

Accuplacer's
College Placement Test (CPT)

Complete Study Guide

Includes reading comprehension, English Language skills,
elementary algebra and college-level math

To schedule a test, contact Lake City Community College, Testing
Center (386) 754-4333.

For remediation assistance, contact Lake City Community College,
Collegewide Learning Lab (386) 754-4437.

www.lakecitycc.edu

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General Information:

The College Board™ developed Accuplacer™ Computerized Placement Tests (CPTs), with the assistance of college professors, to provide information concerning the entry level skills of incoming college students in the areas of reading, writing and mathematics. Appropriate course placement is critical for success in college and according to the Department of Education Rule 6A-10.315: "... first-time-college students who intend to enter degree programs will be tested prior to initial registration and shall enroll in college preparatory courses if their test scores are below college level." SAT or ACT scores that are college level and no more than two years old may be substituted for the CPT. Placement test scores will be reviewed with an advisor upon registration to assist the student in selecting the appropriate courses and developing an academic plan.

The CPT is a computerized test. It is very user friendly. After typing in personal information, the student need utilize only the enter key and space bar. All test questions are multiple choice. Only one question is shown at a time. The test is adaptive. This means that the first question asked is of medium difficulty. If answered correctly, then the computer automatically gives a slightly more difficult question next. If answered incorrectly an easier question is given. Obviously, the more difficult the questions, the more they are worth in determining the end results. The test is not timed so there is no pressure to answer quickly. If the answer is not known, try to eliminate one or more of the choices and then pick one of the remaining answers. Scores will be given when testing is complete. Scores are good for two years.

Frequently Asked Questions:

When and Where is the test given? At Lake City Community College the test is given in the Testing Center, Building 15, Room 127, Tuesday through Thursday at 9:30 a.m. and 1:30 p.m. Special arrangements can be made for Monday and Friday testing.

Do I need an appointment? It is a good idea to call and make an appointment. The number for the Lake City Community College Testing Center is (386) 754-4333. Those who drop in without an appointment may test if space available.

Is there a cost to take the CPT? For those who have applied to Lake City Community College and paid the \$15.00 admission fee or are high school students from our district applying for dual enrollment, there is no cost. There is a \$30.00 fee for all non-Lake City Community College students and dual enrollment students from outside the district.

What should I bring? You must have a photo I. D. to test and social security number. *Cell phones are not permitted in the Testing Center.*

How long does the CPT take? The test is not timed. On average the test takes two hours to complete, but you should take your time and read and understand each question before answering.

What does the test cover? There are twenty (20) Reading questions, twenty (20) Sentence Skills questions, twelve (12) Elementary Algebra questions, seventeen (17) Arithmetic questions, and twenty (20) College Level Math questions. Based on your Elementary Algebra score, the test may end, or you may be given Arithmetic or College Level Math.

What do I need to score to pass? This is not a pass-fail test. It is to determine your skill level in reading, writing, and mathematics, and your readiness for college-level classes. To test out of preparatory class, you need an 83 or higher in Sentence Skills and in Reading, and a 72 or higher Elementary Algebra.

Can I use a calculator? Calculators are not allowed. You will be provided with scratch paper and pencil. It is suggested that you study for the test without a calculator as well so that you are accustomed to the situation.

Can I take a break during the test? Since the test is not timed, taking a break will not affect your score.

Can I retest? Lake City Community College does not retest college students. If you are a dual-enrollment student (attending high school), you are allowed to take each part of the test twice, but only before you graduate from high school.

Can I change my answers, skip questions, or guess? You may change an answer until you go on to the next question. Once you have go on to the next question, your previous answer is permanent. The computer will not allow you to skip questions so you must answer to proceed. If you are unsure of an answer, eliminate those answer possibilities you know are wrong and make an educated guess from those choices remaining.

What should I do to prepare? Get plenty of rest the night before testing, be on time, eat something, and begin reviewing for the test early. Don't wait until the night before to begin reviewing for the test. There are several good reviews available on-line. Note the internet sites listed below. You can also find one-on-one help in the Collegewide Learning Lab (Building 059) on the main campus of Lake City Community College.

Other Helpful Internet Sites:

Manatee Community College, Bradenton, Florida
Placement Test Resources, Accuplacer Practice Math, Reading and Writing
www.mccfl.edu/pages/1484.asp

Florida Community College, Jacksonville, Florida
<http://www.fccj.org/campuses/kent/assessment/cpt.html>

Santa Fe Community College, Gainesville, Florida
<http://admin.sfcc.edu/~acres/assess/cpt.htm>

The College Board Accuplacer Online Student Guide
<http://apts.accuplacer.com/docs/StudentGuide.html>

Eastern Shore Community College, Melfa, Virginia
www.es.cc.va.us/student/admissions/samplequestions.html

Aims Community College, Greeley, Colorado
http://www.aims.edu/student/assessment.accuplacer_desc.htm

Palm Beach Community College, Palm Beach, Florida
<http://www.pbcc.edu/premath/cpt.asp>

Test Prep Review, Free Practice Tests
http://www.testprepreview.com/accuplacer_practice.htm

Mathematics Tutorials
<http://www.professor-j.com>

Camden County College, Blackwood, New Jersey
www.camdencc.edu/Testing/placementtest.htm

Sentence Skills

This test measures your understanding of sentence structure: how sentences are put together and what makes a sentence complete and clear. There are twenty (20) questions on sentence skills. These questions consists of two types. Sentence Correction questions ask you to choose a word or phrase to substitute for an underlined portion of a sentence. Construction Shift questions ask that a sentence be rewritten in a specific way without changing the meaning. This computerized exam has one question per screen with directions given for that specific question. Remember to read all instructions carefully. The following are examples of the types of questions found on the CPT.

Select the best version of the sentences or underlined portion of the sentences in questions 1-12. The first choice is the same as the original sentence. If you think the original sentence is best, choose the first answer, answer a.

1. Mr. Roberts planning to teach a course in mathematics next summer.
 - a. planning (no change necessary)
 - b. are planning
 - c. with a plan
 - d. plans
2. The baby was obviously getting hot, then Sam did what he could to cool her.
 - a. hot, the Sam did (no change necessary)
 - b. hot, Sam did
 - c. hot; Sam, therefore, did
 - d. hot; Sam, trying to do
3. Panting, the cab pulled away just as Judy arrived.
 - a. Panting, the cab pulled away (no change necessary)
 - b. The cab pulled away panting
 - c. Panting, Judy arrived just as the cab pulled away
 - d. Just as Judy was arriving the cab pulled away, panting.
4. We could watch the stars sitting on the balcony.
 - a. We could watch the stars sitting on the balcony. (no change necessary)
 - b. We could watch sitting on the balcony, the stars.
 - c. We could watch on the balcony, the stars, sitting.
 - d. Sitting on the balcony, we could watch the stars.
5. If a person wants to succeed in school, they have to study.
 - a. they have to study.
 - b. he or she has to study.
 - c. they has to study.
 - d. he or she have to study.

6. Working as a receptionist for my uncle's business taught me to handle customer complaints, answering the telephone, and how to maintain a Rolodex.
- to handle customer complaints, answering the telephone, and how to maintain a Rolodex.
 - how to handle customer complaints, answering the telephone, and how to maintain a Rolodex.
 - how to handle customer complaints, how to answer the telephone, and how to maintain a Rolodex.
 - handling customer complaints, answering the telephone, and maintenance of a Rolodex.
7. Judy is dating a man that has a seven hundred-acre ranch near the foothills outside of town.
- a man that has a seven hundred-acre ranch near the foothills outside of town.
 - a man, that has a seven hundred-acre ranch near the foothills outside of town.
 - a man, who has a seven hundred-acre ranch near the foothills outside of town.
 - a man who has a seven hundred-acre ranch near the foothills outside of town.
8. These books, which was published in the late eighteenth century, are very valuable.
- Books, which was published in the late eighteenth century,
 - books in the late eighteenth century was published
 - books, which were published in the late eighteenth century,
 - books, which is published, in the late eighteenth century,
9. Chief Smith was invited to the safety meeting, he can demonstrate the correct use of fire extinguishers.
- Chief Smith was invited to the safety meeting, he can demonstrate the correct use of fire extinguishers.
 - Chief Smith was invited to the safety meeting, therefore, he can demonstrate the correct use of fire extinguishers.
 - Chief Smith was invited to the safety meeting; therefore to demonstrate the correct use of fire extinguishers.
 - Chief Smith was invited to the safety meeting so that he could demonstrate the correct use of fire extinguishers.
10. Coming in from Fourth Street, the Student Union is seen by students who are arriving on campus.
- the Student Union is seen by students who are arriving on campus.
 - students arriving on campus see the Student Union.
 - the students having seen the Student Union arrive on campus.
 - the Student Union is being seen by students arriving on campus.

11. Because modern machinery can function unattended, the unemployment rate may increase, this could possibly cause the poverty rate to be higher.
- a. this could possibly cause the poverty rate to be higher.
 - b. possibly causing a higher poverty rate.
 - c. the possible raising of the poverty rate will result.
 - d. this causes the poverty rate to increase.
12. If you want to create a beautiful room, having a large sum of money is not nearly so important to the finished setting as is the knowledge of basic decorating.
- a. as is the knowledge of basic decorating.
 - b. as knowing the basics of decorating.
 - c. but the knowledge of basic decorating.
 - d. like the knowledge of basic decorating.

In questions 13-25, you will be asked to think through the sentences and the answer choices for a good revision. A new sentence beginning is provided. Your new sentence should be well written and should have basically the same meaning as the original sentence.

13. Using the spell checker, she eliminated a number of errors on her paper.

Rewrite, beginning with

She eliminated a number of errors on her paper . . .

The next words will be

- a. on account of she used spell checker.
 - b. by her using the spell checker.
 - c. because she used spell checker.
 - d. being as she was using spell checker.
14. We ordered lobster since it was our anniversary.

