

Florida Placement Test Review
And Information Guide
For The
Computerized Placement Test



CPTs Reading Example Items

The CPTs 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 points 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 conclusions.

1. *Two underlined sentences are followed by a question or statement about them. Read each pair of sentences, and then choose the best answer to the question or the best completion of the statement.*

The American prison system functions primarily to exact retribution.

In Japan, the courts are less concerned with sending people to jail than they are with rehabilitating them.

What does the second sentence do?

- A. It supports an idea found in the first sentence.
- B. It contrasts an idea that is expressed in the first sentence.
- C. It analyzes an idea made in the first sentence.
- D. It exemplifies an idea found in the first sentence.

From *Sociology* by Scott and Sally McNall

2. *Read the statement or passage, and then choose the best answer to the question. Answer the question on the basis of what is stated or implied in the statement or passage.*

My parents' divorce was final. The house had been sold and the day had come to move. Thirty years of the family's life was now crammed into the garage. The two-by-fours that ran the length of the walls were the only uniformity among the clutter of boxes, furniture and memories. All was frozen in limbo between the life just passed and the one to come. I suddenly

became aware of the coldness of the garage, but I didn't want to go back inside the house, so I made my way through the boxes to the couch. I cleared a space to lie down and curled up, covering myself with my jacket. I hoped my father would return soon with the truck so we could empty the garage and leave the cryptic silence of parting lives behind.

What is the author's mood?

- A. melancholy
- B. idealistic
- C. vindictive
- D. indignant

From *Limbo* by Rhonda Lucas

3. *Read the statement or passage, and then choose the best answer to the question. Answer the question on the basis of what is stated or implied in the statement or passage.*

Australia has many strange beasts, one of the oddest of which is the koala. Perfectly adapted to one specific tree, the eucalyptus, this living teddy bear does not need anything else, not even a drink! The moisture in the leaves is just right for the koala, making it the only land animal that doesn't need water to supplement its food.

The passage indicates that the koala

- A. Is a member of the bear family that does not drink.
- B. Is the only animal that does not need any water in addition to food.
- C. Adapts itself to any surroundings.
- D. Requires a single life source.

From *That Astounding Creator—Nature* by Jean George

4. *Two underlined sentences are followed by a question or statement about them. Read each pair of sentences, and then choose the best answer to the question or the best completion of the statement.*

Males and females are treated differently from grade school through college.

Therefore, this treatment of the sexes by school officials influences both the student's choice of career and level of performance.

How are the sentences related?

- A. The second sentence contradicts the first sentence.
- B. The second sentence shows a cause of the first sentence.
- C. The second sentence states an effect of the first sentence.
- D. The second sentence defines the first sentence.

From *Sociology* by Scott and Sally McNall

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

While silk-stockings Manhattan is asleep, East Harlem is starting to bustle. The poor are early risers. They have the jobs others don't want: the early-hour hobs, the late-hour jobs. The streets are filled with fast-moving people: men, women, and swarms of children of all sizes. Some will stand at the bus stop, but most will crowd into the downtown subways that speed them to jobs to serve the affluent. East Harlem is a busy place, night and day, filled with the joyous and troubled lives of residents-rather than the heavy commercial traffic of mid-Manhattan. There is so much togetherness.

The main idea of this passage is that the residents of East Harlem

- A. Are dissatisfied with their jobs.
- B. Are poorer than Manhattan's residents.
- C. Share common struggles and goals.
- D. Disdain the rich of Manhattan.

From *A Day in East Harlem* by Patricia Cayo Sexton

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

In embarking on the fight for independence, America faced formidable obstacles. The Continental Congress did not have the authority to pass binding legislation or to impose taxes. The new nation had no army and no navy, and its population numbered only 2.5 million people, 20 percent of whom were slaves. Britain, by contrast, was a mighty power of 11 million people with the world's best navy and well-disciplined army. Fifty thousand troops were in North America in 1776, and Britain hired thirty thousand German soldiers to supplement its forces during the war. However, the American revolutionaries were not deterred.

What is the main point of the passage?

- A. Britain was a great power whose population outnumbered that of America's
- B. America's military forces were less experienced than Britain's military.
- C. America's Continental Congress had limited authority.
- D. As America was about to engage in its struggle for autonomy, it was faced with arduous barriers.

From *An American History* by Rebecca Brooks Gruver

7. *Two underlined sentences are followed by a question or statement about them. Read each pair of sentences, and then choose the best answer to the question or the best completion of the statement.*

The function and meaning of the American family has changed over time.

There is now a stronger emphasis on romantic love between parents and an increase in the number of mothers in the work force.

What does the second sentence do?

- A. It gives examples.
- B. It states effects.
- C. It contradicts ideas found in the first sentence.
- D. It makes a comparison to the first statement.

From *Sociology* by Scott and Sally McNall

8. *Two underlined sentences are followed by a question or statement about them. Read each pair of sentences, and then choose the best answer to the question or the best completion of the statement.*

The Midwest is experiencing its worst drought in fifteen years.

Corn and soybeans prices are expected to be very high this year.

What does the second sentence do?

- A. It restates the ideas found in the first.
- B. It states an effect.
- C. It gives an example.
- D. It analyzes the statement made first.

From The College Board

9. *Read the statement or passage, and then choose the best answer to the question. Answer the question on the basis of what is stated or implied in the statement or passage.*

Elements are basic substances that can not be broken down into anything simpler, and an atom is the smallest unit of an element. Compounds are combinations of two or more elements and can be broken down into simpler substances. Compounds are formed when atoms are held together by an attractive force called a chemical bond. A molecule is the smallest unit of a compound, or a gaseous element, that can exist and still retain the characteristic properties of a substance.

