

PASSPORT TO THE ISEE



HAYUTIN & ASSOCIATES

tutoring • test prep • independent study • educational therapy

ISEE OVERVIEW

ISEE stands for the Independent School Entrance Examination. Although schools use the results as part of their entrance procedures, it is only one variable in the school's admission process. A student's performance on this test will not necessarily determine whether or not s/he is accepted at a particular school. Schools also consider grades, teacher recommendations, extra-curricular activities, and school interviews.

Many students will not have taken this type of test until now. Therefore, it is useful to know what is on the test and how it is scored.

The test itself is broken into five separate sections. Each one is focused on a different type of material, and each section has its own time limit. The sections are called Verbal Reasoning, Quantitative Reasoning, Reading Comprehension, Math Achievement, and Essay. With the exception of the essay section, the ISEE is a multiple-choice test with answer choices lettered (A), (B), (C), and (D). While not graded, the essay is photocopied and sent as a writing sample only to the schools you select for score reporting.

The scoring on the test is simple. For each correct answer, the student receives a point. For wrong answers or blank answers, no points are awarded or subtracted. Then, each student's raw score is converted to a "stanine" score depending on many factors. Stanine scores and percentile ranking are dependent on the student's grade level and national independent school performance norms for the same test taken by the students in that grade during the past three years.

The ISEE test has three levels: a Lower Level, a Middle Level, and an Upper Level. The Lower Level is for students currently in grades 4 and 5 who are candidates for admission to grades 5 and 6. The Middle Level is for students in grades 6 and 7 who are candidates for grades 7 and 8. The Upper Level is for students in grades 8 through 11 who are candidates for grades 9 through 12.

Many students may think that the test is too hard, and will need reminding that they are not alone. Their scores will be based on how well they do in comparison to the other students at their grade level. They are not expected to know all the concepts on the test. This manual is designed to familiarize them with the basic content and format of the ISEE so that they will be prepared to maximize their score.

TEST FORMAT CHART— ALL LEVELS

Lower Level Candidates for Grades 5 and 6

| Section | Number of Questions | Time (Minutes) | 50% Extended Time (Minutes) |
|------------------------|----------------------------|--|--|
| Verbal Reasoning | 34 | 20 | 30 |
| Quantitative Reasoning | 38 | 35 | 52.5 |
| 5 Minute Break | | | |
| Reading Comprehension | 25 | 25 | 37.5 |
| Math Achievement | 30 | 30 | 45 |
| 5 Minute Break | | | |
| Essay | | 30 | 45 |
| Total Time | | 2 hours 20 minutes (without breaks) | 3 hours 30 minutes (without breaks) |

Middle Level and Upper Level Candidates for Grades 7-8 and 9-12)

| Section | Number of Questions | Time (Minutes) | 50% Extended Time (Minutes) |
|------------------------|----------------------------|--|------------------------------------|
| Verbal Reasoning | 40 | 20 | 30 |
| Quantitative Reasoning | 37 | 35 | 52.5 |
| 5 Minute Break | | | |
| Reading Comprehension | 36 | 35 | 52.5 |
| Math Achievement | 47 | 40 | 60 |
| 5 Minute Break | | | |
| Essay | | 30 | 45 |
| Total Time | | 2 hours 40 minutes (without breaks) | 4 hours (without breaks) |

ISEE TIMELINE & REGISTRATION

ISEE test takers of all levels have the option to take the ISEE up to three times for a single admission cycle.

The three testing windows, known as seasons, are delineated as follows:

- Fall (August-November)
- Winter (December-March)
- Spring/Summer (April-July)

Students may take the test once, and only once, within each of the three testing seasons.

Our recommendations vary greatly depending on the student and start date of preparation, but we recommend one or two sittings, fall and/or winter. The spring/summer testing season is typically irrelevant—except for students applying beyond regular school admissions deadlines.

Many students elect to take the test once, and only once. We encourage the ‘one and done’ model whenever possible. Other test takers choose to try again. As always, we work with each student to determine which strategic option provides an individually empowering, positive experience as opposed to an unnecessarily stressful and burdensome process.

Families do not have to select a school score recipient when registering online; they can first review the score report before opting to release the results to any school. When reporting scores, however, families must send a complete score report for any selected test sitting.

The majority of test takers still choose to take the test in the traditional paper and pencil format. However, more students each year are opting to take the test on computer at a local Prometric testing center. We always discuss the pros and cons of both formats with each family to determine what is optimal for the individual student.

Our children are all different, so it follows that they prepare differently for the ISEE. Please do not hesitate to contact us with any questions about these changes to the ISEE testing policy.

Registration typically launches online in August for the following academic year. Registration for the ISEE can be found at: <https://www.erblearn.org/parents/isee-registration>

A NOTE ABOUT ACCOMMODATIONS

Every year some students receive one or more of the following accommodations on the ISEE:

- Use of extended time (typically 50% more, but sometimes 100% more)
- Use of a calculator for the Quantitative Reasoning and Math Achievement sections
- Use of a laptop for the essay portion of the exam (with or without spellcheck enabled)
- Use of the test booklet for circling answers choices, instead of the bubble sheet
- Use of a reader to read all of the prompts and test questions aloud
- Use of a scribe to write an essay as dictated by the student

Once we know if a student has been approved to receive any specific accommodations (whether or not listed above), we can adjust the program accordingly. Whether a student is taking a practice quiz or a full-length practice exam, we want to simulate the same experience the student will have on a real test day as closely as possible.

If a student does have extended time, the student and tutor will need to add the right amount of extra time to the recommended time limit already printed on any hardcopy materials. If a family is unsure whether their student might need or qualify for accommodations, please contact us to discuss next steps.

For those families seeking accommodations, the student must first apply for and secure approval before selecting a test site and date. Once approved, the accommodations remain available to that student for a 15-month window of time. Formal review and approval of an application for accommodations can take the ERB 3-6 weeks from the time of request.

Please visit the following link for more information: <https://www.erblearn.org/services/isee-overview/accommodations>

NOTE TO STUDENTS

This course is designed to prepare you for any level of the ISEE. During the test preparation process, your tutor will empower you with the tools and techniques necessary to perform at your best on the ISEE. You will also be provided with a basic review of all the important content areas on the test for your level. In addition to instruction, you will be encouraged to take at least one or two full length practice exams prior to sitting for the actual ISEE. We cannot officially score these tests, because your stanine scores are based on national independent school norms for your test in your age group. However, we will still offer you our best estimate for your stanines, based on our extensive experience with past students and their performances on all levels of the exam. Practice ISEEs are an essential component of our program. They will help you with your timing, test taking strategies, endurance, and confidence. Practice exams also help us diagnose areas of focus and determine how to customize subsequent tutoring sessions.

In addition to this Passport to the ISEE packet, you will have access to a variety of resources to help you prepare for the ISEE exam. These include a subscription to an online resource with practice exercises and full-length exams and a Hayutin workbook for timed practice. Depending on the length and depth of your program, you may also receive supplemental materials from various ISEE publications and resources. Each student gets a customized approach to fit his or her needs in terms of content and learning style.

Every week you will cover various unit topics from different areas of the exam. For each section, your tutor will give you practice exercises, homework, and often some timed work. You will be exposed to a wide breadth of material that will appear on the test. Homework is an essential part of the program. Your tutor will work with you to determine how much homework is realistic for you to complete between your tutoring sessions. Students who consistently complete their homework assignments tend to raise their scores more significantly than do students who cannot honor the homework commitment.