Rewrite, beginning with

Since it was our anniversary

- a. Since it was our anniversary; we ordered lobster.
 - b. Since it was our anniversary, we ordered lobster.
 - c. Since it was our anniversary we ordered lobster.
 - d. Since it was our anniversary, and we ordered lobster.
15. The hikers were at the bottom of the canyon, and they discovered an abandoned mineshaft.

Rewrite, beginning with

After the hikers were . . .

The next words will be

- a. at the bottom of the canyon, and they discovered an abandoned mineshaft.
- b. at the bottom of the canyon, they discovered an abandoned mineshaft.
- c. at the bottom of the canyon they discovered an abandoned mineshaft.
- d. at the bottom of the canyon when they discovered an abandoned mineshaft.

16. They were out all night and did not study, and they all did poorly on the test.

Rewrite the sentence using because

The best choice will be

- a. They did not study because they were out all night, and they did poorly on the test.
- b. Because they were out all night and did not study, they did poorly on the test.
- c. Because they did poorly on the test having been out all night and not studying.
- d. They did poorly on the test because they were out all night, and because they did not study.

17. In a large city, you may have massive traffic jams on your daily commute to work.

Rewrite the sentence omitting you.

- a. In a large city, a person may have massive traffic jams on your daily commute to work.
- b. In a large city, a resident may have massive traffic jams on his daily commute to work.
- c. In a large city, massive traffic jams may be part of the daily commute to work.
- d. In a large city, massive traffic jams may be part of the everyday commute on the way to work.

18. Tornadoes are winds which rotate in a counter clockwise direction and look like a funnel at the bottom of a cloud, as anyone who is familiar with Oklahoma weather knows.

Rewrite, beginning with

Anyone who is

Your new sentence will include

- a. familiar with tornadoes which have winds that rotate in a counter. . .
- b. familiar with Oklahoma weather and knows tornadoes are winds which. . .
- c. knowledgeable of tornadoes knows Oklahoma weather which has winds that
- d. familiar with Oklahoma weather knows that tornadoes are winds. . .

19. Our supervisor, Betty White, handles all of the personnel problems that arise because she is an extremely diplomatic person in working with people.

Rewrite, beginning with

Being extremely diplomatic in working with people.

The next words would be

- a. all of the personnel problems . . .
- b. our supervisor, Betty White, . . .
- c. and that . . .
- d. problems arising with personnel . . .

20. Due to the fact it was raining on the scheduled day of the picnic, the drama club had to cancel and reschedule a new date for the event.

Rewrite, beginning with

The drama club had to . . .

The next words should be

- a. due to the fact it was raining on the scheduled day of the picnic, cancel and reschedule a new date for the event.
- b. reschedule the picnic because of rain.
- c. cancel the picnic and reschedule it because of the rain.
- d. Reschedule a new date for the picnic because it was canceled due to rain.

21. While it was raining, we decided to play cards.

Rewrite beginning with

We decided to play . . .

The next words should be

- a. cards while it was raining
- b. cards, while it was raining
- c. cards; white it was raining.
- d. Cards; but while it was raining.

22. Closed-minded people often refuse to recognize opposing views they reject ideas without evaluating them.

Rewrite, beginning with

Closed-minded people often refuse to recognize opposing views

The next words should be

- a. they reject ideas without evaluating them.
- b. , and they reject ideas without evaluating them.
- c. and they reject ideas without evaluating them.
- d. : they reject ideas without evaluating them.

23. Tornadoes are made up of winds with speeds of 30 or 40 miles an hour or higher, and the cause the most deaths

Rewrite, beginning with

Because tornadoes are made up of winds with speeds of 30 or 40 miles an hour or higher . . .

The next words should be

- a. and they cause the most deaths.
- b. causing the most deaths.
- c. the tornadoes causing the most deaths.
- d. they cause the most deaths.

24. Writing a best seller had earned the author a sum of money and had freed him from the necessity of selling his pen for the political purposes of others.

Rewrite, beginning with

The author was not obliged to sell his pen for political purposes. . .

The new sentence will include

- a. consequently he earned money from writing a best seller.
- b. because he had earned money from writing a best seller.
- c. and earning money from writing a best seller
- d. as a means of earning money because he had written a best seller.

25. If he had enough strength, Todd would move the boulder.

Rewrite, beginning with

Todd cannot move the boulder. .

The next words will be

- a. when lacking enough strength.
- b. because he lacks enough strength.
- c. although there is not enough strength.
- d. Without the strength he lacks.

Reading

The CPT's reading test measures how well the student understands what he/she reads. Some questions are of the sentence relationship type in which one must choose how two sentences are related. Other questions test recognizing distinctions between main and secondary point and making simple deductions from a series of facts. Specific skills to be tested are main ideas, supporting details, words in context, author's purpose and tone, relationships within and between sentences, fact and opinion, inferences, and conclusion.

Read the statements or passages and then choose the best answer to the associated questions. Answer the questions based on what is stated or implied in the passages or statements.

1. The world was amazed when, in October of 1957, the USSR announced the news that they had successfully launched a rocket, Sputnik 1, into space. This was the first rocket into space. Sputnik 2, launched a month later, carried a dog into space. The United States launched its first rocket, Explorer 1, in January of 1958. Until then, space travel had only been a dream.

Which of the following is implied from the above passage?

- a. There were many rockets sent into space in the late 1950's.
- b. In the 1950's the Russians were very secretive of their space program.
- c. The space race began in the late 1950's with the Americans trying to catch up to the Russians.
- d. "Sputnik" is Russian for traveling companion.

2. The police questioned him as to his whereabouts that night. He answered that he was at a party just two blocks from where the accident occurred. His proximity to the scene made him a suspect.

The best meaning of the word "proximity" in the above passage is. . .

- a. closeness
- b. opposition
- c. separation
- d. transportation

3. One of my first jobs as a teenager was in a fast-food restaurant. One of my duties was to shred the lettuce and cheese for the tacos. My first day, I cut my knuckles on the grate. From then on, I was very careful.

The word “grate” in the above passage refers to. . .

- a. a metal grid
- b. a feeling of euphoria
- c. a sandwich wrapping machine
- d. a kitchen tool

4. Sam grew up here. He loves this town. He is a hard worker and has built his sock manufacturing business into an industry that provides many jobs in our area. He has been married for twelve years and has two wonderful kids. He cares about our schools and wants every child to have the best education possible. Sam has a lot of good ideas for our town. He'll make a great mayor; vote for Sam.

The author's purpose in the passage above is to. . .

- a. inform
- b. persuade
- c. amuse
- d. direct

5. Before the invention of automobiles and airplanes, travel was a slow process. In traveling long distances, families would be out of communication until the travelers reached their destination. Sometimes people lost touch with each other permanently.

The author would most likely continue the passage with which of the following sentences?

- a. Advances in communication have helped travelers stay in communication.
- b. Airplanes make travel more fun.
- c. Driving a car helps families stay in touch.
- d. Cars can be used to travel comfortably.

6. Scuba diving is the most exhilarating experience I have ever had. The first time I went, the dark mirror of the water beckoned me to drop from the side of the boat. I jumped feet first and entered a brightly colored world populated with fish, plants, and objects of which I had never dreamed.

Which of the following best describes the mood of the author after having this experience?

- a. Bored
- b. Anxious
- c. Excited
- d. Serene

7. Did you know that a half-gallon milk container holds about \$50.00 in pennies? While all investment counselors realize that we must accumulate money in order to save, most recommend different kinds of investments for people who are in different stages of life. Older investors, those with limited funds to invest, or people with greater financial and family commitments should take fewer risks. Younger, wealthier, and unmarried investors can afford to venture into the unknown.

Which of the following best describes the main idea of this passage?

- a. A penny saved is a penny earned.
- b. Our ages and stage of life are part of what determines the investments that are best for us.
- c. Old people have the most money.
- d. Young people should concentrate on collecting pennies.

8. Experienced truck drivers often travel in a convoy – a group of trucks that are traveling to the same part of the country. Convoys can help truckers to stay alert.

The author implies that professional long-distance truck drivers may avoid traveling alone because:

- a. they might drive too fast.
- b. they want to arrive before anyone else.
- c. accidents happen more frequently to lone truck drivers than to car drivers who travel alone.
- d. long-distance travel can cause drowsiness.

9. Huge beasts such as the dinosaur have never really become extinct. Mothra, a giant caterpillar who later becomes a moth, destroys Tokyo, and stars in the 1962 Japanese film named for him. Mothra is born, dies, and is reborn regularly on classic movie channels. In Japan, Mothra is one of the most popular films every made. Mothra has survived the creation of more current scary creatures such as giant apes, extraterrestrial beings and swamp creatures. More than 30 years after his creation, Mothra still lives.

The main subject of the passage is:

- a. the reasons that fads do not endure.
- b. the lasting appeal of Mothra.
- c. the difficulty of marketing good horror movies.
- d. old models for creatures are still used because making new monsters is expensive.

10. The Earth's past climate – including temperature and elements in the atmosphere – has recently been studied by analyzing ice samples from Greenland and Antarctica. The air bubbles in the ice have shown that over the past 160,000 years, there has been a close correlation between temperature changes and level of natural greenhouse gases carbon dioxide and methane. One recent analysis from Greenland showed that at the end of the

last glacial period (when the great ice sheets began to retreat to their present position), temperatures in southern Greenland rose from 5 to 7 degrees in about 100 years.

Air bubbles are not the only method of determining characteristics of the Earth's ancient climate history. Analysis of dust layers from ancient volcanic activity is another such method, as is the study of ice cores, which interpret past solar activity that may have affected our climate.

This passage states that:

- a. the Greenhouse effect is destroying the planet's atmosphere.
- b. temperatures in Greenland have been unusually stable over the past 100 years.
- c. there is more than one kind of information that scientists can use to determine the characteristics of the Earth's early climate.
- d. solar energy in the wave of the future.

