Subtest 1: Verbal Analogies

Directions: The Verbal Analogies subtest measures your ability to reason and to see relationships between words. You are to choose the answer that best completes the analogy developed at the beginning of each question. The best way to approach this type of test is to look for patterns or comparisons between the first phrase and the choices available to you. You have eight (8) minutes to complete this subtest.

Questions: 25
Time: 8 minutes

For sample Verbal Analogies questions, see page 195.

1. *School* is to *principal* as *office* is to
   a. manager
   b. secretary
   c. computer
   d. teacher
   e. building

2. *Paint* is to *brush* as *clay* is to
   a. dough
   b. mold
   c. sculpture
   d. artist
   e. rock

3. *Knife* is to *slice* as *spoon* is to
   a. fork
   b. stab
   c. stir
   d. cereal
   e. handle

4. *Proud* is to *brag* as *despairing* is to
   a. sing
   b. exult
   c. sad
   d. depress
   e. weep

5. *Excited* is to *thrilled* as *angered* is to
   a. amused
   b. enraged
   c. disinterested
   d. sleepy
   e. delayed

6. *String* is to *guitar* as *key* is to
   a. score
   b. organ
   c. orchestra
   d. song
   e. drum

7. *Thesaurus* is to *synonyms* as *dictionary* is to
   a. words
   b. reference
   c. book
   d. volume
   e. definitions

8. *Pedestal* is to *bust* as *tripod* is to
   a. film
   b. figure
   c. leg
   d. adjust
   e. camera

9. *Beautician* is to *salon* as
   a. follicle is to hair
   b. musician is to concert hall
   c. scissors is to blow dryer
   d. cinematographer is to movie
   e. cosmetologist is to makeup

10. *Stall* is to *engine* as
    a. drive is to motor
    b. race is to heart
    c. block is to progress
    d. freeze is to computer
    e. mechanical is to functional

11. *Leave* is to *bolt* as
   a. dance is to shuffle
   b. toss is to hurl
   c. drive is to race
   d. play is to frolic
   e. shine is to glisten

12. *Disseminate* is to *gather* as
   a. puncture is to prod
   b. resist is to tempt
   c. distinct is to dissimilar
   d. rip is to mend
   e. adjoined is to conjoined

13. *Enjoy* is to *adore* as
   a. love is to desire
   b. spend is to waste
   c. burn is to sear
   d. care is to concern
   e. dislike is to loathe

14. *Gaggle* is to *goose* as
   a. leap is to kangaroo
   b. stripe is to tiger
   c. barracuda is to fish
   d. mane is to lion
   e. flock is to sheep

15. *Science fiction* is to *novel* as
   a. tale is to story
   b. horror is to frightening
   c. country is to western
   d. rhythm and blues is to album
   e. style is to book

16. *Carpenter* is to *constructive* as
   a. farmer is to crops
   b. conservationist is to environment
   c. employee is to duty
   d. critic is to judgmental
   e. instructor is to lesson

17. *Carelessness* is to *mistake* as
   a. destruction is to damage
   b. meticulous is to perfection
   c. process is to result
   d. watchfulness is to sight
   e. reflective is to intelligence

18. *Cautious* is to *heedless* as
   a. oblivious is to negligent
   b. wary is to trusting
   c. alert is to cagey
   d. shameful is to abhorrent
   e. scorn is to react

19. *Surprised* is to *jump* as
   a. relaxed is to seated
   b. amused is to chuckle
   c. stunned is to disturbed
   d. energy is to sprint
   e. perplexed is to wonder

20. *Brace* is to *bolster* as
   a. revert is to rectitude
   b. covert is to manifest
   c. accelerate is to hasten
   d. fulcrum is to level
   e. halt is to increase

21. *Spider* is to *arachnid* as
   a. lobster is to crustacean
   b. arthropod is to insect
   c. ant is to cricket
   d. octopus is to squid
   e. porpoise is to fish

22. *Psychology* is to *mind* as
   a. think is to cerebral cortex
   b. physiology is to science
   c. methodology is to study
   d. anatomy is to body
   e. cognizant is to perceptive