According to the passage, compounds

- A. Require a chemical bond.
- B. Develop when the smallest unit of an element is broken down.
- C. Are formed when elements combine with atoms.
- D. Are the basic units of molecules.

From *Introduction to Physics and Chemistry* by Bill Tillery

10. *Read the statement or passage, and then choose the best answer to the question. Answer the question on the basis of what is stated or implied in the statement or passage.*

It is early summer. August's long-awaited vacation time still ages away, but by the same token, its torpor-producing heat and mildew-generating humidity have not yet arrived. Instead, these cool, end-of-June days practically insist on getting the picnic season under way immediately. But, alas, there is a difficulty: alfresco dining has a bad name among us. Tenth-rate hot dogs, carbonized chicken parts and beef a la charcoal lighter are principally what come to mind when we hear the words "outdoor food."

The passage suggests that the author believes that

- A. picnicking is the best way to spend summer.
- B. August is better than June for a picnic.
- C. Picnicking has an unsavory reputation.
- D. Picnicking is better than alfresco.

From *A Spanish Picnic* by Robert Capon

11. *Read the statement or passage, and then choose the best answer to the question. Answer the question on the basis of what is stated or implied in the statement or passage.*

Anorexia Nervosa is found predominantly among adolescent females, affecting one in 250 girls between 12 and 18 years of age. These young women often come from middle to upper class families and are described as intelligent, obedient, even "model" children until the eating disorder emerges. At that point, the constant battle over eating disrupts every aspect of life for the girl and her family.

Anorexia Nervosa

- A. prevails only among adolescents.
- B. results from a desire to be perfect.
- C. affects females of any socioeconomic backgrounds.
- D. Is a common ailment affecting American teenagers.

From *Eating Disorders—An Adolescent Problem* by Helen

12. *Read the statement or passage, and then choose the best answer to the question. Answer the question on the basis of what is stated or implied in the statement or passage.*

Myths are stories, the products of fertile imagination, sometimes simple, often containing profound truths. They are not meant to be taken too literally. Details may sometimes appear childish, but most myths express a culture's most serious beliefs about human beings, eternity, and God.

The main idea of this passage is that myths

- A. Are created primarily to entertain young children.
- B. Are purposely written for the reader who lacks imagination.
- C. Provide the reader with a means of escape from reality.
- D. Illustrate the values that are considered important to a society.

CPTs Sentence Skills Example Items

Two kinds of questions are given in the Sentence Skills Test. Sentence Correction questions ask you to choose a word or phrase to substitute for an underlined portion of a sentence. Construction shift questions asks that a sentence be rewritten in a specific way without changing the meaning. A broad variety of topics is included here.

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

1. The baby was obviously getting hot, then Sam did what he could to cool her.
 - A. hot, then Sam did
 - B. hot, Sam did
 - C. hot; Sam, therefore, did
 - D. hot; Sam, trying to do

2. She hoped to find a new job. One that would let her earn money during the school year.
 - A. job. One that

- B. job. The kind that
- C. job, one that
- D. job, so that

3. 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,

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

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

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.

5. 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

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

6. Walking by the corner the other day, a child, I notice, was watching for the light to change.

- A. a child, I notice, was
- B. I noticed a child watching
- C. a child was watching, I noticed
- D. there was, I noticed, a child watching

7. In his song, Gordon Lightfoot makes melody and lyrics intricately intertwine.

Rewrite, beginning with

Melody and lyrics . . .

Your new sentence will include

- A. Gordon Lightfoot has
- B. make Gordon Lightfoot's
- C. in Gordon Lightfoot's
- D. does Gordon Lightfoot

8. 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

9. Excited children ran toward the loud music, and they told others about the ice cream truck outside.

Rewrite, beginning with

The excited children, who had run toward the loud...

- A. music, they told
- B. music, told
- C. music, telling
- D. music, and had told

10. 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

11. 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

12. 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

Reading Skills

1.B
2.A
3.D
4.C
5.C
6.D
7.A
8.B
9.A
10.C
11.A
12.D

Sentence Skills

1.C
2.C
3.A
4.C
5.B
6.B
7.C
8.C
9.B
10.B
11.A
12.D

ARITHMETIC

Suggested time – 40 minutes
35 Questions

Directions: In this section solve each problem. Then decide which is the best of the choices given.

1. What is 7.2589 rounded to the nearest hundredth?

- (A) 7.26 (B) 7.3 (C) 7.2 (D) 7.25

2. $\frac{52}{78} =$

- (A) $\frac{3}{4}$ (B) $\frac{8}{9}$ (C) $\frac{2}{3}$ (D) $\frac{5}{6}$

3. $1.37 + 9.2 + 5.001 =$

- (A) 5.23 (B) 6.13 (C) 52.3 (D) 15.571

4. 2.53×3.1 is between

- (A) 4 and 6 (B) 6 and 8 (C) 60 and 80 (D) 600 and 800

5. $\frac{3}{4}$ of 48 is

- (A) 16 (B) 36 (C) 38 (D) 64

6. $35.2 - 3.31 =$

- (A) 31.99 (B) 32.01 (C) 31.89 (D) 32.13

7. Beth makes fruit punch by adding 3 cups of fruit juice to every 5 liters of soda. If she uses 15 liters of soda, how many cups of juice should she use?