11. Many people who have come close to death from drowning, cardiac arrest or other causes have described near – death experiences – profound, subjective events that sometimes result in dramatic changes in values, beliefs, behavior, and attitudes toward life and death. These experiences often include a new clarity of thinking, a feeling of well being, a sense of being out of the body, and visions of bright light or mystical encounters. Such experiences have been reported by an estimated 30 to 40 percent of hospital patients who were revived after coming close to death and about 5 percent of the adult Americans in a nationwide poll. Near-death experiences have been explained as a response to a perceived threat of death (a psychological theory); as a result of biological states that accompany the process of dying (physiological theory); and as a foretaste of an actual state of bliss after death (a transcendental theory).

The primary purpose of this passage is to:

- a. entertain
- b. persuade
- c. inform
- d. expresses disbelief in the afterlife

12. In most cases little birds lay little eggs. The kiwi is an astonishing exception to this rule – it is a smallish bird that lays a big egg. The kiwi, a flightless bird found in New Zealand, weighs about four pounds, and its egg weighs, believe it or not, about one pound. That is one-fourth of the bird's body weight! If an ostrich laid an egg that was in the same proportion to the ostrich as the kiwi egg is to the kiwi, an ostrich egg would weigh a whopping seventy-five pounds instead of the usual three pounds.

Which statement below best describes the organizational method used in this passage?

- a. description
- b. comparison/contrast
- c. chronological
- d. cause/effect

13. The rise in personal debt in recent years is due largely to aggressive and unwarranted hustling by credit-card companies. Between 1990 and 1996, credit card debit doubled. Today it is still rising. Credit cards with interest rates reaching nearly 10 percent are a remarkably lucrative part of the loan business. Debtors pay an average of \$1,000 a year in interest and fees alone, money that could instead have been used for a college or retirement fund. Using subtle tactics to tempt unwary consumers to borrow, credit-card companies have led consumers to hold more cards and to fork over a bigger and bigger fraction of their income to the companies.

Which statement best reflects the organization used in this passage?

- a. cause/effect
- b. comparison/contrast
- c. description
- d. explanation

Read the pair of passages below and then choose the best answer to the associated questions. Answer the questions based on what is stated or implied in the passages.

14. French physicist Charles Fabry found ozone gas in the atmosphere in 1913. At room temperature, ozone is a colorless gas; it condenses to a dark blue liquid at -170°F . At temperatures above the boiling point of water, 212°F , it decomposes.

Ozone is all around us. After a thunderstorm, or around electrical equipment, ozone is often detected as a sharp odor. Ozone is used as a strong oxidizing agent, a bleaching agent, and a sterilizing agent in drinking water. This gas is also highly reactive. For example, rubber insulation around a car's spark plug wires will need to be replaced eventually, due to the small amounts of ozone produced when electricity flows from the engine to the plug.

These passages imply that:

- a. Ozone is the result of pollution.
- b. High ozone levels in the atmosphere will cause large numbers of people to buy new car batteries.
- c. Ozone has no practical uses.
- d. Ozone is a natural part of the Earth's atmosphere.

15. Before video cameras were widely used, home and business owners had to rely only on written reports and photos as a way to document their valuables for insurance purposes. This form of documentation was difficult for some insurance policy holders. They found it was easy to lose lists, forget to add new items they purchased, or delete items they no longer had. As a result, these insurance inventories were often inaccurate.

While video taping is not an option for every home or business owner, this kind of insurance documentation is helpful for some.

How are these passages related?

- a. They repeat the same idea.
- b. They contradict one another.
- c. They compare two forms of written documentation.
- d. They present a problem and a solution.

Two underlined sentences are followed by a question or a statement. Read the sentences, and then choose the best answer.

Sometimes when we don't get enough sleep we become very short-tempered.

It is important to set a time to go to bed that is realistic.

16. How are these sentences related?
- a. The first sentence explains the meaning of the second.
 - b. The second sentence explains why a lack of sleep affects us.
 - c. The second sentence contradicts the first.
 - d. The second sentence proposes a solution.

Most people collect *Star Wars* toys for sentimental reasons.

Some people collect them strictly to make money.

17. What is the relationship between the two sentences?
- a. cause and effect
 - b. contrast
 - c. repetition
 - d. statement and example

Jenny does not like cake.

She does not like to bake it or to eat it.

18. What does the second sentence do?
- a. It states the cause of the first.
 - b. It emphasizes what is stated in the first.
 - c. It compares the three things Jenny does not like about cake.
 - d. It draws a conclusion about Jenny.

When we write a check that we know is going to "bounce," we are in fact performing a criminal act.

It is a crime to knowingly write a "hot" check, one we know we don't have sufficient funds to cover.

19. What does the second statement do?
- a. It provides supporting evidence for the first statement.

- b. It draws a conclusion from the first sentence.
- c. It restates the central idea of the first sentence.
- d. It provides a contradictory point of view.

The new *Dance Tunes* CD has proved to be very popular.

It has sold 80,000 copies over the last year.

20. How are these two sentences related?
- a. The first sentence explains the meaning of the second.
 - b. The second sentence explains why the CD is popular.
 - c. The second sentence provides evidence of the first.
 - d. The first sentence contradicts the second.

The Grand Canyon is located in northwestern Arizona and is a gorge carved by the Colorado River more than one mile deep and up to 18 miles across.

It is the most beautiful national park in the United States.

21. What does the second sentence do?
- a. It cancels the meaning of the first sentence.
 - b. It provides an example of the first sentence.
 - c. It adds more detail to the first sentence.
 - d. It offers an opinion on the subject of the first sentence.

Public speaking is very different from everyday conversation.

First of all, speeches are much more structured than a typical informal discussion.

22. How are the sentences related?
- a. Sentence two offers support for the statement made in the first sentence.
 - b. Sentence two contradicts the statement made in the first sentence.
 - c. Sentence two shows an exception to the first sentence.
 - d. Sentence two compares two kinds of speeches.

The bandleader agreed the group would play at his daughter's high school dance for free.

The other members of the group were very angry.

23. How are the sentences related?
- a. The second sentence shows the effects of the first sentence.
 - b. The second sentence explains the first.
 - c. The second sentence contradicts the first.
 - d. The second sentence restates the first.

The boy was a wonderful student with a straight "A" average.

The boy's room was a mess; he never seemed to put anything away.

24. What does the second sentence do?
- The second sentence gives contrasting information to the first.
 - The second sentence supports the first sentence.
 - The second sentence explains the first sentence.
 - The second sentence gives the consequences of the first.

When they arrived that morning, it was very cold in the classroom.

The temperature had dropped below forty degrees outside, and the janitor had let the air conditioner run all night.

25. What is the relationship between the two sentences?
- compare and contrast
 - statement and supporting detail
 - repetition
 - tone and purpose

Elementary Algebra

Perform all indicated operations. All answers should be in simplest terms. On the actual CPT test, be sure to recheck your calculations and signs before selecting an answer and proceeding to the next question. You can not go back. Don't rush! This is not a timed test!

- In which quadrant does the point $(-5, -2)$ lie?
 - Quadrant I
 - Quadrant II
 - Quadrant III
 - Quadrant IV
- $(3x + 2)(3x + 2)$ is the factored expression of which of the following trinomials?
 - $9x^2 + 4$
 - $9x^2 + 6x + 4$
 - $9x^2 + 12x + 4$
 - $9x^2 + 36x + 4$
- If $4(3x + 2) - (x + 5) = -3$, then $x =$?
 - $\frac{11}{6}$
 - $\frac{-11}{6}$
 - $\frac{6}{11}$
 - $\frac{-6}{11}$
- Simplify $(3x^3y)^3$

- a. $3x^6y^3$
- b. $9x^6y^3$
- c. $27x^6y^3$
- d. $27x^9y^3$

5. $(x - 2)$ is a factor of which polynomial?

- I. $x^2 - 4x + 4$
- II. $x^2 + x - 6$
- a. I only
- b. II only
- c. I and II
- d. Neither

6. Simplify $\frac{2}{\frac{2}{x} + \frac{2}{y}}$

- a. $\frac{x+y}{xy}$
- b. $\frac{xy}{x+y}$
- c. $x+y$
- d. $\frac{x+y}{4}$

7. $x = |-4 - 5|$, $y = |-4 - (-5)|$, $z = |-4| - |-5|$

Which is true about x, y, and z?