Some of the vocabulary and math concepts will be quite challenging for most students. In fact, students often see math topics to which they have never even been exposed in school. Do not let this discourage you. Remember, you are not expected to know all of the math problems or every vocabulary word that may appear on your ISEE. We will work on strengthening your academic foundation by providing you with a basic review of all the important concepts and techniques that are appropriate for your grade level and ability. The test-taking skills and knowledge you acquire during your preparation will serve you well for years to come.

Keep in mind that the ISEE is not the most important test of your life. It is simply one of several steps in the admissions process. Please try not to get preoccupied with what your score will be, and whether it will be good enough for a particular school. Everyone is different, and your test score is definitely not the only factor in your application. All that truly matters is that you try your best.

GENERAL TEST-TAKING RULES

1. Every section on a standardized test like the ISEE is timed. It is, therefore, very important to know how much time is allowed for each question, and how much time you have left on the section you are working on.
2. Bring a non-digital or stop watch to the test. Not all rooms have clocks. Not all test proctors will tell you how much time you have left on a section. Be prepared to rely on yourself.
 - Before you begin a section, move the minute hand of the watch to 12. Do not worry about the correct time. Instead, note how many minutes you have to complete the section. It is easier to keep track of the time when you are dealing with a new full hour.
3. A timer or stop watch is useful for practice at home.
4. Answer ALL questions as efficiently as you can.
 - You are not penalized for guessing.
 - A guess may be right... a blank is always wrong.
5. Make sure that you take a moment to look at your answers. Do not leave any answer blank on the test.
6. Never skip questions.
 - If you don't know the answer, guess!
 - Some students find it helpful to pick one letter such as (B) or (C) to use whenever they make a random or wild guess. It doesn't matter which letter you choose; using the same letter whenever you make a random guess will save time.
 - Remember, the "guess" letter is for random guesses only; always try to make an educated guess if possible.
7. If you are working on a question that seems too difficult, do not waste your time. Take a stab at the answer, and guess! You can flag questions to which you'd like to return, if time permits.

8. For Verbal Sections: Don't go for the first answer just because it sounds good. Often the first choice (A) sounds good but is incorrect. Make sure to continue reading ALL the answer choices in order to find the BEST answer possible.
9. For the Math Sections: Try to figure out the answer independent of the answer choices, then go to the correct choice. If you do not know how to do a specific math problem, look at the answer choices and eliminate answers that are obviously wrong (i.e.: too big or too small). Please note that answer choices are always listed in ascending order, smallest to largest numbers.
10. You may only work on one section at a time.
11. You may not return to another section after time has been called.
12. Check your answers when you have finished.
13. You may not get or give help on the test.
14. Books and notes are not allowed.
15. Only students with special accommodations may be allowed to have a calculator and/or a laptop for the essay section of the exam. If you are unsure whether or not you have accommodations, please ask a parent and tell your tutor what you find out.
16. If taking the test on paper, you may write in your test booklet, so mark it up and use it as scratch paper. For computer test takers, plan on using the scratch paper provided to you.

TEST DAY HINTS

The night before the test:

Do something relaxing and fun.

Sleep:

Make sure you get a good night's sleep leading up to your test day.

Breakfast:

Eat your normal breakfast. Consider bringing a light snack for the break.

Clothes:

Clothes should be comfortable. Dress in layers. If the room is hot you will be able to take off layers or add them if the room is cold. There is no dress code for the test.

Arrival:

Get to the test site at least 30 minutes before the exam begins.

Materials:

- Admission ticket
- Water/light snack
- Watch (make sure it doesn't make any noise)
- Paper test takers: #2 pencils with erasers and Two black or blue ballpoint pens
- Testers with accommodations: make sure to bring what you need!

Seating:

If given a choice, consider sitting away from anyone you might know to avoid distractions.

Noises:

Ignore them and anyone making them!

Good luck! 😊

VOCABULARY LISTS

HOW TO BUILD YOUR VOCABULARY

What follows is a comprehensive series of Word Parts and Word Lists to help you boost your vocabulary. Learning a significant number of prefixes, suffixes, roots and vocabulary words will improve your critical reading and writing skills. It will also help you raise your scores on the Verbal Reasoning and Reading Comprehension sections of the exam.

With guidance from your tutor, you will set a personal goal for exactly how much vocabulary you can learn before your test date. Many students set a weekly goal of a certain number of words and/or roots to learn to stay on track.

Your tutor will also help you prioritize your focus between the materials provided here and other online resources. Many students like to begin with the Top 135 Word List for All Levels, and then move into more specific Word Lists (depending on individual test level).

No matter what approach you take, we urge you to practice vocabulary regularly. You can make flashcards or use online resources you can find here:

- Lower Level Quizlet: https://quizlet.com/Test_Innovators/folders/iseessat-lower-verbal-new/sets
- Middle Level Quizlet: https://quizlet.com/Test_Innovators/folders/isee-middle-verbal/sets
- Upper Level Quizlet: https://quizlet.com/Test_Innovators/folders/isee-upper-verbal/sets

While your tutor will monitor your vocabulary progress and remind you to stay focused, it is up to you to dedicate yourself to some significant rehearsal time on your own.

WORD PART LIST— ALL LEVELS

Suffixes

| Suffix | Meaning | Example Word |
|---------|---|--------------|
| x-able | adjective "able to Xed" | agreeable |
| x-archy | noun "rulership by X" | anarchy |
| x-ical | adjective "characterized by X" | whimsical |
| x-ity | noun "condition or state of being X" | gravity |
| x-less | adjective "without X" | heartless |
| x-ness | noun "quality of being X" | fondness |
| x-ology | noun "doctrine or theory of X" (originally "word of X") | biology |
| x-ous | adjective "having the quality of X" | obnoxious |

Prefixes and Roots

| Prefix/Root | Meaning | Example Word |
|-------------|---------------------|--------------|
| a | without | agnostic |
| ab/abs | away from, against | absolve |
| ac/acr | sharp | acrimonious |
| ad/at | to, toward | attack |
| am | to love | amorous |
| amb | to go, to walk | perambulate |
| anim | life, spirit | animosity |
| ante | before | antebellum |
| anthr/andr | man | misanthrope |
| anti | against, opposite | antiseptic |
| apt/ept | skill, ability, fit | adept |
| bell | war | bellicose |
| bene | good | benefactor |
| bi | two | bicycle |
| carn | flesh | carnal |

| Prefix/Root | Meaning | Example Word |
|--------------------|----------------------------|---------------------|
| chron | time | chronological |
| circ/circum | around | circumvent |
| cis | to cut | incision |
| cli | to lean | decline |
| clu/clo/cla | to close, shut | occlude |
| co/com/con | with, together | community |
| cred | believe | credible |
| culp | blame | culpable |
| cur/cour | to run (a course) | currents |
| de | away from, the opposite of | deconstruct |
| dem | people | demographic |
| di | apart, through, away | divide |
| dic | to say, to tell | dictation |
| ding/dain | worth | ordain |
| dis | apart, away from, not | distaste |
| dys | faulty, bad | dysfunction |
| epi | upon | epicenter |
| equi/equ | equal | equidistant |
| esce | to become | acquiesce |
| eu | good, pleasing | euphoric |
| ex/ej | out, put out | exclude |
| extr | outside, beyond | extract |
| fac | to make, to do | facilitate |
| fic/fig | to make, to do | figure |
| fid | faith, trust | fidelity |
| gen | birth, creation, kind | generate |
| gyn | woman | misogynist |
| her/hes | to stick | adhesive |
| hetero | different, other | heterogeneous |
| homo | same | homogenize |
| hyper | over | hyperbolic |
| hypo | under | hypoglycemic |

