The Purpose

Accuplacer is used to match your academic readiness with the requirements of your courses and program of study. Based upon your academic assessment scores in reading, writing, math, and computer skills you will be placed in courses most appropriate for you begin your studies. These requirements are in place so that students will be successful.

Placement Alternatives/Exemptions

High School transcripts less than 5 years old with first semester senior grades posted may exempt students from testing depending on GPA and courses completed – Contact your Enrollment Counselor to check on this exemption.

SAT /ACT Scores - SAT or ACT scores, less than five years old AND at the levels below: SAT: Reading-500, Writing-500, Math-500; ACT: Reading-22, Writing-18 Math-22, may be used for exemption for the corresponding subject. SAT/ACT score reports must be provided to the Admissions Office, or included as part of your high school transcript.

Prior College Credit -Prior college credits from a regionally accredited institution for first level English, math, or computer credits may exempt you from that portion of the assessment. An Enrollment Counselor must review these credits for approval.

ATTENTION! Before taking the Accuplacer, please complete the Application for Admission
http://www.davidsonccc.edu/admissions/how-apply

For Use by Admissions Office: College Program: ____________________________

Accuplacer Sections Recommended: _____Reading _____Sentence Skills
Math: _____Operations with Integers _____Fractions & Decimals _____Proportions, Ratios, Rates & Percents _____Expressions, Linear Equations & Equalities _____Graphs & Equations of Lines _____Polynomials & Quadratic Applications

Appt. Date: ___________________ Time: ______________________

Computer Skills Assessment

Admissions Staff Initials: ________ *Be sure to bring a Photo ID to your appointment.
Preparing for the Assessment

This booklet is a good first step to review the types of questions that are included on the Accuplacer. For those needing additional review, DCCC’s Basic Skills Office offers free preparation classes called ACE (Achieving College Entry) Program. For further information call (336) 249-8186, extension 4571 or 4572 or visit: http://www.davidsonccc.edu/academics/ace

Assessment Appointments

Accuplacer is given several times each week by appointment. For questions concerning the academic skills assessment contact the Academic Testing Center at (336) 249-8186, Ext. 4710 or e-mail us at learningcommons@davidsonccc.edu. To make your assessment appointment, go to www.davidsonccc.edu, click the Admissions tab along the top of the page, click How to Apply on the right and then Placement Testing.

ACCUPLACER AND COMPUTER SKILLS APPOINTMENT TIMES

When is the assessments offered?

Accuplacer and computer skills assessments on the Davidson Campus of DCCC are offered through the below times:

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<tr>
<th></th>
<th>AVAILABLE APPOINTMENT TIMES ALL DAY THROUGH LAST TEST</th>
<th>LAST TEST</th>
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<tr>
<td>Monday</td>
<td>8:00am</td>
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<td>Tuesday</td>
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Saturday’s once per month *Subject to change as needed.

*For those preferring to assess on the Davie Campus of DCCC in Mocksville, call 336-751-2885 for an appointment.

NOTE: Individuals requesting special accommodations for testing should first contact our Disability Services Counselor 336-249-8186, x 6342 or at whitney_lewis@davidsonccc.edu.

Preparing for an Assessment

1. Make an appointment online, or go to the Mendenhall Building for walk-in access at the Davidson Campus, or call the Davie Campus (see contact information above). Since both Accuplacer and Computer skills testing are untimed, be sure take your test on a day that you have plenty of time to devote to the assessments. Most students will need between 3 - 6 hours to complete both assessments.

2. Bring a photo ID & be prompt with your appointment time.

Useful Resources

Grammar & Usage http://owlet.letu.edu/grammar.html
Reading & Comprehension http://www.csbsju.edu/academicadvising/help/remread.htm
Major Details http://www.davidsonccc.edu/academics/schools-learning
The Assessment

Accuplacer is administered on a computer. You will read the instructions and questions on the screen, and mark your answers using the mouse. Scratch paper will be provided.

The reading comprehension assessment measures your ability to understand what you read. The sentence skills assessment measures your understanding of how sentences are put together and what makes a sentence complete. The six mathematics assessments measure individual math skills. All assessments consist of multiple choice questions.

Each section is designed using adaptive technique, meaning the computer decides which questions are presented based upon your responses to prior questions. This technique “zeros-in” on the right questions to ask you without being too easy or too difficult. The greater your demonstrated skill level, the more challenging the questions that will be presented to you.

After completing all sections of Accuplacer, you will receive a printed report of your scores. Your scores and information provided when taking Accuplacer will be used by the College for advisement and placement purposes.

Accuplacer Tips

- **You will need approximately three to six hours to take the full assessment.**
- **Most Important:** Accuplacer is untimed, so don’t rush! Take all the time you need to answer the questions.
- **You cannot go back to the previous questions, so make sure you’re satisfied with the answers you choose.**
- The sections you take are determined by your program of study. If you have questions, ask an admissions counselor. DCCC’s Basic Skills Office offers free placement test preparation classes called ACE (Achieving College Entry) which is a great idea for those who have been out of school for many years or just need to brush up. For an ACE schedule or further information call (336) 249-8186, extension 4571 or 4572 or visit http://www.davidsonccc.edu/academics/ace.
- **Read each question very carefully to make sure you understand what it’s asking and read all choices for answers before selecting one.**
- When unsure, eliminate as many choices as possible.
- On the reading comprehension section, read the passage as many times as needed.
- On the sentence skills section, put your answers back into the whole sentence to see if the sentence then sounds smooth and logical.
- On the math sections, try putting your answer back into the original problem.

- Although you may not use a calculator on the math sections, a basic function calculator will appear and may be used to assist you with certain math questions.