- (A) 9 (B) 12 (C) 13 (D) 25

8. $\frac{5.7}{0.028}$ is closest to

- (A) 2 (B) 20 (C) 200 (D) 2000

9. $\frac{3}{8} + \frac{1}{4} =$

- (A) $\frac{1}{2}$ (B) $\frac{5}{8}$ (C) $\frac{4}{8}$ (D) $\frac{1}{3}$

10. If the average of 5 numbers is 50, what is their sum?

- (A) 10 (B) 25 (C) 55 (D) 250

11. $\frac{5}{11} \div \frac{3}{7} =$

- (A) $\frac{1}{11}$ (B) $\frac{35}{33}$ (C) $\frac{1}{2}$ (D) $\frac{33}{35}$

12. $1\frac{2}{3} \times 2\frac{3}{8} =$

- (A) $3\frac{23}{24}$ (B) $4\frac{1}{24}$ (C) $2\frac{1}{4}$ (D) $\frac{40}{57}$

13. $\frac{7}{20} =$

- (A) 0.305 (B) 0.35 (C) 2.86 (D) 13

14. $\frac{3}{4} - \frac{1}{6} =$

- (A) 1 (B)
- $\frac{2}{24}$
- (C)
- $\frac{2}{3}$
- (D)
- $\frac{7}{12}$

15. If 10 percent of a number is 40, then 25 percent of that number is

- (A) 4 (B) 10 (C) 16 (D) 100

16. A clock that gains 20 seconds every hour will gain how many minutes in a day?

- (A) 4 (B) 8 (C) 16 (D) 32

17. $3 \div \frac{5}{6} =$

- (A)
- $\frac{18}{5}$
- (B)
- $\frac{5}{2}$
- (C)
- $\frac{2}{5}$
- (D)
- $\frac{5}{18}$

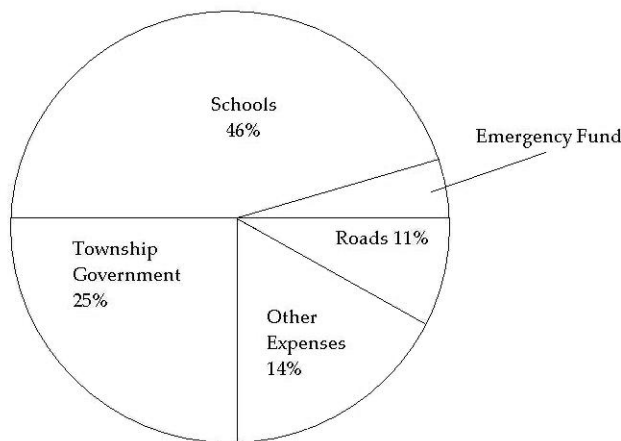


FIGURE 1. Tax Allocation in Frazier Township

18. According to the graph above, if the township collected a total of \$3,600,000 in taxes, what amount was set aside for the emergency fund?

- (A) \$900,000 (B) \$144,000 (C) \$90,000 (D) \$14,400

19. $58,702 \div 5 =$

- (A)
- $1172\frac{2}{5}$
- (B)
- $1172\frac{3}{5}$
- (C)
- $11740\frac{2}{5}$
- (D)
- $11720\frac{4}{5}$

20. If eight furlongs measures 320 rods, how many furlongs are in a measure of 600 rods?

- (A) 16 (B) 20 (C) 15 (D) 40

A theater was sold out for 85 percent of its performances last season. Once the theater was sold out for 15 performances in a row.

21. From the information above, which of the following can be determined?

- (A) The total number of performances last season that were sold out.
- (B) The number of performances last season that were not sold out.
- (C) The percent of the performances last season that were not sold out.
- (D) The percent of the performances sold out in a row.

22. Three people who work full time are to work together on a project, but their total time in the project is to be equivalent to that of only one person working full time. If one of the people is budgeted for $\frac{1}{3}$ of his time to the project and a second person $\frac{1}{4}$ of her time, what part of the third worker's time should be budgeted to this project?

- (A) $\frac{1}{12}$ (B) $\frac{5}{12}$ (C) $\frac{4}{7}$ (D) $\frac{3}{4}$

23. 12.5 percent of 402 is closest to

- (A) 35 (B) 40 (C) 50 (D) 480

24. 5.905×100.04 is closest to

- (A) 500 (B) 600 (C) 5,000 (D) 6,000

25. In year X the population of a certain city was reported to be 503,200, which represented 82 percent of the state's population. According to these figures, what was the approximate population of the state in year X ?

- (A) 410,000 (B) 510,000 (C) 610,000 (D) 790,000

26. Which of the following is greater than 0.30 and less than 0.50?

- (A) $\frac{1}{8}$ (B) $\frac{2}{5}$ (C) $\frac{3}{5}$ (D) $\frac{4}{5}$

27. How many fifths are there in 2.8?

- (A) 140 (B) 14 (C) 5.6 (D) 0.56

28. If $\frac{N}{10}$ equals 0.41, then N is approximately

- (A) 41 (B) 4 (C) 5 (D) 0.6

29. If 1 *pik* = 10 *jums* and 1 *dim* = 25 *jums*, what is the ratio of the value of 5 *piks* to 4 *dims*?

- (A) 1 : 2 (B) 2 : 5 (C) 5 : 2 (D) 5 : 4

30. On two tests, a student scored 85 and 92, respectively. What score must the student achieve on a third test in order to have an average score of 90 for the 3 tests?