| Prefix/Root | Meaning | Example Word |
|--------------------|------------------------------|---------------------|
| in/il/im/ir | not | illegitimate |
| in/en/im/em | into | informed |
| inter | between, among | interstate |
| intra | within, inside | intrapersonal |
| loc/loq/log | to speak | loquacious |
| luc/lum | light | luminous |
| magna | great, big | magnificent |
| mal | bad | malicious |
| man | hand | mandate |
| mis | wrong, bad | misstep |
| mit/mis | to send | transmit |
| morph | shape, form | amorphous |
| mut | change | mutable |
| nat/nas/nai | to be born | nascent |
| neo/nov | new | neophyte |
| nom/nym | name | nominate |
| ob | against, in front of, toward | obscure |
| omni | all, every | omniscient |
| pan | all, everywhere | panoramic |
| par | equal | parity |
| path | feeling | empathy |
| phil | love of | philanthropic |
| phobe | fear of | arachnophobia |
| phon | sound | telephone |
| plac | to please | placate |
| pon/pos | place, put | position |
| port | to carry | transport |
| post | after | posterior |
| pot | power, ability | potential |
| pre | before | prehistoric |
| pro | forward, supporting | propel |
| pun/pen | to pay, compensate, punish | penalize |

| Prefix/Root | Meaning | Example Word |
|--------------------|---------------------|---------------------|
| re | again, back | return |
| sci | knowledge, to know | scientific |
| scrib/script | to write | scribble |
| sed/sid | to sit, be still | sedentary |
| sequ/secu | to follow | sequel |
| spec | to look, appear | inspect |
| sub | under, less than | subordinate |
| super | over, greater than | superscript |
| tact | touch | tactful |
| techn | tools, art, skill | technician |
| ten | to hold | tenacious |
| tens/ten | to stretch | tensile |
| terr | earth | terrestrial |
| trans | across | transit |
| tract | to drag, pull, draw | tractable |
| un/non | not | unknowable |
| uni | one | uniform |
| us/ut | to use | utilize |
| ven/vent | to come | convene |
| vers/vert | to turn | convert |
| vi/viv | life | vivacious |
| vid/vis | to see | visible |
| voc | to call | vocalize |
| vor | to eat | voracious |

COMMONLY CONFUSED WORD LIST— ALL LEVELS

Note: Some of these words appear on other word lists as well.

| Word | Definition |
|-------------|---|
| complement | companion, counterpart |
| compliment | praise, flattery |
| principle | law, standard |
| principal | most important |
| stationary | not moving |
| stationery | writing paper, writing materials |
| elicit | to draw or bring out or forth |
| illicit | not legal, unauthorized |
| proscribe | to denounce or condemn |
| prescribe | to lay down (in writing); to designate remedies |
| imminent | likely to occur at any moment, impending |
| eminent | high in rank or repute, distinguished |
| aggravate | to make worse or more severe |
| irritate | to excite to impatience or anger |
| omit | to leave out, fail to include or mention |
| emit | to send forth |
| council | an assembly of persons summoned or convened for consultation, deliberation, or advice |
| counsel | advice; opinion or instruction given in directing the judgment or conduct of another |

TOP 135 WORD LIST— ALL LEVELS

| Number | Term | Definition/Synonym |
|--------|--------------|---|
| 1 | arrogant | having a sense of superiority; conceited |
| 2 | anonymous | unknown, usually by choice |
| 3 | intermission | a recess in between, an interval |
| 4 | competent | able |
| 5 | capable | skilled |
| 6 | acclimate | adjust, adapt, accustom |
| 7 | omnipotent | all-powerful |
| 8 | distinct | apparent, obvious; well defined |
| 9 | mock | artificial, fake; to make fun of |
| 10 | validate | verify; support |
| 11 | fundamental | basic, central, essential |
| 12 | contradict | to say the opposite of |
| 13 | bias | one-sidedness, partiality; to unfairly influence |
| 14 | prejudice | belief without basis, information; intolerance |
| 15 | eccentric | bizarre, unusual |
| 16 | fragile | breakable, dainty |
| 17 | catastrophe | calamity; unhappy conclusion |
| 18 | placid | calm, mild |
| 19 | wary | careful, cautious |
| 20 | amateur | casual participant |
| 21 | urban | characteristic of a city |
| 22 | boor | lacking culture or refinement, crude; ill-mannered person |
| 23 | morale | confidence, self-esteem |
| 24 | scorn | contempt toward something; to look down on |
| 25 | paradox | contradiction, puzzle |
| 26 | rustic | country, rural |
| 27 | curriculum | course of subjects studied in school |
| 28 | wistful | having sad thoughts; longing |
| 29 | fatal | deadly, lethal |

| Number | Term | Definition/Synonym |
|--------|-------------|--|
| 30 | prediction | a forecast of what might happen |
| 31 | intricate | detailed, elaborate |
| 32 | omit | to leave out |
| 33 | emit | to discharge, give off or send forth |
| 34 | camouflage | a disguise; to cover |
| 35 | elicit | to get something (a response, information) from someone |
| 36 | arid | dry |
| 37 | terminate | to end, stop; to fire someone from a job |
| 38 | fervent | enthusiastic, excited |
| 39 | equivalent | equal |
| 40 | indifferent | unconcerned, neutral, having no opinion, unbiased |
| 41 | infer | to assume, deduce |
| 42 | imply | to indicate, mean |
| 43 | adhere | to stick to, follow |
| 44 | moral | ethical, honest; the lesson or significance of something |
| 45 | immoral | evil, degenerate |
| 46 | anticipate | to expect; to predict |
| 47 | clarify | to explain, make clear |
| 48 | wrath | extreme anger |
| 49 | illusion | false appearance; false belief |
| 50 | circumvent | to avoid or get around, evade |
| 51 | compel | to force to do something |
| 52 | gregarious | sociable, talkative, outgoing |
| 53 | amiable | friendly, agreeable |
| 54 | authentic | genuine, not fake |
| 55 | ascend | to go up |
| 56 | decent | good, fair |
| 57 | miserly | greedy, stingy |

| Number | Term | Definition/Synonym |
|---------------|-------------|---|
| 58 | acute | having a sharp point or tip; anything severe |
| 59 | ambiguous | having more than one meaning; unclear |
| 60 | candid | honest |
| 61 | futile | hopeless, pointless |
| 62 | formidable | powerful; intimidating |
| 63 | amoral | immoral, uncontrolled |
| 64 | neutral | impartial, noncommittal |
| 65 | affected | influenced; artificial or fake |
| 66 | scarce | insufficient, infrequent |
| 67 | naive | ignorant, trusting; innocent, lacking experience |
| 68 | repress | to keep back, hold in |
| 69 | aloof | distant |
| 70 | benign | kindly |
| 71 | debris | litter, waste |
| 72 | endure | to last; tolerate |
| 73 | clamor | loud cry; commotion |
| 74 | contiguous | lying side by side |
| 75 | pacify | make peaceful; appease |
| 76 | ominous | menacing, foreboding |
| 77 | static | motionless, changeless, crackling noise |
| 78 | descend | to move down, go lower |
| 79 | enigma | mystery |
| 80 | gullible | naive, trusting |
| 81 | belligerent | nasty, argumentative |
| 82 | incessant | nonstop, persistent |
| 83 | elude | to escape or avoid |
| 84 | discord | harsh mixture of sound; lack of agreement, disagreement |
| 85 | intangible | unable to be touched or sensed, abstract |
| 86 | incompetent | unable to do something properly, unskilled |
| 87 | inadequate | not enough, lacking, insufficient |
| 88 | coarse | rough; rude |
| 89 | hinder | to obstruct, to get in the way of |