Special Arrangements for Students with Disabilities

If you have a disability (permanent or temporary) that will affect your taking Accuplacer under standard conditions, please contact the Disability Services Counselor at 249-8186, Ext. 6342 to arrange needed accommodations.

Rules

- Textbooks, notebooks, dictionaries, calculators, or other papers of any kind are not allowed in the assessment room.
- Use of the basic calculator provided by the Accuplacer software is allowed when it appears in the on-screen tool tray to assist you with selected questions.
- The administrator will distribute paper and pencils for your use. Following the assessment period, all paper and pencils will be collected. Carry nothing away.
- Other students will be assessing at the same time, and you may not talk to one another for any reason. Talking with anyone other than the assessment administrator may result in cancellation of your scores. (Because each student will have a different assessment, it is unlikely that anyone can help anyone else.)

Repeats

- Applicants/Student may re-test one time during the five-year period following the first assessment.
- Retesting may occur no sooner than 30 days after initial placement test unless recommended by Basic Skills.
- Students currently enrolled in pre-curricular courses are not eligible to retest in that academic subject.
- Any exception to this policy must be obtained in advance from the Director, Admissions or her designee.
- Results of any placement not complying with this policy will not be considered.

FREE ACADEMIC SKILLS REVIEW! Offered through ACE
Sentence Skills

In an ACCUPLACER® placement test, there are 20 Sentence Skills questions of two types.

- The first type is sentence correction questions that require an understanding of sentence structure. These questions ask you to choose the most appropriate word or phrase for the underlined portion of the sentence.
- The second type is construction shift questions. These questions ask that a sentence be rewritten according to the criteria shown while maintaining essentially the same meaning as the original sentence.

Within these two primary categories, the questions are also classified according to the skills being tested. Some questions deal with the logic of the sentence, others with whether or not the answer is a complete sentence, and still others with the relationship between coordination and subordination.

Sentence Skills Sample Questions

Directions for questions 1–12

Select the best version of the underlined part of the sentence. The first choice is the same as the original sentence. If you think the original sentence is best, choose the first answer.

1. Stamp collecting being a hobby that is sometimes used in the schools to teach economics and social studies.
   A. being a hobby that is
   B. is a hobby because it is
   C. which is a hobby
   D. is a hobby

2. Knocked sideways, the statue looked as if it would fall.
   A. Knocked sideways, the statue looked
   B. The statue was knocked sideways, looked
   C. The statue looked knocked sideways
   D. The statue, looking knocked sideways,

3. To walk, biking, and driving are Pat’s favorite ways of getting around.
   A. To walk, biking, and driving
   B. Walking, biking, and driving
   C. To walk, biking, and to drive
   D. To walk, to bike, and also driving

4. When you cross the street in the middle of the block, this is an example of jaywalking.
   A. When you cross the street in the middle of the block, this
   B. You cross the street in the middle of the block, this
   C. Crossing the street in the middle of the block
   D. The fact that you cross the street in the middle of the block

5. Walking by the corner the other day, a child, I noticed, was watching for the light to change.
   A. a child, I noticed, was watching
   B. In noticed a child watching
   C. a child was watching, I noticed,
   D. there was, I noticed, a child watching

6. Going back to his old school, everything there looked smaller than Don remembered.
   A. Going back to his old school,
   B. When he went back to his old school,
   C. To go back to his old school,
   D. As he went back to his old school,

7. Painting, drawing and to sculpt are some of the techniques artists such as Picasso used to express themselves.
   A. Painting, drawing and to sculpt
   B. To paint, to draw, and sculpting
   C. Painting, drawing and sculpting
   D. To paint, draw, and sculpting

8. Playing sports in school which is an activity meant to teach teamwork and leadership skills students can use later in life.
   A. which is an activity
   B. is an activity because it is
   C. being an activity which is
   D. is an activity

9. Glancing at his watch, Daniel picked up his speed.
   A. Glancing at his watch
   B. He glanced at his watch and
   C. To glance at his watch
   D. Since he glanced at his watch

10. For a snake, shedding their skin up to eight times a year is part of a natural process.
    A. For a snake, shedding their skin
    B. A snake’s shedding its skin
    C. When a snake sheds its skin
    D. To shed its skin, for snakes
11. To appear white or colorless, light is actually composed of an entire spectrum of colors.
   A. To appear white or colorless,
   B. In appearing white or colorless,
   C. As it appears white or colorless,
   D. While it appears white or colorless,

12. I was surprised by the noise peering through the window to see who was at the door.
   A. I was surprised by the noise peering
   B. I was surprised by the noise, peered
   C. The noise surprised me, peering
   D. Surprised by the noise, I peered

**Directions for questions 13–25**

Rewrite the sentence in your head following the directions given below. Keep in mind that your new sentence should be well written and should have essentially the same meaning as the original sentence.

13. It is easy to carry solid objects without spilling them, but the same cannot be said of liquids.
    Rewrite, beginning with
    Unlike liquids.
    The next words will be
    A. it is easy to
    B. we can easily
    C. solid objects can easily be
    D. solid objects are easy to be

14. Although the sandpiper is easily frightened by noise and light, it will bravely resist any force that threatens its nest.
    Rewrite, beginning with
    The sandpiper is easily frightened by noise and light.
    The next words will be
    A. but it will bravely resist
    B. nevertheless bravely resisting
    C. and it will bravely resist
    D. even if bravely resisting

15. 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
    B. because he
    C. although there
    D. without enough

16. The band began to play, and then the real party started.
    Rewrite, beginning with
    The real party started
    The next words will be
    A. after the band began
    B. and the band began
    C. although the band began
    D. the band beginning