- (A) 89 (B) 90 (C) 93 (D) 95

31. Which of the following is closest to $\sqrt{4000}$?

- (A) 20 (B) 60 (C) 400 (D) 2000

32. A rectangular recreation area 20 meters long and 15 meters wide is to be marked off by putting a rope around it. The length of the shortest rope that can be used is about how many meters?

- (A) 35 (B) 70 (C) 105 (D) 300

33. $\frac{7.14 \times 0.009}{0.11}$ is closest to which of the following?

- (A) 0.0714 (B) 0.714 (C) 7.14 (D) 71.4

34. Which of the following shows a way to change $\frac{2}{5}$ to an equivalent fraction?

- (A) $\frac{2}{5} + \frac{5}{2}$ (B) $\frac{2}{5} \times \frac{5}{2}$ (C) $\frac{2}{5} + \frac{2}{2}$ (D) $\frac{2}{5} \times \frac{2}{2}$

35. $8\frac{1}{16} - 1\frac{7}{8}$ is closest to

- (A) 6 (B) $6\frac{1}{2}$ (C) 7 (D) $7\frac{1}{2}$

ELEMENTARY ALGEBRA

Suggested time – 40 minutes

35 Questions

*Directions: In this section solve each problem. Then decide which is the best of the choices given.*1. Which of the following is greater than -6 ?

- (A)
- -7
- (B)
- -6.3
- (C)
- -2
- (D)
- -9

2. $5(x + 3) =$

- (A)
- $5x + 3$
- (B)
- $5x + 15$
- (C)
- $5x + 8$
- (D)
- $x + 15$

3. $\frac{21 - (-7)}{7} =$

- (A) 2 (B) 4 (C) 10 (D) 22

4. $12x - 16y - 5x + y =$

- (A)
- $7x^2 - 15y^2$
- (B)
- $17x - 17y$
- (C)
- $7x - 15y$
- (D)
- $7 - 15y$

5. $8\left(-\frac{1}{8}\right)$

- (A)
- -1
- (B) 0 (C)
- $\frac{7}{8}$
- (D)
- $7\frac{7}{8}$

6. If $c = -3$, then $4c^2 + 5c - 2 =$

- (A)
- -53
- (B) 7 (C) 19 (D) 127

7. Which of the following numbers is least?

- (A)
- $-\frac{1}{4}$
- (B) 1 (C) 0 (D)
- -4

8. $\sqrt{36x^6} =$

- (A)
- $18x^4$
- (B)
- $18x^3$
- (C)
- $6x^4$
- (D)
- $6x^3$

9. If $2x - 5 = -7$, then $x =$

- (A) 1 (B)
- -1
- (C) 6 (D)
- -6

10. $(2x - 3)(2x + 3) =$

- (A)
- $2x^2 - 9$
- (B)
- $4x^2 - 9$
- (C)
- $4x^2 + 9$
- (D)
- $4x^2 - 6x - 9$

11. $\frac{15x^2}{3x}$

- (A)
- $5x$
- (B)
- $5x^2$
- (C)
- $12x$
- (D)
- $\frac{5}{x}$

12. $(2x^2y)^3$

(A) $6x^6y^3$

(B) $8x^5y^3$

(C) $8x^6y^3$

(D) $9x^6y^3$

13. On Monday, Dave drove exactly m miles. On Tuesday, he drove 112 fewer miles than he drove on Monday. Which of the following expressions represents the total number of miles Dave drove on both days?