23. *Cardiologist* is to *heart* as
   a. surgeon is to general practitioner
   b. neurologist is to brain
   c. epidermis is to endocrine system
   d. orthodontist is to braces
   e. dermatologist is to podiatrist

24. *Bushel* is to *peas* as
   a. core is to apple
   b. bunch is to bananas
   c. skin is to grape
   d. juice is to orange
   e. stem is to carrot

25. *Apathy* is to *disinterest* as
   a. tenacity is to resolve
   b. insincerity is to candor
   c. sobriety is to indulgence
   d. affection is to relationship
   e. believability is to reality

Subtest 2: Arithmetic Reasoning

Directions: The Arithmetic Reasoning subtest measures mathematical reasoning and problem solving. Each problem is followed by five possible answers. Decide which one of the five answers is most nearly correct. A method for attacking each of these questions is given in the answer block at the end of this chapter. You have twenty-nine (29) minutes to complete this subtest.

Questions: 25
Time: 29 minutes

For sample Arithmetic Reasoning questions, see page 196.

1. It costs $0.85 to make a single color copy at a copy center. At this price, how many copies can be purchased with $68.00?
   a. 9
   b. 45
   c. 68
   d. 72
   e. 80

2. An aquarium has a base length of 12 inches and a width of 5 inches. If the aquarium is 10 inches tall, what is the total volume?
   a. 480 cubic inches
   b. 540 cubic inches
   c. 600 cubic inches
   d. 720 cubic inches
   e. 920 cubic inches

3. A man turns a woman's handbag in to the Lost and Found Department of a large downtown store. The man informs the clerk in charge that he found the handbag on the floor beside an entranceway. The clerk estimates that the handbag is worth approximately $150. Inside, the clerk finds the following items: one leather makeup case valued at $65, one vial of perfume, unopened, valued at $75, one pair of earrings valued at $150, and $178 in cash.

The clerk is writing a report to be submitted along with the found property. What should he write as the total value of the found cash and property?

   a. $468
   b. $608
   c. $618
   d. $658
   e. $718

Use the following information to answer questions 4 through 6.

The cost of movie theater tickets is $7.50 for adults and $5 for children ages 12 and under. On Saturday and Sunday afternoons until 4:00 P.M., there is a matinee price: $5.50 for adults and $3 for children ages 12 and under. Special group discounts are available for groups of 30 or more people.

4. Which of these can be determined from the information given in the above passage?
   a. how much it will cost a family of four to buy movie theater tickets on Saturday afternoon
   b. the difference between the cost of two movie theater tickets on Tuesday night and the cost of one ticket on Sunday at 3:00 P.M.
   c. how much movie theater tickets will cost each person if he or she is part of a group of 40 people
   d. the difference between the cost of a movie theater ticket for an adult on Friday night and a movie theater ticket for a 13-year-old on Saturday afternoon at 1:00 P.M.
   e. none of the above

5. Based on the passage, how much will movie theater tickets cost for two adults, one 15-year-old child, and one 10-year-old child at 7:00 P.M. on a Sunday night?
   a. $17.00
   b. $19.50
   c. $25.00
   d. $27.50
   e. $37.50

6. Using the passage, how can you find the difference in price between a movie theater ticket for an adult and a movie theater ticket for a child under the age of 12 if the tickets are for a show at 3:00 P.M. on a Saturday afternoon?
   a. Subtract $3 from $5.50.
   b. Subtract $5 from $7.50.
   c. Subtract $7.50 from $5.50.
   d. Add $5.50 and $3 and divide by 2.
   e. Add $7.50 and $5.50 and divide by 2.

7. It takes a typist 0.50 seconds to type one word. At this rate, how many words can be typed in 60 seconds?
   a. 2.25
   b. 50
   c. 90
   d. 120
   e. 220

8. If the average cadet burns 8.2 calories per minute while riding a bicycle, how many calories will the cadet burn if he or she rides for 35 minutes?
   a. 286
   b. 287
   c. 387
   d. 980
   e. 1,080

9. Dr. Drake charges $36 for an office visit, which is $\frac{3}{4}$ of what Dr. Jean charges. How much does Dr. Jean charge?
   a. $27
   b. $38
   c. $48
   d. $57
   e. $68