17. Chris heard no unusual noises when he listened in the park.
    Rewrite, beginning with
    Listening in the park.
    The next words will be
    A. no unusual noises could be heard
    B. then Chris heard no unusual noises
    C. and hearing no unusual noises
    D. Chris heard no unusual noises

18. It is unusual to see owls during the daytime, since they are nocturnal animals.
    Rewrite, beginning with
    Being nocturnal animals.
    The next words will be
    A. it is unusual to see owls
    B. owls are not usually seen
    C. owls during the daytime are
    D. it is during the daytime that

19. While bear attacks on humans are extremely rare, most occur when a mother bear’s cubs are approached.
    Rewrite, beginning with
    Bear attacks on humans are extremely rare.
    The next words will be
    A. but approaching a mother bear’s cubs
    B. and approaching a mother bear’s cubs
    C. even though approaching a mother bear’s cubs
    D. nevertheless approaching a mother bear’s cubs
20. If I want your opinion, I will ask for it.
   Rewrite, beginning with
   I won’t ask for your opinion
   The next words will be
   A. if I want it
   B. when I want it
   C. although I want it
   D. unless I want it

21. It began to rain, and everyone at the picnic ran to the trees to take shelter.
   Rewrite, beginning with
   Everyone at the picnic ran to take shelter.
   The next words will be
   A. beginning to rain
   B. when it began to rain
   C. although it began to rain
   D. and it began to rain

22. Lucy saw an amazing sight when she witnessed her first sunrise.
   Rewrite, beginning with
   Witnessing her first sunrise
   The next words will be
   A. an amazing sight was seen
   B. when Lucy saw an amazing sight
   C. Lucy saw an amazing sight
   D. seeing an amazing sight

23. After three hours of walking the museum, the entire family felt in need of a rest.
   Rewrite, beginning with
   The entire family felt in need of a rest
   The next words will be
   A. walking through the museum for three hours
   B. having walked through the museum for three hours.
   C. and they walked through the museum for three hours
   D. despite having walked through the museum for three hours.

24. Bats see extremely well in the dark; in fact, much better than humans.
   Rewrite, beginning with
   Unlike bats.
   The next words will be
   A. humans can see
   B. humans do not see
   C. it is not easy to see
   D. seeing is difficult

25. The big celebration meal was over, and everyone began to feel sleepy.
   Rewrite, beginning with
   Everyone began to feel sleepy.
   The next words will be
   A. and the big celebration meal
   B. before the big celebration meal
   C. after the big celebration meal
   D. although the big celebration meal
Reading Comprehension

In an ACCUPLACER placement test, there are 20 questions of two primary types in Reading Comprehension.

- The first type of question consists of a reading passage followed by a question based on the text. Both short and long passages are provided. The reading passages can also be classified according to the kind of information processing required, including explicit statements related to the main idea, explicit statements related to a secondary idea, application, and inference.

- The second type of question, sentence relationships, presents two sentences followed by a question about the relationship between these two sentences. The question may ask, for example, if the statement in the second sentence supports that in the first, if it contradicts it, or if it repeats the same information.

Reading Comprehension Sample Questions

Read the statement or passage and then choose the best answer to the question. Answer the question based on what is stated or implied in the statement or passage.

1. In the words of Thomas DeQuincey, “It is notorious that the memory strengthens as you lay burdens upon it.” If, like most people, you have trouble recalling the names of those you have just met, try this: The next time you are introduced, plan to remember the names. Say to yourself, “I’ll listen carefully; I’ll repeat each person’s name to be sure I’ve got it, and I will remember.” You’ll discover how effective this technique is and probably recall those names for the rest of your life.

The main idea of the paragraph maintains that the memory
A. always operates at peak efficiency.
B. breaks down under great strain.
C. improves if it is used often.
D. becomes unreliable if it tires.

2. Unemployment was the overriding fact of life when Franklin D. Roosevelt became president of the United States on March 4, 1933. An anomaly of the time was that the government did not systematically collect statistics of joblessness; actually it did not start doing so until 1940. The Bureau of Labor Statistics later estimated that 12,830,000 persons were out of work in 1933, about one-fourth of a civilian labor force of more than 51 million.

Roosevelt signed the Federal Emergency Relief Act on May 12, 1933. The president selected Harry L. Hopkins, who headed the New York relief program, to run FERA. A gifted administrator, Hopkins quickly put the program into high gear. He gathered a small staff in Washington and brought the state relief organizations into the FERA system. While the agency tried to provide all the necessities, food came first. City dwellers usually got an allowance for fuel, and rent for one month was provided in case of eviction.

This passage is primarily about
A. unemployment in the 1930s.
B. the effect of unemployment on United States families.
C. President Franklin D. Roosevelt’s presidency.
D. President Roosevelt’s FERA program.

3. It is said that a smile is universally understood. And nothing triggers a smile more universally than a taste of sugar. Nearly everyone loves sugar. Infant studies indicate that humans are born with an innate love of sweets. Based on statistics, a lot of people in Great Britain must be smiling because on average, every man, woman, and child in that country consumes 95 pounds of sugar each year.

From this passage it seems safe to conclude that the English
A. do not know that too much sugar is unhealthy.
B. eat desserts at every meal.
C. are fonder of sweets than most people.
D. have more cavities than any other people.

4. With varying success, many women around the world today struggle for equal rights. Historically, women have achieved greater equality with men during periods of social adversity. The following factors initiated the greatest number of improvements for women: violent revolution, world war, and the rigors of pioneering in an undeveloped land. In all three cases, the essential element that improved the status of women was a shortage of men, which required women to perform many of society’s vital tasks.