- a. $x < z$
- b. $z < y$
- c. $x = z$
- d. $y = z$

8. Simplify $\frac{3x}{2y} \cdot \frac{8y^2}{27x}$

- a. $\frac{4y}{3}$
- b. $\frac{4y}{9}$
- c. $\frac{4y}{3x}$
- d. $\frac{4y}{9x}$

9. $M - 9 = 1$, all the following mean the same as the given equation except

- a. M is one more than 9
- b. M is nine more than 1
- c. 1 is nine less than M
- d. 9 is M less than 1

10. Solve for x and y:

$$2x + y = 3$$

$$x - 3y = 12$$

- a. (3, 9)
- b. (3, -9)
- c. (3, -3)
- d. (3, 3)

11. M is 8 more than a second number. Which of the following represents the second number?

- a. $M - 11$
- b. $M - 8$
- c. $M + 8$
- d. $M + 17$

12. Which pair of equations does NOT have a common solution?

- | | |
|-------------------------------------|-----------------------------------|
| a. $x + y = -1$
$4x - 3y = 24$ | c. $2x - 3y = -4$
$2x + y = 4$ |
| b. $4x + 6y = 12$
$6x + 9y = 12$ | d. $5x - 4y = 9$
$x - 2y = -3$ |

13. Factor $24x - 8$

- a. $8x$
- b. $8(3x - x)$
- c. $8(3x - 1)$
- d. $8(3x - 8)$

14. Simplify $(2x - 5y)^2$

- a. $4x^2 - 25y^2$
- b. $4x^2 - 10xy + 25y^2$
- c. $4x^2 + 10xy + 25y^2$
- d. $4x^2 - 20xy + 25y^2$

15. Simplify $(9 - 7) - (7 - 9)$

- a. 0
- b. 4
- c. -4
- d. -14

16. Simplify $5^2(\sqrt{3x})^2$

- a. $15x^2$
- b. $45x^2$
- c. $75x^2$
- d. $75x$

17. Simplify $\frac{4x}{5} - \frac{2x}{3} + \frac{x}{2}$

- | | |
|--------------------|---------------------|
| a. $\frac{3x}{30}$ | c. $\frac{19x}{30}$ |
| b. $\frac{x}{10}$ | d. $\frac{19}{30}$ |

18. Which of the following is equal to $x^2 - 10x + 24$?
- $(x - 4)(x + 6)$
 - $(x + 4)(x - 6)$
 - $(x - 4)(x - 6)$
 - $(x + 4)(x + 6)$
19. Simplify $\frac{3x^2 - 15x}{3x}$
- $x - 5x$
 - $x - 5$
 - $x^2 - 5x$
 - $x^2 - 5$
20. Which of the following equals $12x$?
- $6x \cdot 6x$
 - $13x^2 - x$
 - $-8x + 20x$
 - $12 + x$
21. If $x^2 + m - 6y^2 = (x + 3y)(x - 2y)$ then $m = ?$
- xy
 - $-xy$
 - $5xy$
 - $-5xy$
22. Simplify $(-1)^4$?
- 4
 - 4
 - 1
 - 1
23. Simplify $\frac{4}{3x} \cdot \frac{3}{2x}$
- $\frac{12}{6x^2}$
 - $\frac{2}{x^2}$
 - $\frac{2}{x}$
 - 2
24. Simplify $\frac{2x^2}{3y} \cdot \frac{y^3}{8x}$
- $\frac{xy^2}{12}$
 - $\frac{xy^3}{12}$
 - $\frac{x^2y^3}{12}$
 - $\frac{x^2y}{12}$

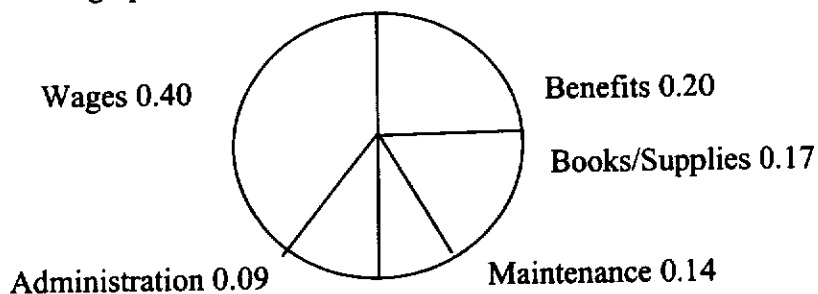
25. Which of the following statements represents this equation? $\frac{x}{3} - 5 = 8$
- One-third a number x less than five equals eight
 - Five minus one-third a number x equals eight
 - Five less than one-third a number x equals eight
 - Eight is one-third a number x less than 5
26. If $x = 5$ and $y = 3$ then $\frac{2x - 3y}{x - y} = ?$
- $\frac{19}{2}$
 - $\frac{1}{8}$
 - $\frac{1}{2}$
 - $\frac{19}{8}$
27. Which is NOT between -1 and 1?
- $-\frac{5}{6}$
 - $\frac{7}{8}$
 - $-\frac{1}{2}$
 - $\frac{3}{2}$
28. Which is the correct factored form of $24x^2 - 2x - 15$?
- $(4x - 3)(6x + 5)$
 - $(4x + 3)(6x - 5)$
 - $(4x - 3)(6x - 5)$
 - $(4x + 3)(6x + 5)$
29. $(-3)(-1) + \frac{(4)(-3)}{(-2)} = ?$
- 3
 - $\frac{9}{2}$
 - 9
 - 15
30. Simplify $\sqrt{64x^8y^6z^4}$
- $8x^8y^6z^4$
 - $8x^4y^3z^2$
 - $8\sqrt{x^8y^6z^4}$
 - $128x^{16}y^{12}z^8$
31. If $3x + y = 9$, solve for y .
- $3x - 9$
 - $-3x + 9$
 - $3x + 9$
 - $\frac{9}{3x}$
32. If $3(2b - 3) = 15$, $b = ?$
- 1
 - 2
 - 3
 - 4
33. If $f = g^2$, then $g = ?$
- \sqrt{f}
 - f^2
 - $\frac{1}{2}f$
 - $\frac{1}{f}$

Arithmetic

Perform all indicated operations. Read carefully. On the actual CPT test, be sure to recheck your calculations before selecting an answer and proceeding to the next question. You can not go back. Don't rush! This is not a timed test!

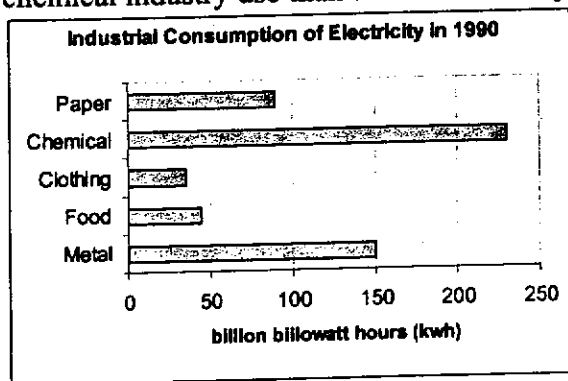
1. Subtract: $8.02 - 3.696$
 a. 4.498 b. 2.894 c. 4.324 d. 11.716
2. What percent of 800 is 40?
 a. 5% b. 0.05% c. 15% d. 20%
3. Divide: $\frac{1.0698}{0.001}$
 a. 0.0010698 b. 1069.8 c. 10,069.8 d. 106.98
4. A bus traveled 200 miles on $12\frac{1}{2}$ gallons of gasoline. How many miles per gallon did it get?
 a. 8 b. 16 c. 18 d. $16\frac{2}{3}$
5. Add: $\frac{7}{10} + \frac{5}{8} + \frac{7}{20}$
 a. $\frac{47}{40}$ b. $\frac{19}{38}$ c. $\frac{67}{40}$ d. $\frac{179}{40}$
6. Subtract: $5\frac{7}{8} - 4\frac{5}{6}$
 a. $2\frac{17}{24}$ b. $\frac{1}{24}$ c. $1\frac{1}{24}$ d. $9\frac{1}{24}$
7. Recently, the stock of Datatech opened at $\$39\frac{1}{4}$ and rose $\$2\frac{3}{4}$ before the closing bell. What was the closing price at the end of the day?
 a. $\$36\frac{1}{2}$ b. $\$38$ c. $\$42$ d. $\$41$
8. Multiply: $4\frac{1}{2} \cdot \frac{1}{5}$
 a. $3\frac{3}{10}$ b. $1\frac{4}{5}$ c. $22\frac{1}{2}$ d. $\frac{9}{10}$
9. Divide and simplify: $\frac{15}{2} \div 3$
 a. $\frac{5}{2}$ b. $\frac{2}{5}$ c. $\frac{45}{2}$ d. $\frac{2}{45}$

10. Divide $6 \overline{)2455}$. Write a mixed number for the answer.
 a. $411 \frac{5}{6}$ b. $49 \frac{1}{6}$ c. $51 \frac{5}{6}$ d. $409 \frac{1}{6}$
11. A wheel on a bicycle makes $71 \frac{1}{4}$ revolutions per minute. If it spins for 40 minutes, how many revolutions does it make?
 a. $2840 \frac{1}{4}$ b. $1 \frac{25}{32}$ c. None of these d. 2850
12. Terry ran the 100-meter relay in 21.4 seconds and later ran the same distance in 16.7 seconds. By how much did she improve her time?
 a. 4.7 sec. b. None of these c. 5.7 sec. d. 38.1
13. Solve: $38.36 + x = 88.334$
 a. None of these b. 84.498 c. 49.974 d. 126.694
14. Convert the following percentage to a decimal number: 0.71%
 a. 0.071 b. 71 c. 0.71 d. 0.0071
15. What is 60.5% of 80?
 a. 0.13 b. 484 c. 4.84 d. 48.4
16. In one year, the population of Alligator Town increased from 900 to 981. What was the percent increase?
 a. 9% b. 8.257% c. 0.91% d. 1.09%
17. This circle graph shows how each tuition dollar is spent by the Olustee School.



- How much of each dollar is left after these expenses?
 a. \$0.70 b. None of these c. \$0.55 d. \$0.75
18. Solve: $12.2 = p - 8$.
 a. 20.8 b. -104.92 c. None of these d. 3.6
19. Solve: $\frac{3}{4}x = \frac{1}{2}$
 a. $\frac{3}{8}$ b. $\frac{2}{3}$ c. None of these d. $\frac{1}{6}$

20. When 10 is subtracted from two times a certain number, the result is twenty-eight (28). What is the number?
a. None of these b. 19 c. 17 d. 22
21. A pharmacist has 100 ml of a solution of alcohol and water; 5% is alcohol. How many milliliters are alcohol?
a. 20 ml b. 2000 ml c. 5 ml d. 95 ml
22. A student's college tuition is \$6300. A loan was obtained for $\frac{6}{7}$ th of the tuition. How much was the loan?
a. \$700 b. \$5400 c. \$37,000 d. \$900
23. The regular price of a suit is \$120. It is on sale at 19% off. What is the discount?
a. \$19.00 b. \$101.00 c. \$97.20 d. \$22.80
24. Approximate $\sqrt{15}$ to three decimal places.
a. 225 b. 7,500 c. 3.873 d. 3.742
25. What is the cost of 5 CD's at \$16 each and 7 videos at \$24 each?
a. \$80 b. \$248 c. \$228 d. \$168
26. Which of the following would be the estimated product of 340×580 ?
a. 900 b. 800 c. 150,000 d. 180,000
27. Which fraction is equivalent to 0.20?
a. $\frac{1}{2}$ b. $\frac{1}{3}$ c. $\frac{1}{4}$ d. $\frac{1}{5}$
28. Which of the following would produce a fraction equivalent to $\frac{3}{5}$?
a. adding $\frac{3}{5}$ b. adding $\frac{5}{3}$ c. multiplying $\frac{5}{5}$ d. multiplying $\frac{5}{3}$
29. Use the bar graph below. Approximately how much more electricity did the chemical industry use than the food industry in 1990?