10. Thirty percent of the cadets at the Air Force Academy are involved in athletics. If 15% of the athletes play lacrosse, what percentage of the whole academy plays lacrosse?
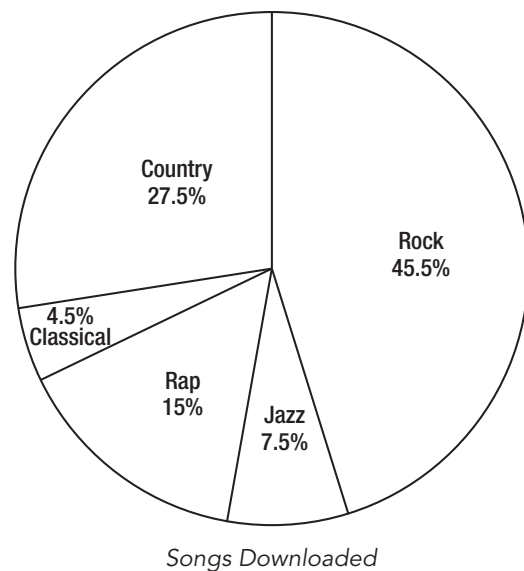
a. 4.5%

b. 9.0%

c. 15%

d. 30%

e. 40%

Use the following information to answer questions 11 and 12.

Basic cable television service, which includes 16 channels, costs $15 a month. The initial labor fee to install the service is $25. A $65 deposit is required but will be refunded within two years if the customer's bills are paid in full. Other cable services may be added to the basic service: the movie channel service is $9.40 a month; the news channels are $7.50 a month; the arts channels are $5 a month; the sports channels are $4.80 a month.

11. A customer's cable television bill totaled $20 a month. Using the preceding passage, what portion of the bill was for basic cable service?

a. 25%

b. 33%

c. 50%

d. 75%

e. 85%

12. A customer's first bill after having cable television installed totaled $112.50. This customer chose basic cable and one additional cable service. Which additional service was chosen?

a. the news channels

b. the movie channels

c. the arts channels

d. the sports channels

e. none of the above

13. Out of every 200 shoppers polled, 60 said they buy fresh vegetables every week. How many shoppers out of 40,000 could be expected to buy fresh vegetables every week?

a. 3,600

b. 9,000

c. 12,000

d. 24,000

e. 36,000

Use the following pie chart to answer questions 14 and 15.

Songs Downloaded

14. If 400 total songs were downloaded, how many downloads were country music?

a. 11

b. 28

c. 55

d. 110

e. 270

15. Based on the pie chart, which types of music represent exactly half of the songs downloaded?
 a. rock and jazz
 b. classical and rock
 c. rap, classical, and country
 d. jazz, classical, and rap
 e. jazz and rap

16. Last year, 220 people bought cars from a certain dealer. Of those, 60 percent reported that they were completely satisfied with their new cars. How many people reported being unsatisfied with their new car?
 a. 36
 b. 55
 c. 88
 d. 132
 e. 155

17. Of 1,125 OTS candidates, 135 speak fluent Spanish. What percentage of the candidates speaks fluent Spanish?
 a. 7.3%
 b. 8.3%
 c. 12%
 d. 14%
 e. 16%

18. The perimeter of a rectangle is 268 feet. Its two longest sides add up to 156 feet. What is the length of each of its two shortest sides?
 a. 43 feet
 b. 56 feet
 c. 72 feet
 d. 80 feet
 e. 112 feet

19. A piece of wire 3 feet 4 inches long was divided into 5 equal parts. How long was each part?
 a. 6 inches
 b. 7.5 inches
 c. 8 inches
 d. 10 inches
 e. 1 foot 2 inches

20. A middle school cafeteria has three different options for lunch. For $2, a student can get either a sandwich or two cookies. For $3, a student can get a sandwich and one cookie. For $4, a student can get either two sandwiches or a sandwich and two cookies. If Jimae has $6 to pay for lunch for her and her brother, which of the following is NOT a possible combination?
 a. three sandwiches and one cookie
 b. two sandwiches and two cookies
 c. one sandwich and four cookies
 d. three sandwiches and no cookies
 e. three sandwiches and two cookies