(A) $m - 112$

(B) $112 - m$

(C) $112 - 2m$

(D) $2m - 112$

14. $3x - (5x - 4) =$

(A) $8x - 4$

(B) $-2x - 4$

(C) $-2x + 4$

(D) $3x - 1$

15. If $4x = 12 - 7x$, then $x =$

(A) -3

(B) $\frac{12}{11}$

(C) $\frac{11}{12}$

(D) $-\frac{12}{11}$

16. Of the following, which is a factor of $4x^3 - 2x^2 + 4x$?

(A) $2x$

(B) $4x$

(C) $8x$

(D) $2x^2$

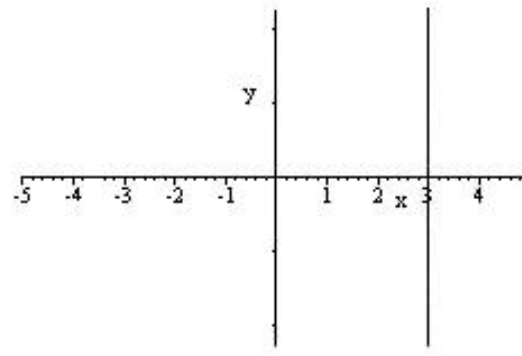
17. $4x^2 - 9y^2 =$

(A) $(4x + 3y)(4x - 3y)$

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

(C) $(4x - 9y)(x + y)$

(D) $(2x - 3y)^2$



18. Which of the following is an equation of the graph above?

(A) $y = x$

(B) $y = 3$

(C) $x = -3$

(D) $x = 3$

19. If $\frac{5}{2}x + 2 = 10$, then $x =$

(A) $\frac{16}{5}$

(B) 8

(C) $\frac{24}{5}$

(D) 20

20. $\frac{4}{x} - \frac{4}{y} =$

(A) $\frac{4y - 4x}{x + y}$

(B) $\frac{4y - 4x}{xy}$

(C) $\frac{4}{xy}$

(D) 0

21. $(a - 2b)^2 =$

(A) $a^2 - 4ab + 4b^2$

(B) $a^2 - 2ab + 4b^2$

(C) $a^2 + 4b^2$

(D) $a^2 - 4b^2$

22. All the following points are on the graph of $y = 3x + 1$, EXCEPT

- (A) $(-2, -5)$ (B) $(1, 4)$ (C) $(0, 1)$ (D) $(2, 6)$

23. $\left(\frac{2s}{5r}\right)\left(\frac{10r}{6s^2}\right) =$

- (A) $6rs$ (B) $\frac{2r}{3s}$ (C) $\frac{2}{3s}$ (D) $\frac{12s^3}{50r^2}$

$$\begin{cases} x + 2y = 15 \\ x - y = 3 \end{cases}$$

24. For the system of equations above, what is the value of x ?

- (A) 4 (B) 6 (C) 7 (D) 9

25. Given $x = -|5| + |6|$, $y = |-5 + 6|$, and $z = |-5| + |6|$, which one of the following is true about the numbers x , y , and z ?

- (A) $x = y$ (B) $y = z$ (C) $x = y = z$ (D) $x < y$

26. Which of the following is a factor of $x^2 - 5x - 6$?

- (A) $x - 2$ (B) $x - 3$ (C) $x - 6$ (D) $x - 1$

27. The equation $\frac{N}{2} - 1 = 5$ could be used to represent which of the following sentences?

- (A) 1 less than half a number N equals 5.
 (B) Half a number N less than 1 equals 5.
 (C) A number N minus 1 divided by 2 equals 5.
 (D) Two times a number N minus 1 equals 5.

28. If 8 is $\frac{3}{4}$ of a number N , then $N =$

- (A) 6 (B) 32 (C) $\frac{32}{3}$ (D) 24

29. If $2x - y = 12$, and $x = 2y$, then $x =$

- (A) 4 (B) 8 (C) 16 (D) 0

30. Kim earns x dollars per hour for the first 40 hours she works in a week and $1\frac{1}{2}$ times as much for each hour over 40. If she worked 52 hours last week, how much, in dollars, did she earn?

- (A) $52x$ (B) $40 + 1\frac{1}{2}x$ (C) $52x + 1\frac{1}{2}x$ (D) $58x$

31. Which of the following is a factor of $3a^2 - 17a + 20$?

(A) $3a - 20$

(B) $a - 4$

(C) $a + 4$

(D) $3a + 5$

32. $\frac{10}{3 + \frac{2}{x}} =$

(A) $2x$

(B) $\frac{10}{3x + 2}$

(C) $\frac{10x}{3x + 2}$

(D) $\frac{10}{3} + \frac{2}{x}$

33. In a certain school there were 5 more seniors than juniors. In one marking period, 12 percent of the juniors and 10 percent of the seniors were on the honor roll. If the total of juniors and seniors on the honor roll was 17, how many seniors were there in the school in that marking period?

(A) 80

(B) 75

(C) 155

(D) 8

34. $\frac{8}{x+3} - \frac{5}{x+1} =$

(A) $\frac{3}{4}$

(B) $\frac{3}{(x+3)(x+1)}$

(C) $\frac{3x+23}{(x+3)(x+1)}$

(D) $\frac{3x-7}{(x+3)(x+1)}$

35. If $\sqrt{x} - a = b$, then $x =$

(A) $(a + b)^2$

(B) $a + b$

(C) $\sqrt{b} + \sqrt{a}$

(D) $\sqrt{b + a}$

COLLEGE LEVEL MATHEMATICS

Suggested time – 50 minutes

35 Questions

Directions: In this section solve each problem. Then decide which is the best of the choices given.

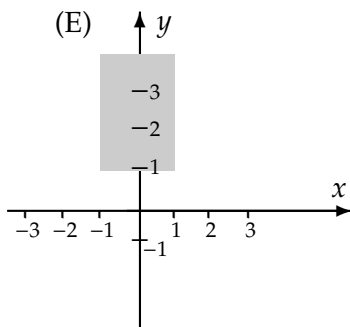
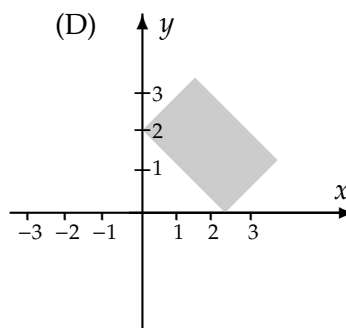
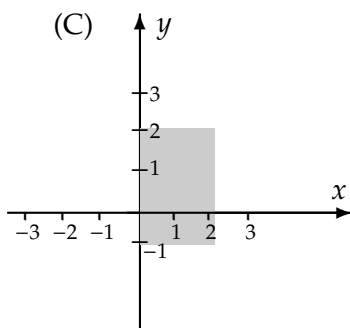
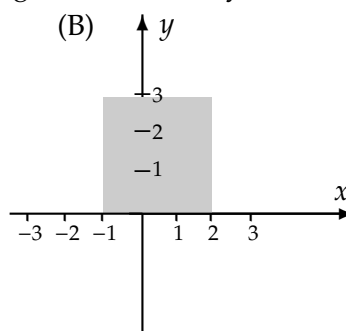
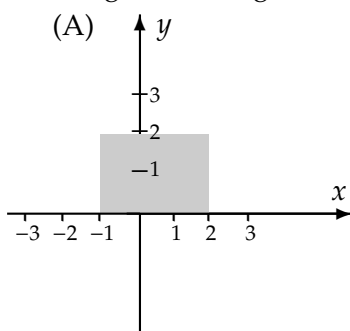
1. $2x^2 - 10x + 12 =$