- a. 190 kwh
b. 150 kwh
c. 350 kwh
d. 125 kwh
30. Solve: $5(2 + 2) - 24 \div 4 + 3^2$
a. 12 b. 23 c. 8 d. 26

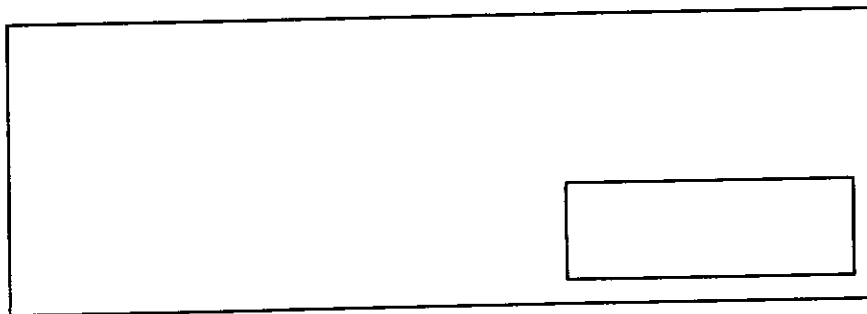
College Level Mathematic

The College Level Mathematic portion of the CPT will include College Algebra, Trigonometry, and Calculus. Perform all indicated operations. Read carefully. On the actual CPT test, be sure to recheck your calculations before selecting an answer and proceeding to the next question. You can not go back. Don't rush! This is not a timed test!

1. If $2(x - 7) + 5 = 3 - (x + 7)$, then $x =$
 a. 3 b. $4/5$ c. $5/3$ d. -3
2. What is the product of $(x - 5)(x - 8)$
 a. $x^2 + 13x - 40$ b. $x^2 + 13x + 40$ c. $x^2 - 3x - 40$ d. $x^2 - 13x + 40$
3. Solve for x : $3x^2 + 11x - 4 = 0$
 a. $\{1/3, -4\}$ b. $\{3, -4\}$ c. $\{-1/3, 4\}$ d. $\{-1, 4\}$
4. A line contains the origin and the point $(3, 4)$. What is the equation of this line?
 a. $y = 2x$ b. $3y = 4x$ c. $3y = x + 4$ d. $y = -3x - 4$
5. If -2 is a root of $x^3 - 2x^2 - 3x + q = 0$, then $q = ?$
 a. -2 b. 10 c. 14 d. -8
6. If 3 and -3 are zeros of $f(x) = x^3 - 2x^2 - 9x + 18$, then what is the third zero?
 a. 0 b. 1 c. 2 d. -2
7. Which of the following would be considered as a root for $x^2 - 7x + 4 = 0$
 a. $\frac{7 - \sqrt{65}}{2}$ b. $\frac{-7 + \sqrt{65}}{2}$ c. $\frac{7 + \sqrt{33}}{2}$ d. $\frac{-7 + \sqrt{33}}{2}$
8. Simplify $\frac{24x^{-2}y^4z}{3xy^{-2}z}$
 a. $\frac{8y^6}{x^3}$ b. $8x^{-1}y^2$ c. $\frac{8x^{-1}y^2}{z}$ d. $\frac{8y^6}{x^3z}$
9. If $(2a^2bc^4)^2d = 10ab^3c^{10}$, then $d = ?$
 a. $\frac{6ab^2c^4}{7}$ b. $\frac{5bc^2}{2a^3}$ c. $\frac{7ac^4}{2b^2}$ d. $\frac{5a^3}{2bc^2}$
10. Frank is 3 years older than his sister Mary. How old is Frank currently, if in 13 years Mary's age will be equal to three times Frank's age now?
 a. 2 b. 5 c. 8 d. 14
11. Simplify: $\frac{200^{1/2}}{2^{3/2}}$

- a. 5 b. 100 c. $10\sqrt{2}$ d. $2\sqrt{2}$
12. Write the following rational expression in lowest terms: $\frac{x^2 - 7x + 6}{2x^2 - 11x - 6}$
- a. $\frac{x(x-1)}{2(x-17)}$ b. $\frac{x+1}{2x+1}$ c. $\frac{(x-7)(x+6)}{(2x-11)(x+6)}$ d. $\frac{x-1}{2x+1}$
13. Perform the indicated operation and simplify: $\frac{g^2 + 7g + 10}{g^2 + 2g - 15} \cdot \frac{4g - g^2}{3g + 6}$
- a. $\frac{4g+9}{3g-4}$ b. $\frac{2g-2}{g-3}$ c. $\frac{2(g-2)}{3(g+3)}$ d. $\frac{4g-g^2}{3g-9}$
14. Simplify $\frac{9!}{6!3!}$
- a. 84 b. 48 c. 1 d. $\frac{1}{2}$
15. Rationalize and simplify: $\frac{3}{\sqrt{3}}$
- a. $3\sqrt{3}$ b. $\sqrt{3}$ c. 3 d. 9
16. Rationalize and simplify: $\frac{\sqrt{2}}{6+\sqrt{2}}$
- a. $\frac{3\sqrt{2}-1}{17}$ b. $\frac{6\sqrt{2}-2}{34}$ c. $\frac{1}{6}$ d. $\sqrt{2}(6+\sqrt{2})$
17. If $f(x) = x^3 - 3x + 4$, then $f(3) = ?$
- a. 19 b. 18 c. 24 d. 22
18. If $f(x) = x^2$, $x > 0$ and $p > 0$, then $\frac{f(x+p) - f(x)}{p} = ?$
- a. $2x + p$ b. $\frac{x^2 + 2xp + p^2}{p}$ c. $2xp + p^2$ d. $\frac{x+p}{p}$
19. If $f(x) = 3x$ and $g(x) = 1 + x^2$, then $f \circ g(5) = ?$
- a. 29 b. 41 c. 78 d. 226
20. What is the $\log_5 625$?
- a. 4 b. 5 c. 25 d. 125
21. If $\log_3 x = 2$, then $x = ?$
- a. 6 b. 9 c. 27 d. 81

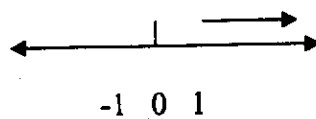
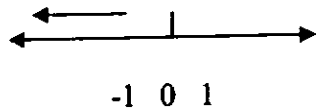
22. Simplify: $\log_a \frac{x^2 y^3}{z^4}$
- $a \log x^2 - a \log y^3 + a \log z^4$
 - $a \log x^2 - a \log y^3 + a \log z^4$
 - $2\log_a x - 3\log_a y + 4\log_a z$
 - $2\log_a x + 3\log_a y - 4\log_a z$
23. Which of the following equations is not for a parabola?
- $y = 12(x^2 + 1)$
 - $(x + 2)^2 = 4(x + 3)$
 - $4y^2 - 2x^2 = 1$
 - $(y - 5) = 2(x^2 + 3)$
24. θ is an angle, P is a point (x, y) other than the origin on the terminal side of θ . If $d(0, P) = r = \sqrt{x^2 + y^2}$. What does $\sin\theta \sec\theta = ?$
- $\cos \theta$
 - $\cot \theta$
 - $\csc \theta$
 - $\tan \theta$
25. Which of the following is equivalent to $\sin(u + v)$?
- $\sin u \cos v + \cos u \sin v$
 - $\sin u \cos u + \sin v \cos v$
 - $\cos u \cos v - \sin u \sin v$
 - $\sin u \cos v - \cos u \sin v$
26. Which of the following x and y equations has the same graph as the polar equation $r = \frac{15}{4 - 4 \cos \theta}$?
- $y^2 = 15 + 4x$
 - $8y^2 = 120x + 8x^2$
 - $16y^2 = 225 + 120x$
 - $\sqrt{x^2 + y^2} = 15$
27. The rectangles in the figure below have the following dimensions: the large is $5x$ long and $2x$ wide, the small is $3y$ long and y wide. The shaded area can be expressed by which of the following mathematical expressions?



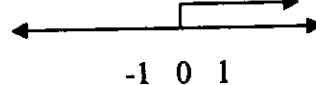
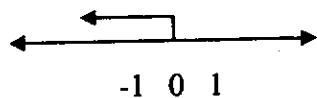
- $(2x \cdot 5x)(y \cdot 3y)$
- $(2x + y)(5x + 3y)$
- $(2x - y)(5x - 3y)$
- $10x^2 - 3y^2$

28. Which of the following number lines represents $3x - 5 < 2x - 6$?

a. c.

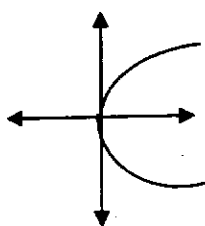


b. d.

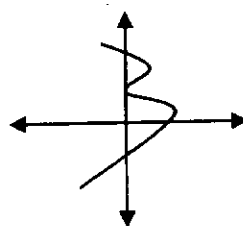


29. Which of the following graphs represents a function?

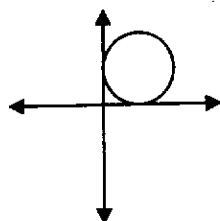
a.