| Number | Term | Definition/Synonym |
|---------------|--------------|--|
| 90 | mundane | ordinary |
| 91 | excess | overabundance of something |
| 92 | exaggerate | to overstate, embellish |
| 93 | habitat | place where someone resides |
| 94 | deceit | dishonest behavior, trickery |
| 95 | feign | to pretend |
| 96 | tangible | real, concrete |
| 97 | akin | similar, alike |
| 98 | suppress | to restrain, hold in check |
| 99 | somber | sad, depressing |
| 100 | concise | short, to the point |
| 101 | brevity | shortness; lightness |
| 102 | devout | sincerely believing; devoted |
| 103 | guile | slyness, cleverness |
| 104 | forfeit | to lose or give up something |
| 105 | intermittent | sporadic, not continuous |
| 106 | condescend | patronize, talk down to |
| 107 | fortify | to strengthen |
| 108 | hardy | strong, tough |
| 109 | allude | to suggest, imply, hint |
| 110 | tacit | understood without being directly said |
| 111 | dialogue | discussion, exchange of ideas, to converse |
| 112 | compassion | tender feeling, empathy |
| 113 | appreciation | thankfulness |
| 114 | irony | the use of words to express the opposite of their literal meaning; an unexpected situation |
| 115 | annex | to add on to something, to attach, to incorporate |
| 116 | forge | to advance, counterfeit |
| 117 | counsel | to advise; advice given to someone |
| 118 | ratify | to approve, usually by law |
| 119 | conform | to comply, obey, agree |

| Number | Term | Definition/Synonym |
|---------------|-------------|--|
| 120 | baffle | to confuse, bewilder, perplex |
| 121 | jest | to joke |
| 122 | jeer | to make fun of |
| 123 | migrate | to move from one place to another |
| 124 | tolerate | to put up with, permit |
| 125 | curb | to stall, delay or stop something; a check or restrain; edge of a path |
| 126 | revolve | to turn, circle |
| 127 | barren | unable to support growth |
| 128 | ignorant | unaware, unknowing |
| 129 | impartial | unprejudiced, neutral, fair |
| 130 | desolate | unused, barren |
| 131 | undermine | to weaken |
| 132 | withered | wilted, weak |
| 133 | juvenile | youth; immature |
| 134 | episode | occurrence, event, part of a series |
| 135 | timid | shy, fearful, hesitant |

TOP 20 WORD LIST— LOWER LEVEL

| Number | Term | Definition/Synonym |
|--------|-----------|--|
| 1 | avoid | to keep away from, shun |
| 2 | hesitate | to pause |
| 3 | forbid | to prohibit |
| 4 | reliable | trustworthy, dependable |
| 5 | cackle | a loud laugh |
| 6 | skit | a short, comic scene |
| 7 | cargo | baggage; something to be delivered |
| 8 | elegant | beautiful, tasteful |
| 9 | disguise | a costume; to hide from |
| 10 | devastate | to demolish, destroy |
| 11 | bliss | ecstasy, complete happiness |
| 12 | detect | to expose, discover |
| 13 | swift | fast, quick |
| 14 | myth | a fictitious story, often ancient |
| 15 | regal | fit for royalty |
| 16 | blur | to dim, obscure; indistinct shape; something that you cannot see or remember clearly |
| 17 | unity | wholeness |
| 18 | resist | withstand, oppose, refuse |
| 19 | global | worldwide, international |
| 20 | cautious | careful |

TOP 55 WORD LIST— UPPER LEVEL

| Number | Term | Definition/Synonym |
|--------|---------------|--|
| 1 | adept | very able, skillful |
| 2 | parody | a humorous imitation; to spoof |
| 3 | coalesce | to come together |
| 4 | congeal | to thicken; to change from liquid to solid |
| 5 | consensus | an agreement |
| 6 | fission | a splitting apart |
| 7 | fusion | a joining together |
| 8 | juxtapose | to place side by side |
| 9 | abdicate | to give up power, step down |
| 10 | disdain | to reject with hatred; intense dislike |
| 11 | allege | to declare something true without proof |
| 12 | assess | to evaluate or determine the worth of |
| 13 | condone | to forgive or disregard an offense |
| 14 | conventional | traditional, ordinary |
| 15 | prevalent | widespread, popular |
| 16 | council | people assembled for purpose |
| 17 | debunk | to prove false |
| 18 | inquiry | a request for information |
| 19 | extol | praise, glorify, honor |
| 20 | prolific | very productive, plentiful |
| 21 | sporadic | having no pattern or order |
| 22 | astute | sharp, shrewd |
| 23 | banal | unoriginal and boring |
| 24 | garrulous | overly talkative |
| 25 | insipid | lacking interest, dull |
| 26 | ostentatious | showy, pretentious |
| 27 | pedantic | overly scholarly |
| 28 | pugnacious | hostile |
| 29 | sanctimonious | acting morally superior, preachy, self-righteous |
| 30 | insinuation | innuendo, unpleasant hint |
| 31 | meticulous | detail-oriented |
| 32 | lament | to express grief for, mourn; song or poem of grief |
| 33 | innate | possessed at birth, not learned |
| 34 | facet | to imprint or carve; surface, aspect |

| Number | Term | Definition/Synonym |
|---------------|-------------|--|
| 35 | inscribe | an aspect of something |
| 36 | wane | to decrease in size or strength |
| 37 | wax | to increase in size or strength |
| 38 | admiring | regarding with approval or respect |
| 39 | analytical | logical, systematic |
| 40 | brash | harsh, loud |
| 41 | dubious | doubtful |
| 42 | ironic | happening in the opposite way to what is expected |
| 43 | objective | fair, impartial; the goal, outcome |
| 44 | sarcasm | the use of witty language used to insult or show displeasure, mock sincerity |
| 45 | subjective | influenced by personal opinion, biased |
| 46 | temperament | disposition, personality |
| 47 | pedestrian | ordinary, dull; a walker |
| 48 | uniform | all the same, common |
| 49 | sage | Wise; one respected for wisdom |
| 50 | flag | to decrease, diminish; mark, indicate |
| 51 | refrain | to hold back, restrain; a chorus or recurring phrase |
| 52 | obsolete | out of date, no longer useful |
| 53 | languid | slow-moving |
| 54 | tepid | lukewarm; not energetic |
| 55 | integrity | a person's moral character, honesty, and truthfulness |