We can conclude from the information in this passage that
A. women today are highly successful in winning equal rights.
B. only pioneer women have been considered equal to men.
C. historically, women have only achieved equality through force.
D. historically, the principle of equality alone has not been enough to secure women equal rights.
5. In 1848, Charles Burton of New York City made the first baby carriage, but people strongly objected to the vehicles because they said the carriage operators hit too many pedestrians. Still convinced that he had a good idea, Burton opened a factory in England. He obtained orders for the baby carriages from Queen Isabella II of Spain, Queen Victoria of England, and the Pasha of Egypt. The United States had to wait another 10 years before it got a carriage factory, and only 75 carriages were sold in the first year.

Even after the success of baby carriages in England,
A. Charles Burton was a poor man.
B. Americans were still reluctant to buy baby carriages.
C. Americans purchased thousands of baby carriages.
D. the United States bought more carriages than any other country.

6. All water molecules form six-sided structures as they freeze and become snow crystals. The shape of the crystal is determined by temperature, vapor, and wind conditions in the upper atmosphere. Snow crystals are always symmetrical because these conditions affect all six sides simultaneously.

The purpose of the passage is to present
A. a personal observation.
B. a solution to a problem.
C. actual information.
D. opposing scientific theories.

7. In the words of Thomas DeQuincey, “It is notorious that the memory strengthens as you lay burdens upon it.” If, like most people, you have trouble recalling the names of those you have just met, try this: The next time you are introduced, plan to remember the names. Say to yourself, “I’ll listen carefully; I’ll repeat each person’s name to be sure I have it, and I will remember.” You’ll discover how effective this technique is and probably recall those names for the rest of your life.

The writer believes people remember names best when they
a. meet new people
b. are intelligent
c. decide to do so
d. are interested in people

8. Many people have owned, or have heard of, traditional “piggy banks,” coin banks shaped like pigs. A logical theory about how this tradition started might be that because pigs often symbolize greed, the object is to “fatten” one’s piggy bank with as much money as possible.

However, while this idea makes sense, it is not the correct origin of the term. The genesis of the piggy bank is the old English word “pygg,” which was a common kind of clay hundreds of years ago in England. People used pots and jars made out of this red “pygg” clay for many different purposes in their homes. Sometimes they kept their money in one of the pots, and this was known as a pygg bank. Over the years, because “pygg” and “pig” sounded the same, glaziers began making novelty banks out of pottery in the shape of a pig as a kind of joke. These banks were given as gifts and exported to countries where people spoke other languages and where no one had ever heard of pygg clay. The tradition caught on all over the world, and today piggy banks come in all colors and are made of all kinds of materials, including plastic.

This passage is mainly about
A. how people in different countries save their money
B. how people in England made pottery centuries ago
C. how a common expression began in a surprising way
D. how an unusual custom got started

9. It is said that a smile is universally understood. And nothing triggers a smile more universally than the taste of sugar. Nearly everyone loves sugar. Infant studies indicate that humans are born with an innate love of sweets. Based on statistics, a lot of people in Great Britain must be smiling because on average, every man, woman and child in that country consumes 95 pounds of sugar each year.

This passage implies that the writer thinks that 95 pounds of sugar per person per year is
A. a surprisingly large amount
B. a surprisingly small amount
C. about what one would expect
D. an unhealthy amount

10. The wheel has been used by humans since nearly the beginning of civilization and is considered one of the most important mechanical inventions of all time. Most primitive technologies since the invention of the wheel have been based on its principles, and since the industrial revolution, the wheel has been a basic element of nearly every machine constructed by humankind. No one knows the exact time and place of the invention of the wheel, but its beginnings can be seen across many ancient civilizations.

According to this passage, the wheel is an important invention because
a. it is one of the world’s oldest inventions
b. it forms the basis of so many later inventions
c. it is an invention that can be traced to many cultures
d. it is one of the world’s most famous inventions

11. Samuel Morse, best known today as the inventor of Morse Code and one of the inventors of the telegraph, was originally a prominent painter. While he was always interested in technology and studied electrical engineering in college, Morse went to Paris to learn from famous artists of his day and later painted many pictures that now hang in museums, including a portrait of former President John Adams. In 1825, Morse was in Washington, D.C., painting a portrait of the Marquis de Lafayette when a messenger arrived on horseback to tell him that his wife was gravely ill back at his home in Connecticut. The message had taken several days to reach him because of the distance. Morse rushed to his home as fast as he could, but his wife had already passed away by the time he arrived. Grief-stricken, he gave up painting and devoted the rest of his life to finding ways to transmit messages over long distances faster.

Morse left the art world and helped to invent the telegraph
A. because he was tired of painting
12. Leonardo DaVinci is not only one of the most famous artists in history, he was also a botanist, a writer and an inventor. Even though most of his inventions were not actually built in his lifetime, many of today’s modern machines can be traced back to some of his original designs. The parachute, the military tank, the bicycle and even the airplane were foretold in the imaginative drawings that can still be seen in the fragments of Leonardo’s notebooks. Over 500 years ago, this man conceived ideas that were far ahead of his time.

The author of this passage is praising Leonardo DaVinci for his:
A. artistic talent
B. intelligence
C. vision
D. fame

Directions for questions 13–22

For the questions that follow, two underlined sentences are followed by a question or statement. Read the sentences, then choose the best answer to the question or the best completion of the statement.

13. The Midwest is experiencing its worst drought in 15 years.
Corn and soybean prices are expected to be very high this year.

What does the second sentence do?
A. It restates the idea found in the first.
B. It states an effect.
C. It gives an example.
D. It analyzes the statement made in the first.

14. Social studies classes focus on the complexity of our social environment.
The subject combines the study of history and the social sciences and promotes skills in citizenship.

What does the second sentence do?
A. It expands on the first sentence.
B. It makes a contrast.
C. It proposes a solution.
D. It states an effect.