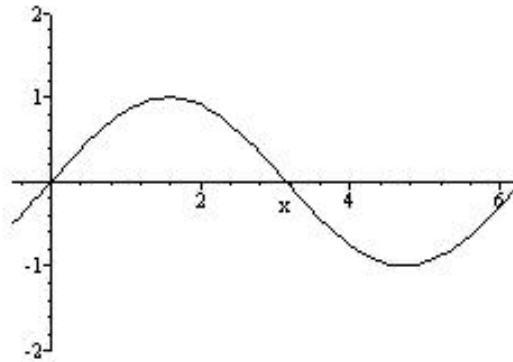
- (A) $(2x - 3)(x - 4)$ (B) $[2(x - 3)]^2$ (C) $2(x - 2)(x - 3)$ (D) $2(x + 6)(x - 1)$ (E) $2(x - 5)(x - 1)$

2. Where defined, $\frac{18x^3y^8z}{-6x^2y^4z} =$

- (A) $-3xy^4$ (B) $-3xy^2$ (C) $\frac{xy^4}{3}$ (D) $\frac{1}{3xy^2}$ (E) $\frac{y^4}{3x}$

3. Which of the following shaded regions is the graph of the region described by $-1 \leq x \leq 2$ and $0 \leq y \leq 3$?

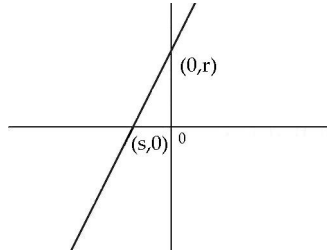




4. The figure above is a portion of the graph of which of the following equations?
 (A) $y = \sin 2x$ (B) $y = 2 \cos x$ (C) $y = \sin x$ (D) $y = \csc x$ (E) $y = \tan x$
5. Which of the following can be factored in the form $(x + h)^2$, where h is an integer?
 (A) $x^2 + 3$ (B) $x^2 + 9$ (C) $x^2 + 6x + 12$ (D) $x^2 + 6x + 36$ (E) $x^2 + 6x + 9$
6. Where defined, $\left(\frac{x^2 + x - 6}{x + 3}\right)\left(\frac{x + 2}{x^2 - 4}\right) =$
 (A) 0 (B) 1 (C) $\frac{x-2}{x}$ (D) $\frac{x+1}{x+2}$ (E) $\frac{x+3}{x+2}$
7. Where defined, $\frac{1}{\tan \theta} =$
 (A) $\frac{\cos \theta}{\sin \theta}$ (B) $\frac{\sin \theta}{\cos \theta}$ (C) $\sec \theta$ (D) $\cos \theta$ (E) $\csc \theta$
8. If $4(x - 2) + 5 = 6 - (x + 5)$, then $x =$
 (A) $\frac{9}{4}$ (B) $\frac{14}{9}$ (C) $-\frac{14}{9}$ (D) $\frac{4}{5}$ (E) $-\frac{4}{9}$
9. For what values of x is $|2x + 5| = 15$?
 (A) -5 only (B) 8 only (C) -5 and 5 (D) -10 and 5 (E) -5 and 10
10. What is the sum of the roots of the equation $(x + 1)(x - 2)(x - 3) = 0$?
 (A) 6 (B) -4 (C) 5 (D) 4 (E) -6
11. If $x < 0$, then $2|x| + x =$
 (A) $-3x$ (B) $3x$ (C) x (D) $-x$ (E) $3|x|$

12. If $\sin 50^\circ = x$, then which one of the following is true?

- (A) $0 < x < \frac{1}{2}$
 (B) $\frac{1}{2} < x < \frac{\sqrt{2}}{2}$
 (C) $\frac{\sqrt{2}}{2} < x < \frac{\sqrt{3}}{2}$
 (D) $\frac{\sqrt{3}}{2} < x < 1$
 (E) $1 < x < \frac{3}{2}$



13. If the equation of the linear function in the figure is $y = mx + b$, then $m =$

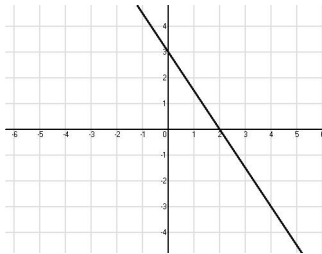
- (A) r (B) $-\frac{r}{s}$ (C) $\frac{r}{s}$ (D) $-\frac{s}{r}$ (E) $\frac{s}{r}$

14. If $a_2 = 2a_1 + 3$ and $a_3 = 4a_2 + 3^2$, then in terms of a_1 , $a_1 + a_2 + a_3 =$

- (A) $7a_1 + 27$ (B) $3a_1 + 27$ (C) $10a_1 + 63$ (D) $11a_1 + 63$ (E) $11a_1 + 24$

15. For what real numbers x is $x^2 - 14x + 49$ negative?

- (A) $-7 < x < 7$
 (B) $x < -7$ or $x > 7$
 (C) $x = -7$ or $x = 7$
 (D) $0 < x < 14$
 (E) For no x



16. An equation of the line in the figure above is

- (A) $y = -\frac{3}{2}x + 3$
 (B) $y = -\frac{2}{3}x$
 (C) $y = -\frac{2}{3}x + 2$
 (D) $y = \frac{2}{3}x + 2$
 (E) $y = \frac{3}{2}x + 3$