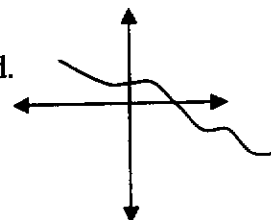
c.



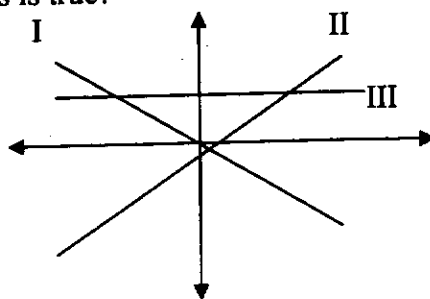
b.



d.



30. If slopes are m_1 , m_2 , and m_3 for lines I, II, and III, respectively, which of the following statements is true?



a.

$$m_1 = m_2 = m_3$$

b. $m_1 > 0$

c.

$$m_2 < m_3$$

d. $m_3 > m_1$

Sentence Skills – Answers/ Explanations

1. d: The subject and verb must agree in number and tense. Mr. Roberts is a third person subject and the action is taking place in the present.
2. c: Use a colon between independent clauses if the second summarizes or explains the first.
3. c: The misplaced modifier in the original confuses the meaning of the sentence.
4. d: Modifiers should be close to the word they modify.
5. b: Pronouns must agree with their antecedents, person is singular and they is plural, to avoid sexist language both he and she can refer to the non-gender specific person.
6. c: Parallel form is needed for expressing similar ideas.
7. d: When referring to a person or people, use the relative pronoun "who."
8. c: Which refers to books, plural, the use of "were" is required for subject-verb agreement.
9. d: Two independent clauses separated by a comma make a comma splice. To correct this, subordinate one of the clauses and the now dependent clause at the end of the sentence does not need a comma
10. b: An introductory verbal phrase must modify the subject of the sentence.
11. b: The last two clauses contain a comma splice, so the last clause can be reduced to a verbal phrase modifying "increase."
12. b: Use parallel wording: having and knowing.
13. c: Adding because and moving the dependent clause to the end of the sentence does not require a comma.
14. b: When a dependent clause introduces a sentence, a comma is needed after the clause.
15. b: Introductory dependent clauses need a comma to set them off.
16. b: Sometimes sentences contain ideas that are unequal. If one idea explains the other, it is put in a subordinate (lesser) or dependent clause. A dependent clause at the beginning of the sentence must be followed by a comma.
17. c: Avoid using ambiguous references to "you." Construct sentences for clarity. People don't have traffic jams; cars do.
18. d: The new sentence upgrades the dependent clause "as anyone . . . knows" to an independent clause. The new sentence includes "knows that tornadoes are" – subordinating the main idea, "tornadoes are winds. . ."
19. b: The dependent clause has been reduced to an introductory verbal phrase modifying the subject.
20. b: Avoid unnecessary words which can jumble the flow of the sentence.
21. a: When an independent clause is followed by a dependent clause, a comma is usually unnecessary.
22. b: Two independent clauses joined by a coordinating conjunction (and, but, so, or, for, nor, yet) need a comma after the first clause.
23. d: When a dependent clause introduces the sentence, a comma is needed after the clause.

24. b: This version makes more sense because earning the money is in fact the cause of his not needing to sell his pen, and the sentence is grammatically correct.
25. b: This version is gives the cause clearly, maintains the meaning of the original sentence and is grammatically correct.

Sentence Skills Review Diagnostic	
If you missed	Study
24, 25	Cause and Effect
6, 12	Parallel Form
5, 7	Pronoun Preference
8, 1	Subject Verb Agreement
9, 13, 14, 15, 16, 18, 19, 21, 23	Dependent Clauses, Subordinating Ideas
17	Clarity
3, 4	Misplaced Modifiers
9, 11	Comma Splices
10	Verbal Phrases
2, 22	Punctuation
20	Wordiness

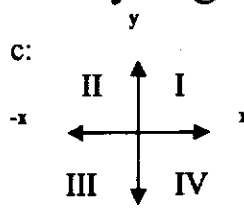
Reading – Answers/Explanations

- c: The passage mentions only 3 rockets being launched in the 1950's, 3 is usually considered a few but not many. The passage mentions only what the Russians told the world, no mention of secrets. The passage does mention that the Americans were behind in the Russians in space travel. The origin of the word Sputnik is not discussed in the passage.
- a: In this passage proximity means closeness. The clue is "just two blocks away."
- d: A grate is a kitchen tool in this passage.
- b: The author's purpose is to persuade the reader to vote for Sam.
- a: The passage's main theme, as far as the passage goes, concerns how travelers once lost communication with others while traveling. Fun and comfort and current modes of transportation were not discussed.
- c: The author is clearly excited about his experience. A good clue to the mood was the word exhilarating.
- b: The main idea deals with the age and future needs of the investor. The use of pennies in the introductory sentence is used to grab the reader's attention.
- d: The clue to what the author implies is "Convoys can help truckers to stay alert."
- b: The clues to the main subject of this passage are "one of the most popular films ever made," and "Mothra still lives."

10. c: What the Greenhouse effect is currently doing to the planet's atmosphere is not discussed, nor is the stability of temperatures, or solar energy. The different ways scientist gather information is discussed.
11. c: The passage does not try to sway the reader towards any theory, it is merely presenting facts.
12. b: The author is comparing and contrasting the sizes of birds to their eggs.
13. a: The author is relating the effects caused by the use of credit cards.
14. d: Pollution, uses, nor peoples reactions to ozone were mentioned in either of the passages. The common thread concerned the natural occurance and properties of ozone in nature.
15. d: "Before video cameras," "difficult," and "inaccurate" are clues from the first passage. "Helpful" is a clue from the second passage.
16. d: The first sentence is stating a possible outcome and the second sentence is providing information on preventing that outcome.
17. b: The two sentences give contrasting reasons why people collect these toys.
18. b: The second continues with the same concept as the first and further explains what Jenny does not like about cake.
19. c: The first and second sentence are stating the same information.
20. c: The second sentence gives supporting information as to why this CD is popular.
21. d: The second sentence offers an opinion of the Grand Canyon. The clue, "the most beautiful," is subjective and not a fact.
22. a: The second sentence gives an example for the statement made in the first sentence. It gives a supporting detail.
23. a: The first sentence gives the situation, the cause, and the second sentence gives an effect.
24. a: The two sentences give contrasting points of view of the boy. The first sentence good and the second bad.
25. b: The second sentence give an explanation, supporting details, for the first sentence.

Reading Review Diagnostic	
If you missed	Study
13, 15, 16, 23	Cause and Effect
12, 17, 24	Compare and Contrast
1	Implied Information or Inferences
18, 20, 22, 25	Supporting Statements or Details
5, 7, 8, 9, 10, 11, 14, 19	Main Ideas
4, 6	Authors' Tone or Purpose
2, 3	Word Meaning in Context
21	Fact and Opinion

Elementary Algebra – Answers/Explanations

1. c: 
2. c: Hint: FOIL
 $(3x + 2)(3x + 2)$
 $(3x)(3x) + (3x)(2) + (2)(3x) + (2)(2)$
 $9x^2 + 6x + 6x + 4$
 $9x^2 + 12x + 4$
3. d:
 $4(3x + 2) - (x + 5) = -3$
 $12x + 8 - x - 5 = -3$
 $11x + 3 = -3$
 $11x = -6$
 $x = -11/6$
4. d:
 $(3x^3y)^3$
 $3^3x^3 \cdot 3^3y^3$
 $27x^9y^3$
5. c:
 $x^2 - 4x + 4$ factored is
 $(x - 2)(x - 2)$
 $x^2 + x - 6$ factored is
 $(x - 2)(x + 3)$
 $(x - 2)$ is a factor of both
6. b:
 $\frac{2}{2/x + 2/y} = \frac{2}{\frac{2y + 2x}{xy}}$
 $\frac{2}{1} \cdot \frac{xy}{2y + 2x} = \frac{2}{1} \cdot \frac{xy}{2(y+x)}$
 $\frac{xy}{x + y}$
7. b:
 $x = |-4 - 5| = |-9| = 9$
 $y = |-4 - (-5)| = |-4 + 5| = |1| = 1$

$$z = |-4| - |-5| = 4 - 5 = -1$$

so, z is less than y

8. b:
 $\frac{3x}{2y} \cdot \frac{8y^2}{27x}$ any term on the top can reduce or cancel with any term on the bottom = $\frac{4y}{9}$

9. d: Key Words for translating to Algebraic Expressions:

<u>Addition</u>	<u>Subtraction</u>
Add	subtract
Added to	subtracted from
Sum	difference
Total	minus
Plus	less than
More than	decreased by
Increased by	take away
<u>Multiplication</u>	<u>Division</u>
Multiply	divide
Multiplied by	quotient
Product	divided by
Times	
Of	

10. c: Hint: solve by substitution
 Use $x - 3y = 12$, solve for x; $x = 3y + 12$
 and substitute into first equation
 $2(3y + 12) + y = 3$, solve for y
 $6y + 24 + y = 3$
 $7y + 24 = 3$
 $7y = -21$
 $y = -3$, substitute y value into other equation.
 $x - 3(-3) = 12$
 $x + 9 = 12$
 $x = 3$
 solution for both equations (3, -3): $x = 3$, $y = -3$
11. b: see key words in answer 9.
 M is (=) 8 more (+) than some #
 $M = 8 + \#$
 $M - 8 = \#$

12. b: By observation, both equations in answer b have the same solution but the coefficients for the variables are not the same nor are they multiples of the same coefficients, so the two equations can not have the same solutions. All four pairs of equations can also be solved by substitution or addition.