15. Knowledge of another language fosters greater awareness of cultural diversity among the peoples of the world.
Individuals who have foreign language skills can appreciate more readily other peoples’ values and ways of life.

How are the two sentences related?
A. They contradict each other.
B. They present problems and solutions.
C. They establish a contrast.
D. They repeat the same idea.

16. Serving on a jury is an important obligation of citizenship.
Many companies allow their employees paid leaves of absence to serve on juries.

What does the second sentence do?
A. It reinforces what is stated in the first.
B. It explains what is stated in the first.
C. It expands on the first.
D. It draws a conclusion about what is stated in the first.

17. While most people think of dogs as pets, some dogs are bred and trained specifically for certain types of work.
The bloodhound’s acute sense of smell and willing personality make it ideal for tracking people missing in the woods.

What does the second sentence do?
A. It makes a contrast.
B. It restates an idea found in the first.
C. It states an effect.
D. It gives an example.

18. Paris, France, is a city that has always been known as a center of artistic and cultural expression.
In the 1920s, Paris was home to many artists and writers from around the world who became famous, such as Picasso and Hemingway.

What does the second sentence do?
A. It reinforces the first.
B. It states an effect.
C. It draws a conclusion.
D. It provides a contrast.

19. Studies show that the prevalence of fast-food restaurants corresponds with the rates of obesity in both children and adults.
Obesity is now on the rise in countries outside the U.S., where fast food restaurants are becoming more common.

How do the two sentences relate?
A. They express roughly the same idea.
B. They contradict each other.
C. They present problems and solutions.
D. They establish a contrast.
20. Compared with the rest of the country, North Dakota has a thriving economy, making it a place where more people want to live.

Winters in North Dakota are inhospitable, with average temperatures in January ranging from 2 degrees Fahrenheit to 17 degrees.

What does the second sentence do?
A. It reinforces the first.
B. It explains what is stated in the first.
C. It contradicts the first.
D. It analyzes a statement made in the first.

21. Some stores are testing a new checkout system that allows shoppers to use their mobile phones to scan items as they walk through stores and pay at self-service kiosks, skipping the cashiers’ lines.

The new mobile checkout system is intended to reduce long lines and customer wait times in stores.

What does the second sentence do?
A. It expands on the first.
B. It states an effect.
C. It contrasts with the first.
D. It gives an example.

22. According to the American Sleep Disorders Association, the average teenager needs around 9.5 hours of sleep per night, possibly because critical growth hormones are released during sleep.

The average adult requires between six and eight hours of sleep per night for optimal health and productivity.

How do the two sentences relate?
A. They establish a contrast.
B. They contradict each other.
C. They reinforce each other.
D. They provide a problem and solution.
# Answer Key to Sample Questions

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<td>9. A</td>
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<td>11. D</td>
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<td>12. D</td>
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<td>15. B</td>
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<td>22. C</td>
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<td>25. C</td>
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The NCCCS Diagnostic and Placement test contains 72 questions that measure proficiency in six content areas. The six content areas are as follows:

**Operations with Integers** — Topics covered in this category include:
- Problem events that require the use of integers and integer operations
- Basic exponents, square roots and order of operations
- Perimeter and area of rectangles and triangles
- Angle facts and the Pythagorean Theorem

**Fractions and Decimals** — Topics covered in this category include:
- Relationships between fractions and decimals
- Problem events that result in the use of fractions and decimals to find a solution
- Operations with fractions and decimals
- Circumference and area of circles
- The concept of \( \pi \)
- Application problems involving decimals

**Proportions, Ratios, Rates and Percentages** —
Topics covered in this category include:
- Conceptual application problems containing ratios, rates, proportions and percentages
- Applications using U.S. customary and metric units of measurement
- Geometry of similar triangles

**Linear Equations and Linear Inequalities** —
Topics covered in this category include:
- Graphical and algebraic representations of linear expressions, equations and inequalities
- Application problems using linear equations and inequalities

**Graphs and Equations of Lines** — Topics covered in this category include:
- Graphical and algebraic representations of lines
- Interpretation of basic graphs (line, bar, circle, etc.)

**Polynomials and Quadratic Applications** —
Topics in this category include:
- Graphical and algebraic representations of quadratics
- Finding algebraic solutions to contextual quadratic applications
- Polynomial operations
- Factoring polynomials
- Applying factoring to solve polynomial equations
Operations with Integers

For each of the questions below, choose the best answer from the four choices given. You may use the paper you received as scratch paper.

1. On a summer day in Benton, the low temperature of 75°F was reached at 6 in the morning. The high temperature was reached 9 hours later, after the temperature rose 16°F. What was the high temperature in Benton that day?
   A. 81°F
   B. 84°F
   C. 91°F
   D. 96°F

2. Which of the four labeled points on the number line above has the greatest absolute value?
   A. A
   B. B
   C. C
   D. D

3. \((-2 - 4) \times 8 = \)
   A. -48
   B. -16
   C. 16
   D. 48

4. The sum of Cheryl's scores on the first four quizzes in her history class was 364 points. If she scores 96 points on her next quiz, what will be her average score for the five quizzes?
   A. 89 points
   B. 91 points
   C. 92 points
   D. 94 points

5. \(\sqrt{529} = \)
   A. 17
   B. 23
   C. 26
   D. 27

Fractions and Decimals

For each of the questions below, choose the best answer from the four choices given. You may use the paper you received as scratch paper.