SUPPLEMENTAL WORD LIST— ALL LEVELS

| Number | Term | Definition/Synonym |
|--------|---------------|--|
| 136 | rendezvous | a meeting, usually secret; to meet at a set time and place |
| 137 | epoch | a period of time |
| 138 | plight | a predicament, a bad situation |
| 139 | condense | to compress, shorten |
| 140 | tolerant | accepting of other people's beliefs or behavior |
| 141 | defendant | accused |
| 142 | poignant | emotional, painful |
| 143 | astound | to amaze |
| 144 | allure | appeal; to entice |
| 145 | haughty | arrogant |
| 146 | fledgling | beginner in activity |
| 147 | bleak | barren, bare; depressing |
| 148 | bountiful | plentiful |
| 149 | colorful | brilliant, intensely hued; full of life |
| 150 | engaging | charming |
| 151 | finicky | choosy, picky |
| 152 | articulate | coherently spoken; to say clearly |
| 153 | opaque | clouded, muddy |
| 154 | buffoon | clown-like person |
| 155 | mosaic | Pattern comprised of many different elements |
| 156 | coerce | to compel or force |
| 157 | verify | to confirm, validate |
| 158 | ambivalent | Conflicting, uncertain |
| 159 | perplexed | confused |
| 160 | taint | contamination, corruption; to hurt or damage |
| 161 | ridicule | the act of making fun of someone; to tease |
| 162 | metamorphosis | conversion, transformation |
| 163 | sophisticated | cosmopolitan, cultured |

| Number | Term | Definition/Synonym |
|---------------|--------------|--|
| 164 | petulant | crabby, moody |
| 165 | callous | cruel, insensitive |
| 166 | flourish | a decoration; to grow or thrive; to show off |
| 167 | deplete | to use or exhaust resources |
| 168 | adorn | to decorate |
| 169 | enhance | to increase; improve |
| 170 | morose | depressed, pessimistic |
| 171 | melancholy | depressed, sad |
| 172 | cunning | devious |
| 173 | nimble | dexterous, smart |
| 174 | skeptical | disbelieving, leery |
| 175 | altruistic | unselfish, selfless, generous |
| 176 | benefactor | donor, financial supporter |
| 177 | enthusiastic | eager, zealous |
| 178 | vigorous | energetic, powerful |
| 179 | irate | enraged, angry |
| 180 | zealous | enthusiastic, passionate |
| 181 | lure | to entice, tempt; bait |
| 182 | acclaim | expression of approval |
| 183 | animosity | extreme dislike, hatred |
| 184 | ravenous | extremely hungry |
| 185 | fidelity | faithfulness in a relationship |
| 186 | façade | false front; front of a building |
| 187 | affable | friendly |
| 188 | chasm | gap, abyss |
| 189 | erupt | to give forth, eject with force |
| 190 | murky | gloomy, obscure |
| 191 | benevolence | kindness, generosity |
| 192 | clique | group of friends |
| 193 | robust | healthy, strong |
| 194 | auditory | related to the process of hearing |
| 195 | cache | hidden supply; to store away |

| Number | Term | Definition/Synonym |
|---------------|-------------|---|
| 196 | allude | to hint at |
| 197 | artifice | hoax; clever act |
| 198 | nostalgia | pleasant remembrances, longing for better times |
| 199 | aberration | different from that expected; abnormality |
| 200 | mammoth | huge, enormous |
| 201 | amend | to improve, correct |
| 202 | dormant | inactive; sleeping |
| 203 | chronic | incessant, never ending |
| 204 | coddle | to indulge, pamper |
| 205 | exacerbate | to infuriate; make worse |
| 206 | vivid | intense, powerful |
| 207 | intrude | to interfere, invade, interrupt, bother |
| 208 | tiresome | irritating, exasperating |
| 209 | odyssey | journey |
| 210 | jubilant | joyful |
| 211 | mob | large group of people |
| 212 | anarchy | lawlessness; absence of government |
| 213 | illuminate | to make light; make clear |
| 214 | carnage | massacre |
| 215 | sneer | to mock, belittle |
| 216 | kinetic | moving |
| 217 | melodious | musical, agreeing, harmonious, peaceful |
| 218 | egotist | narcissist |
| 219 | novelty | newness, originality |
| 220 | boisterous | noisy and mischievous |
| 221 | obscure | not easily understood; to conceal or cover |
| 222 | trivial | not important |
| 223 | illicit | illegal; forbidden |
| 224 | obnoxious | offensive, repulsive |
| 225 | myriad | countless; a great number |

| Number | Term | Definition/Synonym |
|---------------|-------------|--|
| 226 | adversary | opponent |
| 227 | alias | false name, otherwise known as |
| 228 | anguish | pain, suffering, torment |
| 229 | rogue | swindler |
| 230 | tyrant | oppressor |
| 231 | mimic | imitator; to copy |
| 232 | foe | enemy |
| 233 | patriot | nationalist, loyalist |
| 234 | nomad | wanderer, a person with no permanent home |
| 235 | stoic | philosophic, calm; one who can endure pain or hardship |
| 236 | agile | physically or mentally nimble, deft |
| 237 | whimsical | playful, fanciful, unpredictable |
| 238 | overt | open, observable; not hidden |
| 239 | philosophy | principles, knowledge |
| 240 | aristocrat | privileged person |
| 241 | vicinity | proximity, close by, in the neighborhood |
| 242 | stealthy | quiet and secretive |
| 243 | gamut | range |
| 244 | harsh | unpleasant; severe |
| 245 | abrupt | rude or brief in manner |
| 246 | chronology | schedule of events, sequence in time |
| 247 | grimace | a scowl |
| 248 | quest | search, exploration |
| 249 | grave | serious; gloomy |
| 250 | ignite | to set on fire; give energy to |
| 251 | brusque | short in speech, to the point of rudeness |
| 252 | abridge | to make more compact or concentrated, condense |
| 253 | meek | shy; compliant |
| 254 | nuance | slight difference; shading |
| 255 | relic | artifact |
| 256 | abyss | something very deep |

| Number | Term | Definition/Synonym |
|---------------|-------------|---|
| 257 | memento | keepsake |
| 258 | oddity | a strange or unusual person or thing |
| 259 | durable | strong, long-lasting |
| 260 | immerse | submerge in liquid; to become deeply involved |
| 261 | flexible | supple, limber, pliable; adaptive |
| 262 | endorse | to support, authorize |
| 263 | transitory | temporary; brief |
| 264 | infuriate | to anger, to enrage |
| 265 | exile | to banish, keep out, expel |
| 266 | decree | to command; a command |
| 267 | sustain | to keep alive |
| 268 | severe | uncompromising, stern |

TOP 135 WORD LIST BY GROUP– PRACTICE

| Group 1 Vocabulary | |
|---------------------------|---|
| Term | Definition/Synonym |
| arrogant | having a sense of superiority; conceited |
| anonymous | unknown, usually by choice |
| intermission | a recess in between, an interval |
| competent | able |
| capable | skilled |
| acclimate | adjust, adapt, accustom |
| omnipotent | all-powerful |
| distinct | apparent, obvious; well defined |
| mock | artificial, fake; to make fun of |
| validate | verify; support |
| Group 2 Vocabulary | |
| Term | Definition/Synonym |
| fundamental | basic, central, essential |
| contradict | to say the opposite of |
| bias | one-sidedness, partiality; to unfairly influence |
| prejudice | belief without basis, information; intolerance |
| eccentric | bizarre, unusual |
| fragile | breakable, dainty |
| catastrophe | calamity; unhappy conclusion |
| placid | calm, mild |
| wary | careful, cautious |
| amateur | casual participant |
| Group 3 Vocabulary | |
| Term | Definition/Synonym |
| urban | characteristic of a city |
| boor | lacking culture or refinement, crude; ill-mannered person |
| morale | confidence, self-esteem |
| scorn | contempt toward something; to look down on |
| paradox | contradiction, puzzle |
| rustic | country, rural |
| curriculum | course of subjects studied in school |
| wistful | having sad thoughts; longing |
| fatal | deadly, lethal |
| prediction | a forecast of what might happen |