21. A bed is 4 feet wide and 6 feet long. What is the area of the bed?
 a. 10 square feet
 b. 20 square feet
 c. 24 square feet
 d. 30 square feet
 e. 36 square feet

22. Airman Beard's temperature is 98 degrees Fahrenheit. Using the formula $C = \frac{5}{9}(F - 32)$, what is his temperature in degrees Celsius?
 a. 35.8
 b. 36.7
 c. 37.6
 d. 41.1
 e. 59.6

23. All of the rooms on the main floor of a barracks are rectangular, with 8-foot high ceilings. Captain Keira's office is 9 feet wide by 11 feet long. What is the combined surface area of the four walls of her office, including any windows and doors?
a. 99 square feet
b. 160 square feet
c. 320 square feet
d. 792 square feet
e. 640 square feet

24. A recipe serves four people and calls for $1\frac{1}{2}$ cups of broth. If you want to serve six people, how much broth do you need?
a. 2 cups
b. $2\frac{1}{4}$ cups
c. $2\frac{1}{3}$ cups
d. $2\frac{1}{2}$ cups
e. $2\frac{3}{4}$ cups

25. Fort Greenville is 120 miles west and 90 miles north of Fort Johnson. How long is a direct straight line route from Fort Greenville to Fort Johnson City?
a. 100 miles
b. 125 miles
c. 150 miles
d. 180 miles
e. 195 miles

Subtest 3: Word Knowledge

Directions: The Word Knowledge subtest measures your vocabulary comprehension. For each question you are to choose the answer that most closely means the same as the italicized word. If you are somewhat familiar with the italicized word, you can quickly eliminate the options that you know are incorrect. You have five (5) minutes to complete this subtest.

Questions: 25
Time: 5 minutes

1. *Preside*
a. challenge
b. alter
c. confuse
d. preview
e. lead

2. *Liability*
a. burden
b. support
c. effort
d. ability
e. link

3. *Diligent*
a. angry
b. hardworking
c. hearty
d. surprised
e. dainty

4. *Agility*
a. leadership
b. difficulty
c. slim
d. fierce
e. quickness

5. *Elicit*
a. impair
b. extract
c. illegal
d. sketch
e. crave

6. *Proclamation*
a. performance
b. study
c. contract
d. announcement
e. fad

7. *Pragmatic*
   a. forward
   b. tremendous
   c. sensible
   d. clumsy
   e. fearless

8. *Quandary*
   a. question
   b. stone
   c. problem
   d. jumble
   e. discovery

9. *Opulent*
   a. wealthy
   b. overweight
   c. sickly
   d. inexpensive
   e. fair

10. *Eloquent*
   a. elegant
   b. beautiful
   c. well spoken
   d. tidy
   e. sharp

11. *Fidelity*
   a. falsity
   b. love
   c. clarity
   d. loudness
   e. loyalty

12. *Limpid*
   a. bright
   b. long
   c. true
   d. slight
   e. strange

13. *Refute*
   a. agree
   b. contest
   c. respond
   d. fuse
   e. shock

14. *Vulnerable*
   a. creative
   b. old
   c. upset
   d. weak
   e. feisty

15. *Systematic*
   a. orderly
   b. institution
   c. mechanism
   d. computerized
   e. symbolically

16. *Sagacity*
   a. wisdom
   b. age
   c. size
   d. darkness
   e. humor

17. *Motley*
   a. ugly
   b. tough
   c. multicolor
   d. dangerous
   e. inspire

18. *Jaunt*
   a. joke
   b. trip
   c. bend
   d. exercise
   e. story

19. *Myriad*
   a. watery
   b. strong
   c. ethical
   d. absurd
   e. many

20. *Unison*
   a. single
   b. under
   c. mystery
   d. harmony
   e. truth

21. *Valor*
   a. smoothness
   b. swiftness
   c. popularity
   d. smarts
   e. courage

22. *Blatant*
   a. secretive
   b. terrible
   c. obvious
   d. humble
   e. dignified

23. *Construe*
   a. interpret
   b. make
   c. deceive
   d. suspect
   e. order

24. *Heinous*
   a. delightful
   b. monstrous
   c. hairy
   d. tiny
   e. depressing

25. *Gusto*
   a. hunger
   b. clarity
   c. pride
   d. enthusiasm
   e. sleepiness

Subtest 4: Math Knowledge

Directions: The Math Knowledge subtest measures your ability to use learned mathematical relationships. Each problem is followed by five possible answers. You must decide which one of the five answers is correct. The best method for attacking each of these questions is given in the answer block at the end of this chapter. When you take the actual test, scratch paper will be provided for working out the problems. You have twenty-two (22) minutes to finish this subtest.