1. A large dining room table is in the shape of a semicircle of diameter 12 feet, as shown above. Of the following, which is closest to the area of the table? (Use \( \pi = 3.14 \).)
   A. 38 square feet
   B. 57 square feet
   C. 75 square feet
   D. 113 square feet

2. The large square above has area 9 and is divided into 9 smaller squares of equal area. What is the length of the path drawn in bold?
   A. 3
   B. 4
   C. 5
   D. 6

3. \(0.6 \times 10^{-2} = \)
   A. 0.06
   B. 6
   C. 0.006
   D. 0.006
4. \[3,590 = \]
A. \[3.59 \times 10^3\]
B. \[3.59 \times 10^4\]
C. \[3.59 \times 10^4\]
D. \[3.59 \times 10^5\]

5. The circle above has center \(O\). The fraction of the area of the circle that is shaded represents a value on the number line between

A. \[\frac{2}{25} \text{ and } \frac{3}{25}\]
B. \[\frac{3}{25} \text{ and } \frac{4}{25}\]
C. \[\frac{4}{25} \text{ and } \frac{5}{25}\]
D. \[\frac{5}{25} \text{ and } \frac{6}{25}\]

Proportions, Ratios, Rates and Percentages

For each of the questions below, choose the best answer from the four choices given. You may use the paper you received as scratch paper.

1. During a basketball practice, two players, Sidell and Jeron, each attempted 25 free throws. Sidell made 40% of his free-throw attempts, whereas Jeron made 52% of them. How many more free-throws did Jeron make than Sidell?
   A. 3
   B. 4
   C. 5
   D. 6

2. A boy skis 4 miles down a mountain slope in 10 minutes. What is his average speed, in miles per hour (mph), over that time interval?
   A. 48 mph
   B. 36 mph
   C. 32 mph
   D. 24 mph

3. There are 23 children in a line to buy a hot dog. If every 4th child in line, starting with the fourth in line, gets a toy, what is the ratio of the number of children in line who get a toy to the number of children in line who do not get a toy?
   A. 3 : 8
   B. 5 : 23
   C. 5 : 18
   D. 6 : 23

4. 52 is what percent of 160?
   A. 30%
   B. 32.5%
   C. 35%
   D. 38.5%

5. Jenna is driving at a speed of 65 miles per hour. What is Jenna’s driving speed in kilometers per hour? (There are about 1.6 kilometers in 1 mile.)
   A. 112 kilometers per hour
   B. 104 kilometers per hour
   C. 96 kilometers per hour
   D. 92 kilometers per hour
Expressions, Linear Equations and Linear Inequalities

For each of the questions below, choose the best answer from the four choices given. You may use the paper you received as scratch paper.

1. The tick marks on the number line above are equally spaced. The expression \( y^2 + 2x \) is equal to

A. \(-\frac{8}{3}\)
B. 0
C. \(\frac{8}{3}\)
D. \(\frac{16}{3}\)

2. A party supply store charges an initial charge of $20 to rent a costume plus an additional $8 per day for each day the costume is rented. Which of the following represents the cost, in dollars, to rent a costume for \( n \) days?

A. \(8n\)
B. \(20 + 8n\)
C. \((20)(8n)\)
D. \(20 - 8n\)

3. Julie purchased a treadmill that originally cost \( t \) dollars at a discount of 8%. Which of the following represents the amount, in dollars, that Julie paid for the treadmill after the discount?

A. \(t - 0.8t\)
B. \(t + 0.08\)
C. \(t + 0.08t\)
D. \(t - 0.08t\)

4. A long distance cell phone service offers a plan that costs $20 per month plus $0.40 per minute of use. Which of the following represents the total cost of this service for a month in which \( n \) minutes were used?

A. \((20)(0.04n)\)
B. \(20.40n\)
C. \(20 + .4n\)
D. \(20 + 4n\)

5. If \(\frac{x}{3} - 2 = 5x - 2\), then \( x = \)

A. \(-\frac{3}{5}\)
B. 0
C. \(\frac{5}{3}\)
D. 15
Graphs and Equations of Lines

For each of the questions below, choose the best answer from the four choices given. You may use the paper you received as scratch paper.

1. The linear equation graphed above gives the amount of money Company H has saved \( y \) years after the company opened. According to the graph, how many years after the company opened did they save $10,000?
   A. 1
   B. 4
   C. 5
   D. 6

2. Anita’s department store determined that if a specific shirt is priced at $50 each, on average there would be 200 shirts sold each month the shirt is available for sale. The number of shirts sold per month would decrease by 10 for each $5 of increase in the price. If \( p \) presents the price of the shirt, in dollars, and \( s \) represents the average number of shirts sold per month, which of the following graphs best represents the relationship between \( p \) and \( s \)?
   A. 
   B. 
   C. 
   D.
3. A computer help-service charges an initial fee to join the service plus an additional charge for each hour of help-service a customer uses. If the computer service company charges a total of $140 for the initial fee and a 2-hour help session and a total of $220 for the initial fee and a 4-hour help session, which of the following expressions gives the computer company’s charge for each hour of help-service that a customer uses?

A. $\frac{220 - 140}{4 - 2}$
B. $\frac{220 + 140}{4 + 2}$
C. $\frac{4 - 2}{220 - 140}$
D. $\frac{4 + 2}{220 + 140}$

4. Jen scored 16 points in a new card game, where each player could receive either 2 or 4 points in each round. If Jen received x amount of 2 point scores, and y amount of 4 point scores, what does the x-intercept of the graph in the xy-plane of the equation $2x + 4y = 16$ indicate?

A. Jen scored 2 points in 8 rounds and she didn’t score 4 points in any round.
B. Jen scored 2 points in 2 rounds and 4 points in 3 rounds.
C. Jen scored 2 points in 4 rounds and 4 points in 2 rounds.
D. Jen didn’t score 2 points in any round, but she scored 4 points in 4 rounds.