| Group 4 Vocabulary | |
|---------------------------|--|
| Term | Definition/Synonym |
| intricate | detailed, elaborate |
| emit | to discharge, give off or send forth |
| camouflage | a disguise; to cover |
| elicit | to get something (a response, information) from someone |
| arid | dry |
| terminate | to end, stop; to fire someone from a job |
| fervent | enthusiastic, excited |
| equivalent | equal |
| moral | ethical, honest; the lesson or significance of something |
| immoral | evil, degenerate |
| Group 5 Vocabulary | |
| Term | Definition/Synonym |
| anticipate | to expect; to predict |
| clarify | to explain, make clear |
| wrath | extreme anger |
| illusion | false appearance; false belief |
| circumvent | to avoid or get around; evade |
| compel | to force to do something |
| gregarious | sociable, talkative, outgoing |
| amiable | friendly, agreeable |
| authentic | genuine, not fake |
| ascend | to go up |
| Group 6 Vocabulary | |
| Term | Definition/Synonym |
| decent | good, fair |
| miserly | greedy, stingy |
| acute | having a sharp point or tip; anything severe |
| ambiguous | having more than one meaning, unclear |
| candid | honest |
| futile | hopeless, pointless |
| formidable | powerful; intimidating |
| amoral | immoral, uncontrolled |
| neutral | impartial, noncommittal |
| affected | Influenced; artificial or fake |

| Group 7 Vocabulary | |
|---------------------------|---|
| Term | Definition/Synonym |
| scarce | insufficient, infrequent |
| naive | ignorant, trusting; innocent, lacking experience |
| repress | to keep back, hold in |
| aloof | distant |
| benign | kindly |
| debris | litter, waste |
| endure | to last; tolerate |
| clamor | loud cry; commotion |
| contiguous | lying side by side |
| pacify | make peaceful; appease |
| Group 8 Vocabulary | |
| Term | Definition/Synonym |
| ominous | menacing, foreboding |
| static | motionless, changeless; cracking noise |
| descend | to move down, go lower |
| enigma | mystery |
| gullible | naive, trusting |
| belligerent | nasty, argumentative |
| incessant | nonstop, persistent |
| discord | harsh mixture of sound; lack of agreement, disagreement |
| intangible | unable to be touched or sensed, abstract |
| incompetent | unable to do something properly, unskilled |
| Group 9 Vocabulary | |
| Term | Definition/Synonym |
| inadequate | not enough, lacking, insufficient |
| coarse | rough; rude |
| hinder | to obstruct, to get in the way of |
| mundane | ordinary |
| excess | overabundance of something |
| exaggerate | to overstate, embellish |
| habitat | place where someone resides |
| deceit | dishonest behavior, trickery |
| feign | to pretend |
| tangible | real, concrete |

| Group 10 Vocabulary | |
|----------------------------|--|
| Term | Definition/Synonym |
| akin | similar, alike |
| suppress | to restrain, hold in check |
| somber | sad, depressing |
| cargo | shipment of goods or packages |
| concise | short, to the point |
| brevity | shortness, lightness |
| timid | shy, fearful, hesitant |
| devout | sincerely believing; devoted |
| guile | slyness, cleverness |
| forfeit | to lose or give up something |
| Group 11 Vocabulary | |
| Term | Definition/Synonym |
| intermittent | sporadic, not continuous |
| condescend | patronize, talk down to |
| fortify | to strengthen |
| hardy | strong, tough |
| allude | to suggest, imply, hint |
| tacit | understood without being directly said |
| dialogue | discussion, exchange of ideas; to converse |
| compassion | tender feeling, empathy |
| appreciation | thankfulness |
| irony | the use of words to express the opposite of their literal meaning; an unexpected situation |
| Group 12 Vocabulary | |
| Term | Definition/Synonym |
| annex | to add on to something, to attach, to incorporate |
| forge | to advance, counterfeit |
| counsel | to advise; advice given to someone |
| ratify | to approve, usually by law |
| conform | to comply, obey, agree |
| baffle | to confuse, bewilder, perplex |
| jest | to joke |
| avoid | to keep away from, shun |
| jeer | to make fun of |
| migrate | to move from one place to another |

Group 13 Vocabulary

| Term | Definition/Synonym |
|-------------|--|
| hesitate | to pause |
| forbid | to prohibit |
| tolerate | to put up with, permit |
| curb | to stall, delay or stop something; a check or restrain; edge of a path |
| reliable | trustworthy, dependable |
| revolve | to turn, circle |
| barren | unable to support growth |
| ignorant | unaware, unknowing |
| impartial | unprejudiced, neutral, fair |
| desolate | unused, barren |

Group 14 Vocabulary

| Term | Definition/Synonym |
|-------------|-------------------------------------|
| adept | very able |
| undermine | to weaken |
| withered | wilted, weak |
| juvenile | youth, immature |
| zealous | enthusiastic |
| episode | occurrence, event, part of a series |

MATH CHARTS

MATH CONCEPTS BY LEVEL

Students will be asked to use addition, subtraction, multiplication and division operations in the areas below. In our preparation program, students will review all of these topics and can receive customized practice worksheets as needed to strengthen their math foundation. We recommend that Lower Level students study the first list, Middle Level students study the first two lists, and Upper Level students study all the concepts on all three lists.

ALL LEVEL CONCEPTS

- Area
- Averages
- Bar Graphs
- Coordinates of a point on a grid
- Decimals
- Diagrams and figures
- Estimating
- Expressions with a single variable
- Factors
- Fractions
- Integers
- Maps
- Mean, median, mode, and range
- Measurement
- Number line
- Number sequences
- Order of Operations
- Parts as related to the whole
- Perimeter
- Pie charts
- Polygons
- Prime Numbers
- Probability
- Ratio
- Solving equations with symbols
- Standard form
- Tables
- Temperature
- Time
- Vertices
- Volume
- Word Problems

MIDDLE AND UPPER LEVEL CONCEPTS

- Central Tendency
- Equation of a line: slope-intercept form, parallel and perpendicular lines
- Exponents
- Expressions with two variables and equivalent expressions
- Functions (graphed)
- Histograms
- Line of best fit
- Maximum and minimum value
- Metric system
- Numerical Expressions Percent increase or decrease
- Percentages
- Proportion
- Quadrilaterals
- Radicals
- Scatter plot
- Slope
- Square roots
- Surface area
- Transformations: reflection (flip), rotation (turn), translation (slide)

UPPER LEVEL ONLY CONCEPTS

- Absolute Value
- Box-and-whisker plots
- Inequalities
- Matrices
- Stem-and-leaf plots
- Trigonometric functions: sine, cosine, and tangent

COMMON PERCENT AND FRACTIONAL EQUIVALENTS— ALL LEVELS

Learning some or all of these facts may make some questions easier and save time.