13. c: hint: factor

$$24x - 8$$

$$8(3x - 1)$$

14. d:

$$(2x - 5y)^2$$

$$(2x - 5y)(2x - 5y)$$

$$(2x)(2x) + (2x)(-5y) + (-5y)(2x) + (-5y)(-5y)$$

$$4x^2 - 10xy - 10xy + 25y^2$$

$$4x^2 - 20xy + 25y^2$$

15. b:

$$(9 - 7) - (7 - 9) =$$

$$2 - (-2) =$$

$$2 + 2 = 4$$

16. d:

$$(5\sqrt{3x})^2$$

$$5^2(\sqrt{3x})^2$$

$$5 \cdot 5 \cdot \sqrt{3x} \cdot \sqrt{3x}$$

$$25 \cdot 3x$$

$$75x$$

17. c:

$$\frac{4x}{5} - \frac{2x}{3} + \frac{x}{2}$$

$$\frac{24x}{30} - \frac{20x}{30} + \frac{15x}{30}$$

$$\frac{24x - 20x + 15x}{30} = \frac{19x}{30}$$

18. c:

$$x^2 - 10x + 24$$

$$x^2 - 6x - 4x + 24$$

$$(x^2 - 6x) + (-4x + 24)$$

$$x(x - 6) + -4(x - 6)$$

$$(x - 6)(x - 4)$$

19. b:

$$\frac{3x^2 - 15x}{3x} = \frac{3x(x - 5)}{3x} = x - 5$$

20. c

21. a: Hint FOIL

$$(x + 3y)(x - 2y)$$

$$(x)(x) + (x)(-2y) + (3y)(x) + (3y)(-2y)$$

$$x^2 - 2xy + 3xy - 6y^2$$

$$x^2 + xy - 6y^2$$

$$m = xy$$

22. c:

$$(-1)^4 = (-1)(-1)(-1)(-1) = 1$$

23. b: see answer 8

$$\frac{4}{3x} \cdot \frac{3}{2x} = \frac{2}{x^2}$$

24. a:

$$\frac{2x^2}{3y} \cdot \frac{y^3}{8x} = \frac{xy^2}{12}$$

25. c: see answer key words on answer 9

26. c:

$$\text{In } \frac{2x - 3y}{x - y}; x = 5 \text{ and } y = 3$$

$$\frac{2(5) - 3(3)}{5 - 3} = \frac{10 - 9}{2} = \frac{1}{2}$$

27. d: Hint: plot on number line to verify.

28. b:

$$24x^2 - 2x - 15$$

$$24x^2 - 20x + 18x - 15$$

$$(24x^2 - 20x) + (18x - 15)$$

$$4x(6x - 5) + 3(6x - 5)$$

$$(6x - 5)(4x + 3)$$

29. c:

$$(-3)(-1) + \frac{(4)(-3)}{(-2)} = 3 + \frac{(-12)}{(-2)} = 3 + 6 = 9$$

30. b: $\sqrt{64x^8y^6z^4} =$
 $\sqrt{8 \cdot 8 \cdot x^4 \cdot x^4 \cdot y^3 \cdot y^3 \cdot z^2 \cdot z^2} =$
 $8x^4y^3z^2$
31. b:
 $3x + y = 9$
 $y = -3x + 9$
32. d:
33. a:
 $f = g^2$
 $\sqrt{f} = \sqrt{g^2}$
 $\sqrt{f} = \sqrt{g * g}$
 $\sqrt{f} = g$
- 3(2b - 3) = 15
6b - 9 = 15
6b = 24
b = 4

Elementary Algebra Review Diagnostic	
If you missed	Study
1, 27	Coordinate Grid / Numberline
2, 14, 21	Multiplying Binomials (FOIL)
5, 18, 28	Factoring Trinomials
3, 32	Distributive Property
4, 22	Laws of Exponents
6	Least Common Denominator/ Complex Fractions
7	Absolute Value
8, 24	Exponential Expressions in Fractions
9, 11, 25	Word Sentences into Algebraic Expressions
10, 12	Solving Systems of Equations (2 variables in 2 equations)
15, 29	Order of Operations
16, 30	Simplifying Radical Expressions
17, 23	Algebraic Fractions
13, 19, 20	Order of Operations
26	Substitutions of Values for Variables
30, 33	Isolating a Variable

Arithmetic – Answers/Explanations

1. c: Hint: align decimals before subtracting

$$\begin{array}{r} 8.02 \\ - 3.696 \\ \hline 4.324 \end{array}$$
2. a: $40 = ?\% \times 800$
 $40/800 = 0.5$
 $.05 \times 100\% = 5\%$
3. b: Hint: move decimal before beginning division

$$\begin{array}{r} 1069.8 \\ 0001.)1069.8 \end{array}$$
4. b:
200 miles \div 12 $\frac{1}{2}$ gallons = 16 mpg

5. c:

$$\frac{7}{10} + \frac{5}{8} + \frac{7}{20} = \frac{28}{40} + \frac{24}{40} + \frac{14}{40} = \frac{67}{40}$$

6. c:

$$5\frac{7}{8} - 4\frac{5}{6} = 5\frac{21}{24} - 4\frac{20}{24} = 1\frac{1}{24}$$

7. c:

$$\$39\frac{1}{4} + \$2\frac{3}{4} = \$41\frac{4}{4} = \$42$$

8. d: Remember mixed numbers must be changed to improper fractions before multiplying or dividing

$$4\frac{1}{2} \cdot \frac{1}{5} = \frac{9}{2} \cdot \frac{1}{5} = \frac{9}{10}$$

9. a:

$$\frac{15}{2} \div 3 = \frac{15}{2} \times \frac{1}{3} = \frac{15}{6} = \frac{5}{2}$$

10. d:

$$\begin{array}{r} 409 \frac{1}{6} \\ 6 \overline{)2455} \text{ the remainder is } \\ - 24 \text{ written as a fraction } \\ 055 \text{ with the divisor, 6, as } \\ - 54 \text{ the denominator } \\ \hline 1 \end{array}$$

11. d:

$$71\frac{1}{4} \text{ revs./min} \times 40 \text{ mins.} = 71\frac{1}{4} \times 40 = \frac{285}{4} \times \frac{40}{1} = \frac{11400}{4} = 2850$$

12. a: subtract to find the difference in times

$$\begin{array}{r} 20.4 \\ -16.7 \\ \hline 4.7 \text{ seconds} \end{array}$$

13. c:

$$38.36 + x = 88.334$$

Subtract 38.36 from both sides of the equation

$$x = 49.974$$

14. d:

$$\frac{0.71\%}{100\%} = 0.0071$$

15. d:

$$60.5\% \times 80 = .605 \times 80 = 48.400$$

16. a:
 subtract to find the difference in populations, $981 - 900 = 81$, then find what percent of the original population (900) is 81. $81 \div 900 = .09$, then $.09 \times 100\% = 9\%$

17. b:
 First add up all the ways that each dollar is spent then subtract from a dollar to see how much is left. Remember to align decimals when adding.

$$0.40$$

$$0.09$$

$$0.20$$

$$0.17$$

$$+0.14$$

1.00 there is no money left from the tuition dollar.

18. a:
 $12.2 = p - 8.6$, add 8.6 to both sides of the equation, $20.8 = p$

19. b:
 to solve for x multiply each side of the equation by the inverse of $\frac{3}{4}$

$$\frac{3}{4}x = \frac{1}{4}, \frac{4}{3} \cdot \frac{3}{4}x = \frac{1}{4} \cdot \frac{4}{3}, x = \frac{4}{6} = \frac{2}{3}$$

20. b:
 $2x - 10 = 28$, $2x = 38$, $x = 19$

Key Words for translating to Algebraic Expressions:

Addition

add
added to
sum
total
plus
more than
increased by

Multiplication

multiply
multiplied by
product
times
of

Equal

is
the result

Subtraction

subtract
subtracted from
difference
minus
less than
decreased by
take away

Division

divide
quotient
divided by

21. c:
5% of 100 is
 $5\% \times 100 = .05 \times 100 = 5 \text{ ml}$

22. b:
6/7 of 6300 is
 $\frac{6}{7} \times 6300 = \frac{37800}{7} = \5400

23. d:
19% of \$120 is
 $19\% \times \$120 =$
 $.19 \times 120 = \$22.80$

24. c:
To approximate the square root
use trial and error
 3^2 is 9 and 4^2 is 16 so the $\sqrt{15}$ is
just less than 4.
 $3.9 \times 3.9 = 15.21$ too much
 $3.8 \times 3.8 = 14.44$ just right
 $3.88 \times 3.88 = 15.0544$ too much
 $3.87 \times 3.87 = 14.9769$ just right
 $3.873 \times 3.873 = 15.000129$ close
enough

25. b:
 $5(\$16) + 7(\$24) = \$80 + \168
 $= \$248$

26. d:
Round before multiplying
 $340 \times 580 = 300 \times 600 = 180,000$

27. d:
 $1/5 = \frac{2}{10}$ or $\frac{20}{100} = \frac{1}{5}$

28. c:
Multiplying by 5/5 (1) gives an
equivalent fraction.

29. a:
Because of the scale of the graph
exact number can not be used.
Approximate, 230 kwh used by
chemical and 40 kwh used by
food, subtract to find how much
more = the difference.

