportional	H_2O	molecular weight	projectile
calcareous ooze	drawn to scale	Hg	montane	prophase
calcite	Δ	ice shelf	mL, mm Hg, μ	pyrotechnics
calcium carbonate	δ	ignite	nitrite	radar pulse
capacity	ecology	index	nitrogen-fixing	radioactive
capillary	ecopark	infrared	nonreactive	decay
carbon dioxide	ecosystem	inorganic	numerical	rallies (n)
carbon particles	efficiency	invertebrate	aperture	range
carbonate	emit	isotope	nutrient	reaction
Celsius	equilibrium	joule	NaCl , NH_4NO_3	reactive
charged particles	equivalency	kinetic	objective lens	recasting
chromatid	erosion	km	organic matter	recipient
chromosome	ethyl acetate	landmass	organism	relief supplies
climatic	exclusion	lava	osmosis	renatured
colorimeter	chromatography	lithium chloride	ozone	retention time
comet	extinct		paleozoic	(RT)
			particle	Revitalize
				rift
				saturation



Science Reasoning Vocabulary

sea floor
sediment
seemingly
selective
semipermeable
sluggishly
sodium chloride
solar
solar system
solute (adj)
solutes
solution
Solvent
sparking device
species
specific
specific gravity
speculate
spent
sprawl
spurred
stagnant
standard
atmospheric
 pressure
standard sample
static
stratopause
stratosphere
sucrose
sulfate

supersaturated
suspension
synthesis
synthesize
SO₄
tactic
thermosphere
tolerance
toxic
tropopause
troposphere
ultraviolet
undersaturated
uninhibited
uranium series
vapor
vapor plume
variable
velocity
vertebrate
volcanic
volcanism
water table
watt
wetlands
zoning

Scientific notation

Students should recognize:

allele notation

binomial

nomenclature

chemical equation

chemical formula

element symbol

isotope