| Fraction | Percent | Decimal |
|---------------|-------------------|---------|
| $\frac{1}{2}$ | 50% | 0.50 |
| $\frac{1}{3}$ | $33\frac{1}{3}\%$ | 0.33 |
| $\frac{2}{3}$ | $66\frac{2}{3}\%$ | 0.67 |
| $\frac{1}{4}$ | 25% | 0.25 |
| $\frac{3}{4}$ | 75% | 0.75 |
| $\frac{1}{5}$ | 20% | 0.20 |
| $\frac{2}{5}$ | 40% | 0.40 |
| $\frac{3}{5}$ | 60% | 0.60 |
| $\frac{4}{5}$ | 80% | 0.80 |
| $\frac{1}{6}$ | $16\frac{2}{3}\%$ | 0.16 |
| $\frac{5}{6}$ | $83\frac{1}{4}\%$ | 0.84 |
| $\frac{1}{7}$ | $14\frac{2}{7}\%$ | 0.14 |

| Fraction | Percent | Decimal |
|-----------------|-------------------|----------------|
| $\frac{1}{8}$ | $12\frac{1}{2}\%$ | 0.125 |
| $\frac{3}{8}$ | $37\frac{1}{2}\%$ | 0.375 |
| $\frac{5}{8}$ | $62\frac{1}{2}\%$ | 0.625 |
| $\frac{7}{8}$ | $87\frac{1}{2}\%$ | 0.875 |
| $\frac{1}{10}$ | 10% | 0.10 |
| $\frac{3}{10}$ | 30% | 0.30 |
| $\frac{7}{10}$ | 70% | 0.70 |
| $\frac{9}{10}$ | 90% | 0.90 |
| $\frac{1}{12}$ | $8\frac{1}{3}\%$ | 0.08 |
| $\frac{1}{16}$ | $6\frac{1}{4}\%$ | 0.06 |
| $\frac{1}{20}$ | 5% | 0.05 |
| $\frac{1}{25}$ | 4% | 0.04 |
| $\frac{1}{50}$ | 2% | 0.02 |
| $\frac{1}{100}$ | 1% | 0.01 |

EXPONENTS AND SQUARE ROOTS CHART— MIDDLE & UPPER LEVELS

The product of a number times itself is the square of that number. The square root of a number is a number that when multiplied by itself gives you the original number.

To square a number, we multiply the number by itself. We use exponents to indicate that a number will be multiplied by itself.

5 x 5 is written 5^2

Learn the following squares/square roots of numbers:

| Number | Squared | Number | Square Root |
|--------|---------|--------|-------------|
| 1 | 1 | 1 | 1 |
| 2 | 4 | 4 | 2 |
| 3 | 9 | 9 | 3 |
| 4 | 16 | 16 | 4 |
| 5 | 25 | 25 | 5 |
| 6 | 36 | 36 | 6 |
| 7 | 49 | 49 | 7 |
| 8 | 64 | 64 | 8 |
| 9 | 81 | 81 | 9 |
| 10 | 100 | 100 | 10 |
| 11 | 121 | 121 | 11 |
| 12 | 144 | 144 | 12 |
| 15 | 225 | 225 | 15 |

GEOMETRY VOCABULARY PART 1— ALL LEVELS

Lines

A line is named by any two points on it.

A ray is part of a line that begins at an end point and continues indefinitely in one direction.

Intersecting lines cross each other.

Parallel lines continue together in the same direction and never meet.

Perpendicular lines meet each other at right angles.

Angles

The vertex of an angle is the point at which the sides of the angle meet.

A right angle has 90 degrees.

The angles on one side of a plane equal 180 degrees.

The angles of a point which make a complete circle equal 360 degrees.

An acute angle is an angle of less than 90 degrees.

An obtuse angle is an angle of more than 90 degrees, but less than 180 degrees.

Complementary angles are angles whose sum is 90 degrees.

Supplementary angles are angles whose sum is 180 degrees.

Congruent

“Congruent” means equal-- Applies to lines, angles, triangles

Triangles

The sum of the interior angles of a triangle = 180 degrees.

Right triangles have one right angle (right angle = 90 degrees).

Obtuse triangles have one obtuse angle (an angle greater than 90 degrees).

Congruent triangles have the same shape and size.

Acute triangle: each angle is less than 90 degrees.

Isosceles triangles have two equal sides and two equal angles.

Equilateral triangle: each side is equal and each angle is 60 degrees.

Rectangles

All rectangles have four sides (like a box).

The angles of a rectangle are all right angles (90 degrees).

Opposite sides of a rectangle have equal length.

Squares

A square is a rectangle where all the sides are equal.

GEOMETRY VOCABULARY PART 2— ALL LEVELS

Perimeter

Perimeter is the distance around the outside of an object, which is the sum of the length of the sides.

Try:

The perimeter of a square with sides of 6

The perimeter of a rectangle with a length of 4 and width of 6

The perimeter of a triangle with sides of 3, 7, and 12

Area (Surface Area)

Area of a rectangle = $l \times w$

Area of a triangle = $\frac{1}{2}$ base \times height or (base)(height) divided by 2

Try:

Area of a rectangle with sides 3', 2'.

Area of a rectangle with $b = 16$ $a = 18$

Volume

Rectangular solid:

Volume (V) = $l \times w \times h$

Try:

Find the volume of rectangle with sides 4', 6', 8'.

Find the volume of a cube with 5' sides

Remember: Volume is written as cubic units

Circles

Diameter (d) = line passing through the center of a circle

Radius (r) = a line from the center of a circle to its edge, ($= \frac{1}{2}$ diameter)

Circumference = πd or $(2\pi r)$ = the length of the outside of a circle

Area = πr^2

Notes: Angles of a circle = 360 degrees

$\pi = 3.14$

Note: Area is always noted in square units

Try:

Find the circumference when $d = 2$

Find the circumference when $d = 5$

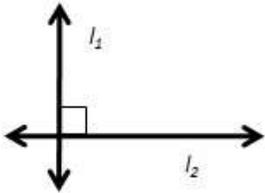
GEOMETRY DIAGRAMS — ALL LEVELS

Lines:

standard line:



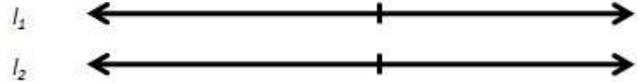
perpendicular lines: ($l_1 \perp l_2$)



ray:

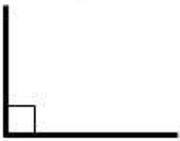


parallel lines: ($l_1 \parallel l_2$)

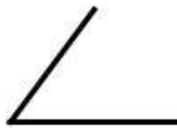


Angles:

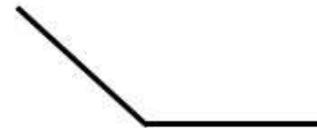
Right Angle (90°)



Acute Angle (less than 90°)

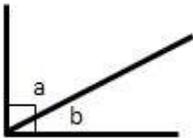


Obtuse Angle (more than 90°)



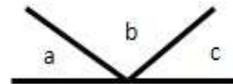
Complementary Angles

$$\angle a + \angle b = 90^\circ$$



Supplementary Angles

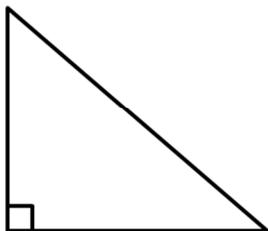
$$\angle a + \angle b = 180^\circ$$



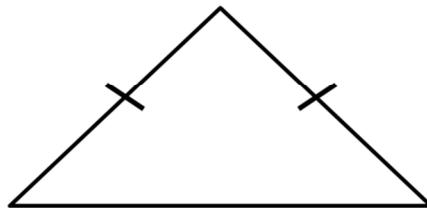
Triangles:

Area = $\frac{1}{2} b \times h$

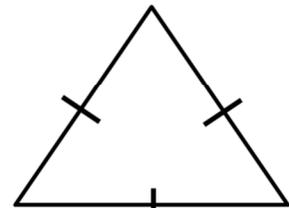
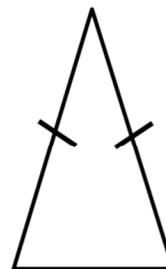
Sum of the interior angles always = 180°



Right Triangle



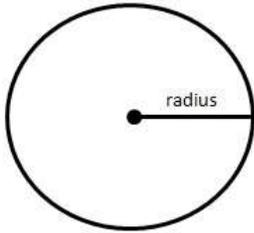
Isosceles Triangle



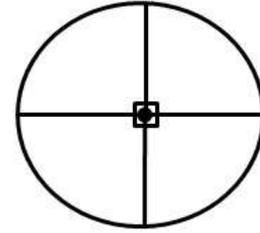
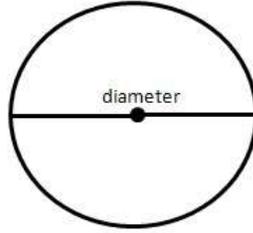
Equilateral Triangle
(each angle = 60°)

GEOMETRY DIAGRAMS — ALL LEVELS (CONT.)