17. If $\log_5 x = 3$, then $x =$

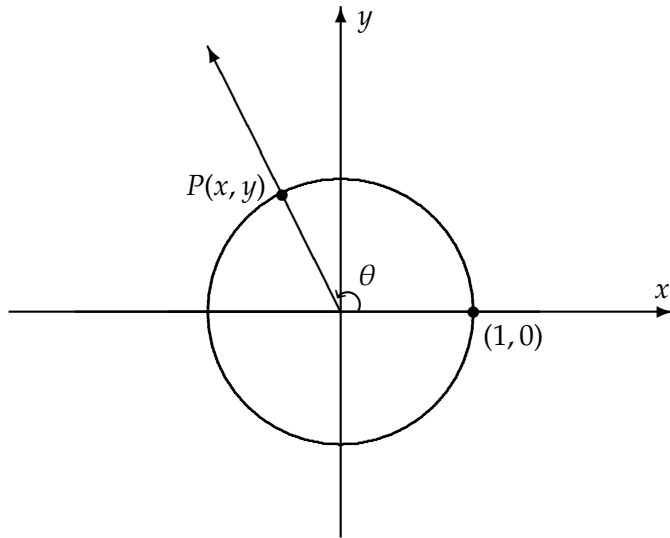
- (A) 3^5 (B) 5^3 (C) 15 (D) $\frac{5}{3}$ (E) $\frac{3}{5}$

18. What is the amplitude of $y = -5 \sin 4x$

- (A) 4 (B) $\frac{\pi}{4}$ (C) $\frac{5}{4}$ (D) -5 (E) 5

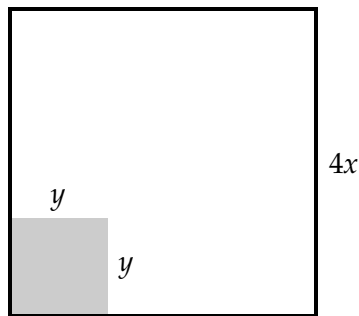
19. If $f(x) = 4x + 3$ and $g(x) = \frac{x-3}{4}$, then $f(g(x)) =$

- (A) x (B) $\frac{x-3}{8x+4}$ (C) $\frac{8x+2}{x-3}$ (D) $\frac{17x+9}{4}$ (E) $\frac{(4x+3)(x-3)}{4}$



20. In the figure above, if the coordinates of point P on the unit circle are (x, y) , then $\sin \theta =$

- (A) $\frac{x}{y}$ (B) $\frac{1}{y}$ (C) x (D) y (E) $\frac{1}{x}$



21. In the square in the figure above, the area of the unshaded region is

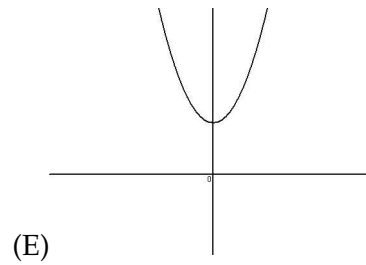
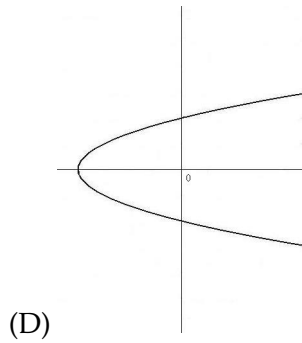
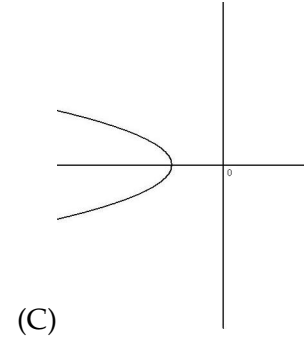
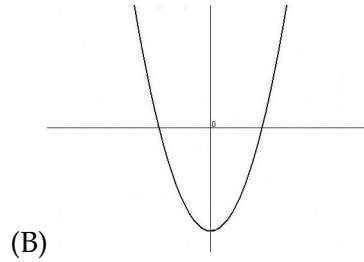
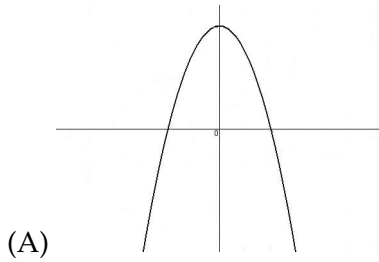
- (A) $(4x - y)(4x - y)$ (B) $16x^2 + y^2$ (C) $4x(4x - y) - y(4x + y)$ (D) $4x(4x + y) + y(4x + y)$ (E) $(4x + y)(4x - y)$

$$\begin{cases} y = -x + 2 \\ y = x^2 \end{cases}$$

22. What values of x satisfy the system of equations above?

- (A) 1 and -2 (B) 2 and -2 (C) 2 and -1 (D) 4 and 1 (E) 4 and 2

23. Which one of the following could represent the graph of $y = -x^2 + c$?



24. $\csc \frac{\pi}{3} =$

- (A) 2 (B) $\frac{\sqrt{3}}{2}$ (C) $\frac{2}{\sqrt{2}}$ (D) $\frac{2}{\sqrt{3}}$ (E) $\frac{\sqrt{2}}{2}$