30. b:
 $5(2 + 2) - 24 \div 4 + 3^2 =$
 $5(4) - 24 \div 4 + 9$
 $20 - 6 + 9 =$
23

Arithmetic Review Diagnostic	
If you missed	Study
4, 5, 6, 7, 8, 9, 10, 11, 19, 22, 28	Operations with Fractions
1, 3, 12, 17	Operations with Decimals
2, 16, 21, 23	Working with Percentages
14, 27	Converting Fractions, Decimals and Percents
4, 7, 11, 12, 16, 21, 22, 23, 25	Word Problems
17, 29	Reading Graphs and Charts
26, 29	Estimating
30	Order of Operations
20	Word Sentences into Mathematical Expressions
24	Radicals (Square Roots)
13, 18, 19, 20	Solving/Isolating a Variable

College Level Mathematics – Answers/Explanations

- c:

$$2(x - 7) + 5 = 3 - (x + 7)$$

$$2x - 14 + 5 = 3 - x - 7$$

$$2x - 9 = -x - 4$$

$$3x = 5$$

$$x = 5/3$$
- d: Hint: FOIL

$$(x - 5)(x - 8) =$$

$$x^2 - 8x - 5x + 40 =$$

$$x^2 - 13x + 40$$
- a: Hint: factor, then solve for x

$$3x^2 + 11x - 4 = 0$$

$$3x^2 + 12x - x - 4 = 0$$

$$(3x^2 + 12x) + (-x - 4) = 0$$

$$3x(x + 4) - 1(x + 4) = 0$$

$$(x + 4)(3x - 1) = 0$$

$$x + 4 = 0 \text{ and } 3x - 1 = 0$$

$$x = -4 \text{ and } x = 1/3$$

$$\{-4, 1/3\}$$
- b: Hint: determine the slope then use the point slope formula to determine the equation of the line

Origin (0, 0) and point (3, 4)

$$m = \frac{4 - 0}{3 - 0} = \frac{4}{3}$$
- b:

$$y - 4 = \frac{4}{3}(x - 3)$$

$$3y - 12 = 4x - 12$$

$$3y = 4x$$
- c:

$$(2)^3 - 2(2)^2 - 9(2) + 18 = 0$$

$$8 - 8 - 18 + 18 = 0$$

$$0 = 0$$
- c: Hint: use the quadratic formula

$$-(-7) \pm \frac{\sqrt{(-7)^2 - (4)(1)(4)}}{2(1)}$$

$$7 \pm \frac{\sqrt{49 - 16}}{2}$$

$$7 \pm \frac{\sqrt{33}}{2}$$

$$7 + \frac{\sqrt{33}}{2} \text{ or } 7 - \frac{\sqrt{33}}{2}$$
- a: Hint exponents positive

$$\frac{24x^{-2}y^4z}{3xy^2z} = 8x^{-2+1}y^{4+2}z^{1-1} =$$

$$8x^{-3}y^6z^0 = \frac{8y^6}{x^3}$$

9. b:

$$(2a^2bc^4)^2d = 10ab^3c^{10}$$

$$4a^4b^2c^8d = 10ab^3c^{10}$$

$$d = \frac{10ab^3c^{10}}{4a^4b^2c^8}$$

$$d = \frac{5a^{1-4}b^{3-2}c^{10-8}}{2}$$

$$d = \frac{5bc^2}{2a^3}$$

10. b:

Let x = Mary's age now

Let $x + 3$ = Frank's age now

$x + 13$ = Mary's age in 13 years

$3(x + 3)$ = Frank's age in 13 years

$$x + 13 = 3(x + 3)$$

$$4 = 2x$$

$$2 = x$$

2 = Mary's age now

$2 + 3 = 5$ = Frank's age now

11. a:

$$\frac{200^{1/2}}{2^{3/2}} = \frac{\sqrt{200}}{\sqrt{2^3}} = \frac{10\sqrt{2}}{2\sqrt{2}} = 5$$

12. d: Hint: factor numerator and denominator then reduce(cancel) like expression

$$\frac{x^2 - 7x + 6}{2x^2 - 11x - 6} = \frac{(x-6)(x-1)}{(x-6)(2x+1)}$$

$$= \frac{x-1}{2x+1}$$

13. d: Hint: factor completely and cancel, if possible, then multiply

$$\frac{g^2 + 7g + 10}{g^2 + 2g - 15} \cdot \frac{4g - g^2}{3g + 6}$$

$$= \frac{(g+5)(g+2)}{(g+5)(g-3)} \cdot \frac{g(4-g)}{3(g+2)}$$

$$= \frac{g(4-g)}{3(g-3)}$$

$$= \frac{4g - g^2}{3g - 9}$$

14. a:

$$\frac{9!}{6!3!} = \frac{9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}{6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 \cdot 3 \cdot 2 \cdot 1} = \frac{9 \cdot 8 \cdot 7}{3 \cdot 2 \cdot 1}$$

$$= \frac{3 \cdot 4 \cdot 7}{1} = 84$$

15. b: Hint: Radicals ($\sqrt{\quad}$) should never remain in the denominator. Multiply by one in terms that would eliminate the radical from the denominator.

$$\frac{3}{\sqrt{3}} = \frac{3}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{3\sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} = \frac{3\sqrt{3}}{3} = \sqrt{3}$$

16. a:

$$\frac{\sqrt{2}}{6 + \sqrt{2}} = \frac{\sqrt{2}}{6 + \sqrt{2}} \cdot \frac{6 - \sqrt{2}}{6 - \sqrt{2}} =$$

$$\frac{\sqrt{2}(6 - \sqrt{2})}{(6 + \sqrt{2})(6 - \sqrt{2})} =$$

$$\frac{6\sqrt{2} - \sqrt{2}\sqrt{2}}{6^2 - 6\sqrt{2} + 6\sqrt{2} - (\sqrt{2})^2} =$$

$$\frac{6\sqrt{2} - \sqrt{2}\sqrt{2}}{36 - 2} = \frac{6\sqrt{2} - 2}{34} = \frac{3\sqrt{2} - 1}{17}$$

17. d:

$$f(x) = x^3 - 3x + 4$$

$$f(3) = 3^3 - 3(3) + 4$$

$$f(3) = 27 - 9 + 4 = 22$$

18. a:

$$f(x) = x^2, \quad \frac{f(x+p) - f(x)}{p}$$

$$\frac{(x+p)^2 - x^2}{p} = \frac{x^2 + 2xp + p^2 - x^2}{p}$$

$$\frac{2xp + p^2}{p} = \frac{p(2x + p)}{p} = 2x + p$$

19. c:

$$f(x) = 3x, \quad g(x) = 1 + x^2, \quad \text{then } f \circ g(5) =$$

$$f(1 + 5^2) = f(1 + 25) = f(26) = 3(26) =$$

$$78$$

20. a:

Use formula $y = \log_a x$, $x = a^y$
 $\log_5 625$, $625 = 5^y$
 $625 = 5^4$, $y = 4$

21. b:

Use formula as in answer #20,
 $\log_3 x = 2$, $x = 3^2$, $= 9$

22. d:

Use product and division laws for logarithms:

$$\log uw = \log u + \log w \text{ and}$$

$$\log u/w = \log u - \log w$$

Also use $\log_a (u^c) = c \log_a u$

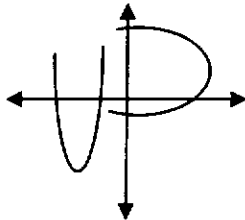
$$\log_a \frac{x^2 y^3}{z^4} =$$

$$\log_a x^2 + \log_a y^3 - \log_a z^4 =$$

$$2 \log_a x + 3 \log_a y - 4 \log_a z$$

23. c:

A parabola is the set of all points in a plane equidistant from a fixed point F (the focus) and a fixed line l (the directrix) that lie in a plane: for example



24. d:

$$\sin \theta \sec \theta =$$

$$\sin \theta = \frac{y}{r} \text{ or } \frac{\text{opp.}}{\text{hyp.}}$$

$$\frac{r}{x} \text{ or } \frac{\text{hyp.}}{\text{adj.}}$$

$$\sec \theta = \frac{r}{x} \text{ or } \frac{\text{hyp.}}{\text{adj.}}$$

$$\text{so } \sin \theta \sec \theta = \frac{y}{r} \cdot \frac{r}{x} = \frac{y}{x} = \tan \theta$$

$$\text{or } \frac{\text{opp.}}{\text{hyp.}} \cdot \frac{\text{hyp.}}{\text{adj.}} = \frac{\text{opp.}}{\text{adj.}} = \tan \theta$$

25. a:

Using addition formula from trigonometry

$$\sin(u + v) =$$

$$\sin u \cos v + \cos u \sin v$$

26. c:

$$r = \frac{15}{4 - 4 \cos \theta} =$$

$$r(4 - 4 \cos \theta) = 15$$

$$4r - 4r \cos \theta = 15$$

$$4(\pm \sqrt{x^2 + y^2}) - 4x = 15$$

$$4(\pm \sqrt{x^2 + y^2}) = 15 + 4x$$

Square both sides

$$16(x^2 + y^2) = 225 + 120x + 16x^2$$

$$16x^2 + 16y^2 = 225 + 120x + 16x^2$$

$$16y^2 = 225 + 120x$$

27. d:

Area is length times width, area of the little rectangle is subtracted from the area of the big rectangle

$$(5x)(2x) - (3y)(y) = 10x^2 - 3y^2$$

28. a:

$$3x - 5 < 2x - 6$$

$x < -1$, the graph should start at -1 and point left to infinity

29. d:

A function is a correspondence that assigns to each element x exactly one element y . So, for every x value on a graph there can be only one y for the diagram to be a function.

30. d:

m_1 (slope) is negative, m_2 is positive, m_3 is zero

College Level Mathematics Review Diagnostic	
If you missed	Study
1	Order of Operations
1, 9	Isolating or Solving for a Variable
2	Multiplication of Polynomials: FOIL
3	Factoring Trinomials
4, 30	Equations of a Line/ Slope
5, 6, 12, 13	Factoring Polynomials
7	Quadratic Equation
8, 11, 15, 16	Laws of Exponents/ Operations with Radicals
10	Word Problems
14	Factorials
17, 18, 19, 29	Functions
20, 21, 22	Logarithms
23	Parabolas/Graphs
24	Trigonometric Functions
25, 26	Trigonometric Identities
27	Geometry

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