5. Which of the following is true about the line graphed in the xy-plane above?

A. The line has slope $\frac{2}{3}$ and y-intercept $-3$.
B. The line has slope $\frac{2}{3}$ and y-intercept 2.
C. The line has slope $\frac{3}{2}$ and y-intercept $-3$.
D. The line has slope $\frac{3}{2}$ and y-intercept 2.
Polynomials and Quadratic Applications

For each of the questions below, choose the best answer from the four choices given. You may use the paper you received as scratch paper.

1. All of the line segments in the figure above meet at right angles, and the lengths of four of the six sides are given. Which of the following represents the area of the figure, in terms of $x$, $t$, $y$, and $z$?
   - A. $yz - xt$
   - B. $xz + ty$
   - C. $xz - xt + ty$
   - D. $xz + xt + ty$

2. $(xy^3z^4)(x^{-4}y^{-3}z^{-1}) =
   - A. $\frac{z}{x}$
   - B. $\left(\frac{z}{x}\right)^3$
   - C. $y\left(\frac{z}{x}\right)$
   - D. $y\left(\frac{z}{x}\right)^3$

3. $\left(\frac{a}{2} - b\right)^2$
   - A. $\frac{a^2}{2} - ab + b^2$
   - B. $\frac{a^2}{2} - 2ab + b^2$
   - C. $\frac{a^2}{4} - ab + b^2$
   - D. $\frac{a^2}{4} - 2ab + b^2$

4. If $x^2 - 3x - 18 = 0$, which of the following is a possible value for $x$?
   - A. $-6$
   - B. $3$
   - C. $6$
   - D. $9$

5. The function $f(x) = -x^2 + 40x - 175$ is graphed in the $xy$-plane above. For what value of $x$ is the value of $f(x)$ greatest?
   - A. 5
   - B. 20
   - C. 30
   - D. 35
### Answer Key

#### Operations with Integers

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Correct Answer</th>
<th>Rationale</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>Choice (C) is correct. The low temperature of 75°F was reached at 6 in the morning, and the high temperature was 16°F higher. So the high temperature in Benton that day was 75°F + 16°F = 91°F.</td>
</tr>
<tr>
<td>2</td>
<td>A</td>
<td>Choice (A) is correct. The absolute value of point $A$ is $</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>Choice (A) is correct. The value of $-2 - 4$ is $-2 + (-4) = -6$. Therefore, $(-2 - 4) \times 8 = -6 \times 8 = -48$.</td>
</tr>
<tr>
<td>4</td>
<td>C</td>
<td>Choice (C) is correct. Cheryl’s average score for the five quizzes will be the sum of the scores divided by 5, the number of quizzes. She scored a total of 364 points on the first four quizzes, and if she scores 96 points on her next quiz, the sum of the scores will be $364 + 96 = 460$ points. Therefore, her average score for the five quizzes will be $460 \div 5 = 92$ points.</td>
</tr>
<tr>
<td>5</td>
<td>B</td>
<td>Choice (B) is correct. The square root of 529, denoted $\sqrt{529}$, is 23, because $23^2 = 23 \times 23 = 529$.</td>
</tr>
</tbody>
</table>
## Fractions and Decimals

<table>
<thead>
<tr>
<th>Question Number</th>
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<th>Rationale</th>
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<tbody>
<tr>
<td>1</td>
<td>B</td>
<td>Choice (B) is correct. Since the table is a semicircle of diameter 12 feet, the radius of the semicircle is 6 feet. The area of the table is ( \frac{1}{2} \times \pi \times 6^2 ) square feet, or approximately ( 18 \times 3.14 = 56.52 ) square feet. Therefore, of the choices given, the closest to the area of the table is choice (B), 57 square feet.</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>Choice (D) is correct. Since the large square has area 9, each of its sides is of length 3. Hence each of the 9 smaller squares has sides of length 1. Since the path drawn in bold is made up of six of the sides of smaller squares, its length is ( 6 \times 1 = 6 ).</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>Choice (A) is correct. The division ( 0.6 \div 10^2 ) is equivalent to the multiplication ( 0.6 \times \frac{1}{10^2} = 0.6 \times 10^2 = 0.6 \times 100 = 60 ).</td>
</tr>
<tr>
<td>4</td>
<td>C</td>
<td>Choice (C) is correct. The number 3,590 is equal to the product 3.59 ( \times ) 1,000, which can be rewritten as 3.59 ( \times ) 10^3.</td>
</tr>
<tr>
<td>5</td>
<td>D</td>
<td>Choice (D) is correct. Since a circle has 360 degrees of arc, the shaded 75-degree sector of the circle represents ( \frac{75}{360} = \frac{5}{24} ) of the circle, which is equal to the decimal 0.2083. This value lies between ( \frac{5}{25} = 0.20 ) and ( \frac{6}{25} = 0.24 ) on the number line.</td>
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## Proportions, Ratios, Rates and Percentages

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<tr>
<th>Question Number</th>
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<th>Rationale</th>
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<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>Choice (A) is correct. Since 40% of 25 is $\frac{40}{100} \times 25 = 10$, and 52% of 25 is $\frac{52}{100} \times 25 = 13$, Jeron made 3 more free-throws attempts than Sidell did.</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>Choice (D) is correct. Since there 60 minutes in an hour, the 10-minute interval is equivalent to $\frac{1}{6}$ of an hour. The boy’s average speed can be calculated as $\frac{\text{number of miles skied}}{\text{time}}$, which is $\frac{4}{\frac{1}{6}} = 4 \times \frac{6}{1} = 24$ miles per hour.</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>Choice (C) is correct. Since every 4th child in line, starting with the fourth in line, gets a toy, it follows that the children who get a toy are in line in positions 4, 8, 12, 16 and 20. Hence, of the 23 children in the line, 5 get a toy, and 23 – 5 = 18 do not get a toy. Therefore, the ratio of the number of children in line who get a toy to the number of children in line who do not get a toy is 5 : 18.</td>
</tr>
<tr>
<td>4</td>
<td>B</td>
<td>Choice (B) is correct. Since $\frac{52}{160} = \frac{13}{40} = 0.325$, it follows that 52 is 32.5 percent of 160.</td>
</tr>
<tr>
<td>5</td>
<td>B</td>
<td>Choice (B) is correct. Since there are about 1.6 kilometers in 1 mile, it follows that Jenna’s speed in kilometers per hour is 65×1.6 = 104 kilometers per hour.</td>
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</table>
### Expressions, Linear Equations and Linear Inequalities