Questions: 25
Time: 22 minutes

For sample Math Knowledge questions, see page 201.
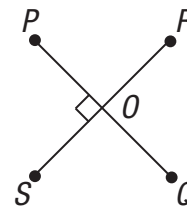
1. In this figure, angle *POS* measures 90°. What is the measure of angle *ROQ*?
   a. 45°
   b. 90°
   c. 180°
   d. 270°
   e. 360°

2. $4\frac{1}{5} + 1\frac{2}{5} + 3\frac{3}{10}$
   a. $8\frac{9}{10}$
   b. $9\frac{1}{10}$
   c. $8\frac{4}{5}$
   d. $8\frac{6}{15}$
   e. $9\frac{5}{10}$

3. $\frac{3}{4}$ is equal to

   a. 0.25

   b. 0.30

   c. 0.34

   d. 0.50

   e. 0.75

4. $76\frac{1}{2} + 11\frac{5}{6} =$

   a. $87\frac{1}{2}$

   b. $88\frac{1}{3}$

   c. $88\frac{2}{3}$

   d. $88\frac{5}{6}$

   e. 89

5. What is the decimal equivalent of $\frac{1}{6}$ rounded to the nearest thousandth?

   a. 0.165

   b. 0.666

   c. 0.123

   d. 0.167

   e. 0.176

6. $\frac{1}{6} + \frac{7}{12} + \frac{2}{3} =$

   a. $\frac{10}{24}$

   b. $2\frac{1}{6}$

   c. $1\frac{5}{6}$

   d. $1\frac{5}{12}$

   e. $2\frac{5}{6}$

7. Which of the following is equivalent to 202,436?

   a. 20,000 + 2,000 + 400 + 30 + 6

   b. 2,000 + 40 + 300 + 6

   c. 200,000 + 2,000 + 400 + 30 + 6

   d. 200,000 + 2,000 + 4,000 + 300 + 6

   e. 200,000 + 12,000 + 4,000 + 300 + 6
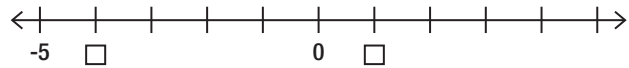
8. What are the missing integers on this number line?

   a. –4 and 1

   b. –6 and 1

   c. –6 and –1

   d. 4 and 9

   e. 5 and 8

9. $1\frac{1}{2}$ is equal to

   a. 0.50

   b. 1.25

   c. 2.50

   d. 1.50

   e. .150

10. If $\frac{x}{54} = \frac{2}{9}$, then x is

   a. 12

   b. 14

   c. 18

   d. 108

   e. 118

11. Which of the following is divisible by both 7 and by 8?

   a. 63

   b. 106

   c. 114

   d. 112

   e. 78

12. What is $\frac{3}{8}$ equal to?

   a. 0.25

   b. 0.333

   c. 0.60

   d. 0.375

   e. 3.80

13. What is another way to write $4 \times 4 \times 4$?
   a. 3×4
   b. 8×4
   c. 4^3
   d. 3^4
   e. 8^3

14. Which of the following choices completes this number sentence? $5\_\_\_\_\_ = (10 \times 2) + (5 \times 3)$
   a. $\times (5 + 2)$
   b. $+ (5 + 2)$
   c. $\times (5 \times 2)$
   d. $+ (5 \times 2)$
   e. $+ (5 \times 3)$

15. Which of these is equivalent to 20°C?
$(F = \frac{9}{5}C + 32)$
   a. 68°F
   b. 95°F
   c. 45°F
   d. 19°F
   e. 70°F

16. What is the volume of a pyramid that has a rectangular base 5 feet by 3 feet and a height of 8 feet? $(V = \frac{1}{3}lwh)$
   a. 16 feet^3
   b. 30 feet^3
   c. 40 feet^3
   d. 120 feet^3
   e. 220 feet^3