25. If $f(x) = 3x^2 - 4$, then $f(-x) =$

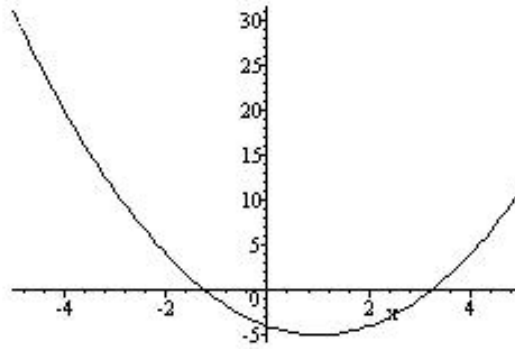
- (A) $f(x - 1)$ (B) $-f(x)$ (C) 0 (D) $f(x)$ (E) $f(x + 1)$

26. $\sum_{n=4}^{11} n =$

- (A) 7 (B) 10 (C) 60 (D) 66 (E) $\frac{11!}{4!}$

27. $8(2^{\frac{3}{2}})(4^{\frac{3}{4}}) =$

- (A) $2^{\frac{4}{9}}$ (B) 2^6 (C) $2^{\frac{27}{4}}$ (D) 2^7 (E) 2^9



28. Which of the following could be an equation of the graph shown in the figure above?

- (A) $y = (x - 1)^2 + 5$ (B) $y = (x - 1)^2 - 5$ (C) $y = (x + 1)^2 - 5$ (D) $y = |x - 1| - 5$ (E) $y = |x + 1| - 5$

29. $\log_5 \frac{\sqrt{5}}{5} =$

- (A) $-\frac{1}{\sqrt{5}}$ (B) $-\frac{1}{2}$ (C) $\frac{3}{2}$ (D) $\frac{1}{\sqrt{5}}$ (E) $\sqrt{5}$

30. If the domain D of the function f is the set of all real numbers x for which $f(x) = \sqrt{4 - x^2}$ is a real number, then $D =$

- (A) $\{x \mid x \leq -2 \text{ or } x \geq 2\}$ (B) $\{x \mid x < -2 \text{ or } x > 2\}$ (C) $\{x \mid -2 \leq x \leq 2\}$ (D) $\{x \mid x \neq 2\}$ (E) $\{x \mid -2 < x < 2\}$

31. $\frac{3 - 2i}{3 + 2i} =$

- (A) $1 - \frac{12}{7}i$ (B) $\frac{5}{7} - \frac{12}{7}i$ (C) $\frac{7}{13} - \frac{12}{13}i$ (D) $\frac{5}{13} - \frac{12}{13}i$ (E) $1 - i$

32. If $f(x) = \frac{1}{x}$, $x \neq 0$, then $\frac{f(x+h) - f(x)}{h}$ is

- (A) $\frac{h}{x(x+h)}$ (B) $\frac{-h}{x(x+h)}$ (C) 1 (D) $\frac{1}{x(x+h)}$ (E) $\frac{-1}{x(x+h)}$

33. What is the solution set $\cos x = \sqrt{3} \sin x$, where $0 \leq x \leq 2\pi$?

- (A) $\{\frac{\pi}{6}\}$ (B) $\{\frac{\pi}{3}\}$ (C) $\{\frac{\pi}{3}, \frac{4\pi}{3}\}$ (D) $\{\frac{\pi}{6}, \frac{7\pi}{6}\}$ (E) $\{\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}\}$

34. If $f(x) = 2 - 6x$, and f^{-1} denotes the inverse of f , then $f^{-1}(2) =$

- (A) -14 (B) -10 (C) 0 (D) 14 (E) undefined

35. If 3 is a double root of the equation $ax^3 + bx^2 + cx + d = 0$, which of the following could NOT be a factor of the left member of the equation?

- (A) $x^2 - 4x + 4$ (B) $x^2 - 5x + 6$ (C) $x^2 - 6x + 9$ (D) $x^2 + x - 12$ (E) $x^2 - 9$

ARITHMETIC-ANSWERS

- | | |
|-------|-------|
| 1. A | 19. C |
| 2. C | 20. C |
| 3. D | 21. C |
| 4. B | 22. B |
| 5. B | 23. C |
| 6. C | 24. B |
| 7. A | 25. C |
| 8. C | 26. B |
| 9. B | 27. B |
| 10. D | 28. B |
| 11. B | 29. A |
| 12. A | 30. C |
| 13. B | 31. B |
| 14. D | 32. B |
| 15. D | 33. B |
| 16. B | 34. D |
| 17. A | 35. A |
| 18. B | |

ELEMENTARY ALGEBRA-ANSWERS

- | | |
|-------|-------|
| 1. C | 19. A |
| 2. B | 20. B |
| 3. B | 21. A |
| 4. C | 22. D |
| 5. A | 23. C |
| 6. C | 24. C |
| 7. D | 25. A |
| 8. D | 26. C |
| 9. B | 27. A |
| 10. B | 28. C |
| 11. A | 29. B |
| 12. C | 30. D |
| 13. D | 31. B |
| 14. C | 32. C |
| 15. B | 33. A |
| 16. A | 34. D |
| 17. B | 35. A |
| 18. D | |

COLLEGE LEVEL MATHEMATICS–ANSWERS

- | | |
|-------|-------|
| 1. C | 19. A |
| 2. A | 20. D |
| 3. B | 21. E |
| 4. C | 22. A |
| 5. E | 23. A |
| 6. B | 24. D |
| 7. A | 25. D |
| 8. D | 26. C |
| 9. D | 27. B |
| 10. D | 28. B |
| 11. D | 29. B |
| 12. C | 30. C |
| 13. B | 31. D |
| 14. E | 32. E |
| 15. E | 33. D |
| 16. A | 34. C |
| 17. B | 35. A |
| 18. E | |