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<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>Choice (C) is correct. The value of $x$ on the number line is $-\frac{2}{3}$, and the value of $y$ on the number line is 2. Substituting these values into the expression $y^2 + 2x$ gives $2^2 + 2\left(-\frac{2}{3}\right) = 4 - \frac{4}{3} = \frac{8}{3}$.</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>Choice (B) is correct. The rental fee for the costume consists of the initial charge of $20 and a daily charge of $8. Thus if the costume is rented for $n$ days, the total cost, in dollars, is $20 + 8n$.</td>
</tr>
<tr>
<td>3</td>
<td>D</td>
<td>Choice (D) is correct. If the original cost of the treadmill is $t$ dollars, an 8% discount on that price is $0.08t$ dollars. Therefore, the discounted price is the original price, in dollars, minus the discount, which is $t - 0.08t$.</td>
</tr>
<tr>
<td>4</td>
<td>C</td>
<td>Choice (C) is correct. The cost, in dollars, of $n$ minutes of use is $0.4n$. Therefore, the total cost of this service, in dollars, for a month in which $n$ minutes were used is $20 + 0.4n$.</td>
</tr>
<tr>
<td>5</td>
<td>B</td>
<td>Choice (B) is correct. The equation $\frac{x}{3} - 2 = 5x - 2$ is equivalent to $\frac{x}{3} = 5x$. Multiplying both sides of this equation by 3 gives $15x = x$. It follows that $14x = 0$, so $x = 0$.</td>
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**Graphs and Equations of Lines**

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<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>Choice (C) is correct. The y-value represents the total amount of money that the company saved. From the graph, after 5 years the company was opened, they saved $10,000.</td>
</tr>
<tr>
<td>2</td>
<td>A</td>
<td>Choice (A) is correct. The graph in (A) is a line with a slope of $-10$ that contains the point (50, 200).</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>Choice (A) is correct. The expression $\frac{$220 - $140}{4 - 2}$ represents the difference of dollars charged for two different help sessions divided by the difference in the number of hours of help-service used, giving the amount, in dollars, the company charges for each hour of help-service a customer uses.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Choice (A) is correct. Since ( y ) represents the amount of points Jen scored, and the ( x )-intercept is the value of ( x ) that satisfies equation ( 2x + 4y = 16 ) when ( y = 0 ), Jen must have scored only 2 points each round. Since she scored a total of 16 points, she must have scored 2 points in 8 rounds.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Choice (B) is correct. The ( y )-value of the line increases 2 units for every 3 units of increase in the ( x )-value. Therefore, the slope of the line is ( \frac{2}{3} ). The line also intersects the ( y )-axis at 2, and therefore the ( y )-intercept is 2.</td>
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### Polynomials and Quadratic Applications

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<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>Choice (C) is correct. The figure can be divided into three nonoverlapping rectangles. One has area (x(z-t)), one has area (t(y-x)) and one has area (xt). The sum of the areas is then ((xz-xt)+(ty-ty)+tx=xz-xt+ty).</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>Choice (B) is correct. By the law of exponents, ((xy^3z^4)(x^{-4}y^{-3}z^{-1})=x^{1-4}y^{3-3}z^{4-1}). Therefore, ((xy^3z^4)(x^{-4}y^{-3}z^{-1})=x^{-3}y^0z^3). This is equivalent to (\frac{z^3}{x}).</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>Choice (C) is correct. By definition, the expression (\left(\frac{a}{2}-b\right)^2) is (\left(\frac{a}{2}\right)^2-\left(\frac{a}{2}\right)b+b^2). This expression is equivalent to (\left(\frac{a}{2}\right)^2-b\left(\frac{a}{2}\right)+\frac{ab}{2}+b^2). It follows that (\left(\frac{a}{2}-b\right)^2) is equivalent to (\left(\frac{a}{2}\right)^2-\frac{ab}{2}+\frac{ab}{2}+b^2), which simplifies to (\frac{a^2}{4}-ab+b^2).</td>
</tr>
<tr>
<td>4</td>
<td>C</td>
<td>Choice (C) is correct. The expression (x^2-3x-18) factors as ((x-6)(x+3)). Since (x^2-3x-18=0), either (x-6=0) or (x+3=0). It follows that (x=6) or (x=-3). Of the options given, only 6 is a possible value for (x).</td>
</tr>
</tbody>
</table>
Choice (B) is correct. The quadratic expression $-x^2 + 40x - 175$ factors as $(x - 5)(35 - x)$. It follows that the graph of $f(x) = -x^2 + 40x - 175$ intersects the $x$-axis at $x = 5$ and at $x = 35$. The greatest value of $f(x)$ occurs at the vertex, and the $x$-coordinate of the vertex of the parabola is the point halfway between 5 and 35 on the $x$-axis. This is $5 + \frac{35 - 5}{2} = 20$. So the value of $x$ for which $f(x)$ is greatest is $x = 20$. 

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