17. What is another way to write 7.25×10^3?
   a. 72.5
   b. 725
   c. 7,250
   d. 72,500
   e. 720,500

18. How many inches are there in $3\frac{1}{3}$ yards?
   a. 126
   b. 120
   c. 160
   d. 168
   e. 313

19. $\frac{3}{5} =$
   a. 0.60
   b. 0.20
   c. 0.50
   d. 0.80
   e. 0.90

20. 0.97 is equal to
   a. 97%
   b. 9.7%
   c. 0.97%
   d. 0.097%
   e. 0.0097%

21. In a triangle, angle A is 70 degrees and angle B is 30 degrees. What is the measure of angle C?
   a. 90 degrees
   b. 70 degrees
   c. 80 degrees
   d. 100 degrees
   e. 120 degrees

22. Which value of x will make the number sentence $x + 32 \leq 14$ true?
   a. −16
   b. −21
   c. 12
   d. 38
   e. none of the above

23. What is the length of a rectangle if its width is 6 feet and its area is 108 square feet?

    a. 1.8 feet

    b. 10.5 feet

    c. 18 feet

    d. 16 feet

    e. 68 feet

24. 37.5 percent is equal to

    a. $\frac{3}{8}$

    b. $\frac{5}{8}$

    c. $4\frac{3}{4}$

    d. $6\frac{3}{4}$

    e. $3\frac{7}{5}$

25. 0.15 is equal to

    a. $\frac{2}{5}$

    b. $\frac{3}{20}$

    c. $\frac{2}{10}$

    d. $\frac{1}{20}$

    e. $\frac{1.5}{20}$

Subtest 5: Instrument Comprehension

Directions: The Instrument Comprehension subtest measures your ability to determine the position of an aircraft in flight by reading instruments showing its compass heading, its amount of climb or dive, and its degree of bank to right or left. In each test item, the left-hand dial is labeled *artificial horizon*. The small aircraft silhouette remains stationary in the center of this dial, while the positions of the heavy black line and the black pointer vary with the changes in the position of the aircraft in which the instrument is located.

The heavy black line represents the *horizon line* and the black pointer shows the degree of *bank* to right or left. If the aircraft is neither climbing nor diving, the horizon line is directly on the silhouette's fuselage. If the aircraft has no bank, the black pointer will point to zero (Dial 1).

LEVEL FLIGHT — ARTIFICIAL HORIZON Dial 1

CLIMBING RIGHT BANK — ARTIFICIAL HORIZON Dial 2

DIVING LEFT BANK — ARTIFICIAL HORIZON Dial 3
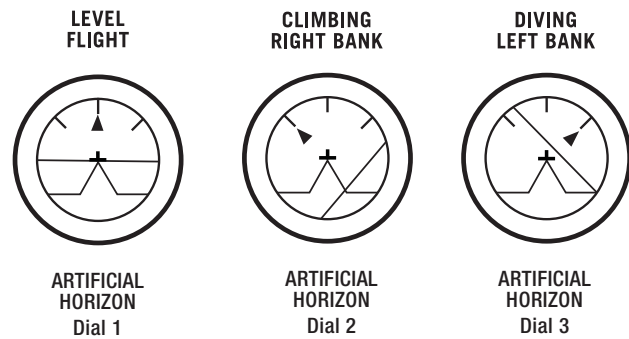
If the aircraft is climbing, the fuselage silhouette is seen between the horizon line and the pointer. The greater the amount of climb, the greater the distance between the horizon line and the fuselage silhouette. If the aircraft is banked to the pilot's right, the pointer will point to the left of zero (Dial 2).

If the aircraft is diving, the horizon line is between the fuselage silhouette and the pointer. The greater the amount of dive, the greater the distance between the horizon line and the fuselage silhouette. If the aircraft is banked to the pilot's left, the pointer will point to the right of zero (Dial 3).

The *horizon line* tilts as the aircraft is banked. It is always at a right angle to the pointer.

In each test item, the right-hand dial is the *compass*. This dial shows the direction in which the aircraft is headed. Dial 4 shows north, Dial 5 is west, and Dial 6 is northwest.