Circles
 $\pi = 3.14$



Area = πr^2
Circumference = $2 \pi r$



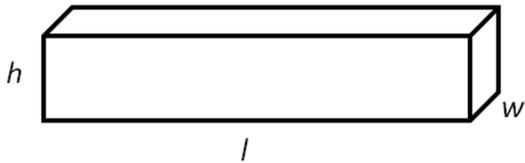
All the angles in a circle add up to
 360° ($90^\circ \times 4 = 360^\circ$)

GEOMETRY DIAGRAMS — MIDDLE & UPPER LEVELS ONLY

Volumes

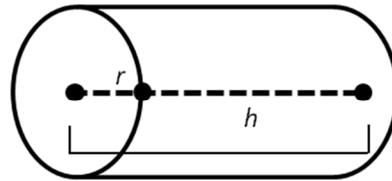
Rectangular Solid

$$\text{Volume} = l \times w \times h$$



Cylinder

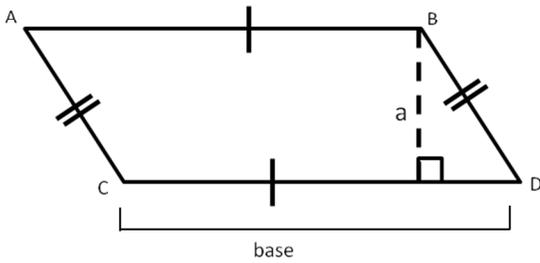
$$\text{Volume} = \pi r^2 \times h$$



Parallelograms & Trapezoids

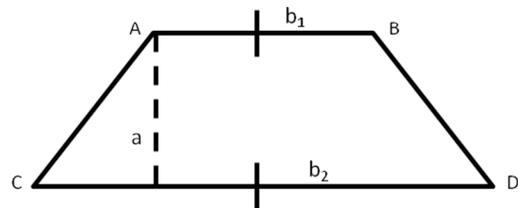
Parallelogram ($\overline{AB} \parallel \overline{CD}$, and $\overline{AC} \parallel \overline{BC}$)

$$\text{Area} = \text{base} \times \text{altitude (a)}$$



Trapezoid ($\overline{AB} \parallel \overline{CD}$)

$$\text{Area} = \frac{1}{2} [\text{altitude} \times (\text{base}_1 + \text{base}_2)]$$



AREA AND PERIMETER FORMULA REVIEW SHEET— ALL LEVELS

Solve problems involving graphs and shapes visually. If an answer looks correct, it probably is. Draw your own picture or diagram to help solve the problem. Write down the formula to use. Then plug in the numbers. Do not assume a formula will be provided for you.

Perimeter

$$P = 2l + 2w \quad (l = \text{length}; w = \text{width})$$

Circumference (perimeter of a circle)

$$C = 2\pi r \text{ or } \pi d \quad (\pi = 3.14; r = \text{radius})$$

Perimeter of a triangle

$$P = S_1 + S_2 + S_3 \quad (S = \text{side})$$

Area of rectangle

$$A = l \times w \quad (l = \text{length}; w = \text{width})$$

Area of a triangle

$$A = \frac{1}{2} b \times h \quad (b = \text{base}; h = \text{height})$$

Area of a circle

$$A = \pi r^2 \quad (\pi = 3.14; r = \text{radius})$$

Volume

$$V = l \times w \times h \quad (l = \text{length}; w = \text{width})$$

Remember:

Perimeter = the distance around a plane figure

Area = the space within a plane figure

Volume = the space a three dimensional solid occupies, measured in cubic units

UNITS OF MEASURE CHART— ALL LEVELS

Many of the math problems on the ISEE deal with units of measure. Please review the chart below before attempting the exercises that follow.

| Measurements of Length | |
|-------------------------------|---------------------|
| 12 inches | 1 foot |
| 36 inches | 1 yard |
| 3 feet | 1 yard |
| 5280 feet | 1 mile |
| 1760 yards | 1 mile |
| Measurements of Weight | |
| 16 ounces | 1 pound |
| 2000 pounds | 1 ton |
| Measurements of Liquid | |
| 8 ounces | 1 cup |
| 16 ounces | 1 pint = 2 cups |
| 2 pints | 1 quart = 2 pints |
| 4 quarts | 1 gallon = 4 quarts |
| 8 pints | 1 gallon |
| Measurements of Time | |
| 60 seconds | 1 minute |
| 60 minutes | 1 hour |
| 24 hours | 1 day |
| 30 days | 1 month |
| 7 days | 1 week |
| 365 days | 1 year |
| 52 weeks | 1 year |
| 12 months | 1 year |
| 100 years | 1 century |
| Metric Measurements | |
| 10 millimeters | 1 centimeter |
| 100 centimeters | 1 meter |
| 1000 meters | 1 kilometer |

TIME CHART— ALL LEVELS

| | |
|------------|--------------|
| 60 seconds | 1 minute |
| 60 minutes | 1 hour |
| 24 hours | 1 day |
| 7 days | 1 week |
| 365 days | 1 year |
| 52 weeks | 1 year |
| 12 months | 1 year |
| 10 years | 1 decade |
| 100 years | 1 century |
| 1000 years | 1 millennium |

To rename larger units with smaller units, multiply.

TEMPERATURE CONVERSIONS— ALL LEVELS

Fahrenheit (F)

Water boils at: 212 degrees or 212°

Water freezes at: 32 degrees or 32°

Celsius (C)

Water boils at: 100 degrees or 100°

Water freezes at: 0 degrees or 0°

Rules:

1. Degrees are written with a “ ° ” symbol, so 50 degrees can be written as 50°.
2. Temperature follows the same principles as standard numbers on a number line.

MATH SYMBOLS CHART— ALL LEVELS

Sometimes it is useful to be able to translate a word or phrase from a math problem into a math symbol that is easy to use and understand. The ISEE will assume that you are familiar with these symbols and terms. When you are working on word problems, having the ability to use these symbols to solve your problem will make your work much easier. Below is a list of some common words and phrases that you can translate into math symbols.

| Word or Phrase | Math Symbol |
|---|-----------------------------------|
| is added to, and, gained, grew by, plus, increased by, sum of, plus, more than | + |
| is decreased by, the difference of, less, minus, taken away from, subtracted from, remaining, minus, fewer, less than | – |
| of, times, multiplied by, product | × |
| divided by, quotient | ÷ |
| twice as many as | 2x |
| half as many as | $\frac{1}{2}x$ |
| percent | /100 |
| increased 10 percent | add 10/100 x original value |
| reduced 10 percent | take away 10/100 x original value |
| is the same as, equal to, equivalent | = |
| is less than, smaller than, younger than | < |
| is greater than, larger than, older than | > |
| Alan, Bobby, Chris | A, B, C |
| what | ? |
| an unknown (variable) | x, y, z, n, etc. |
| average | total/number of items |