COMPASS Dial 4

COMPASS Dial 5

COMPASS Dial 6
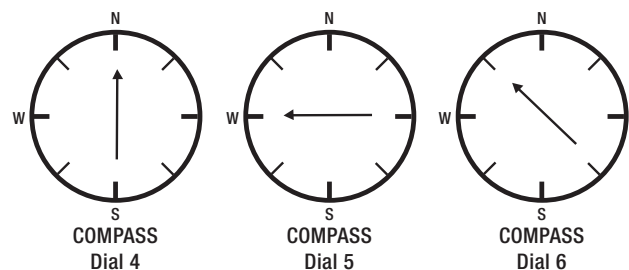
Each item in this test consists of two dials and four silhouettes of aircraft in flight. Your task is to determine which of the four aircraft is closest to the position indicated by the two dials. Remember, you are always looking *north* at the same altitude as each plane. East is always to the *right* as you look at the

page. (*Note:* B in Question 2 is the rear view of the aircraft, and B in Question 4 is the front view.) You have nine (9) minutes to complete this subtest.

Questions: 20
Time: 9 minutes

For sample Instrument Comprehension questions, see page 205.

1.

2.

3.

4.

5.

6.

7.

8.

ARTIFICIAL HORIZON   COMPASS

| A | B | C | D |

9.

ARTIFICIAL HORIZON   COMPASS

| A | B | C | D |

10.

ARTIFICIAL HORIZON   COMPASS

| A | B | C | D |

11.

ARTIFICIAL HORIZON   COMPASS

| A | B | C | D |

12.

ARTIFICIAL HORIZON   COMPASS

| A | B | C | D |

13.

ARTIFICIAL HORIZON   COMPASS

| A | B | C | D |

14.

ARTIFICIAL HORIZON   COMPASS

| A | B | C | D |

15.

ARTIFICIAL HORIZON   COMPASS

| A | B | C | D |

16.

17.

18.

19.

20.
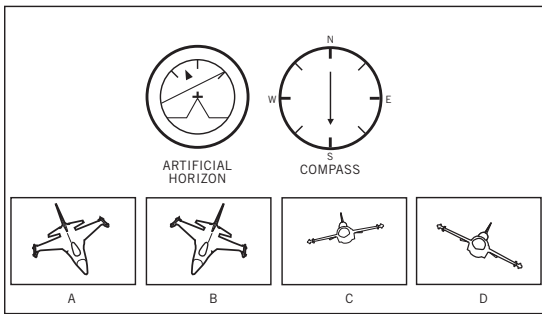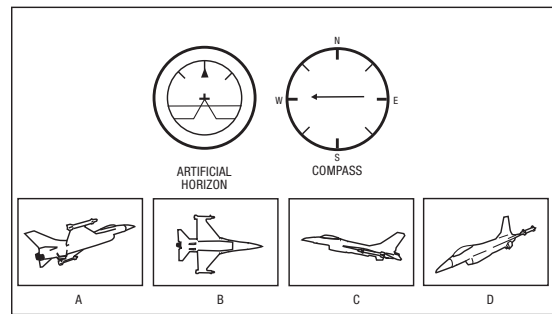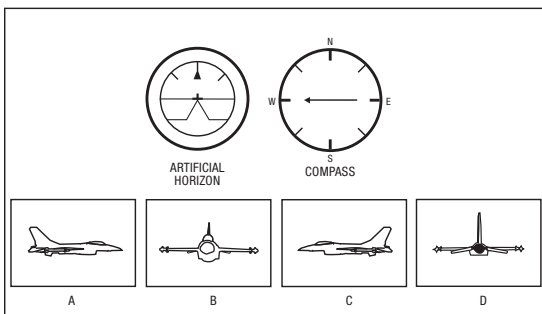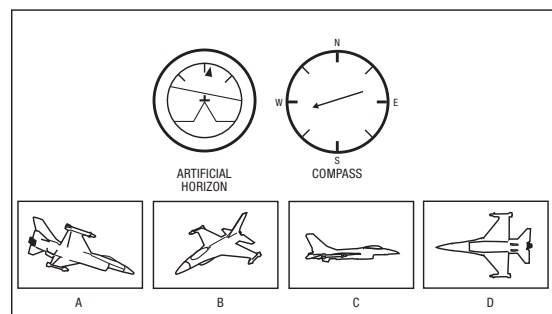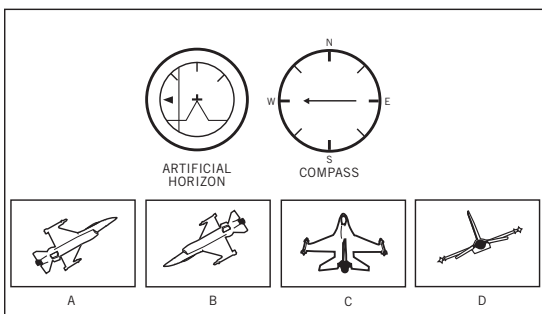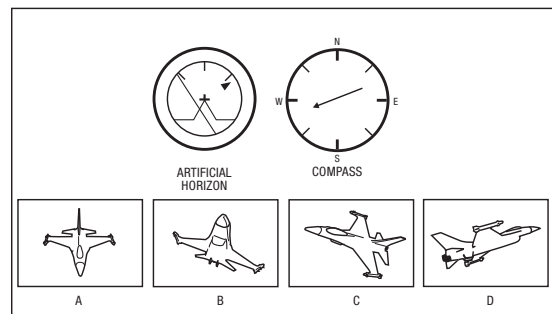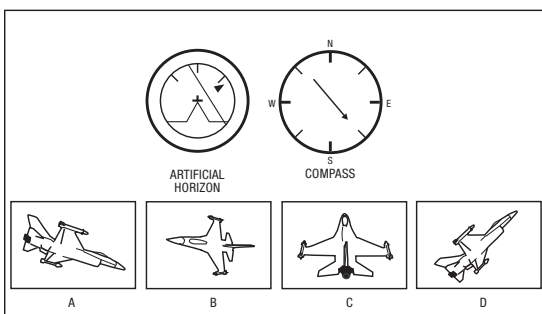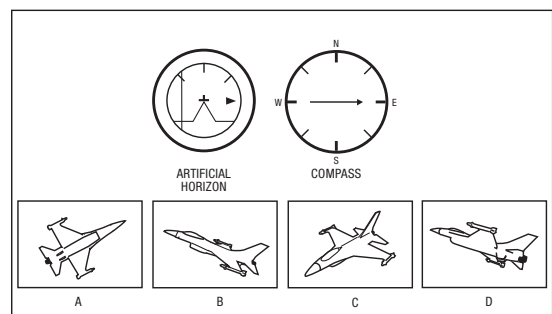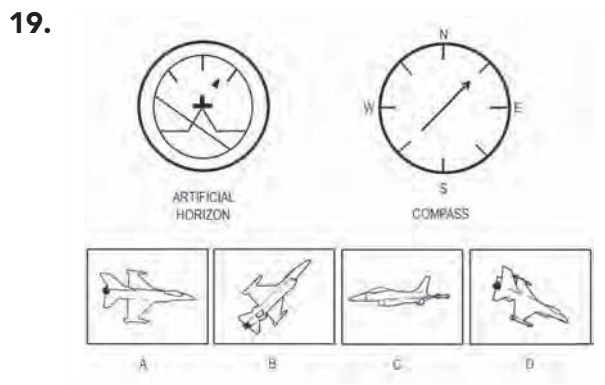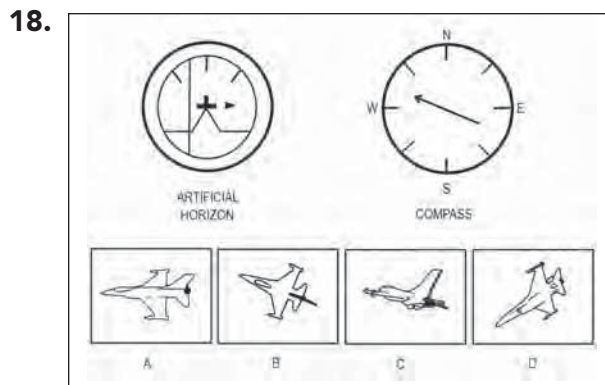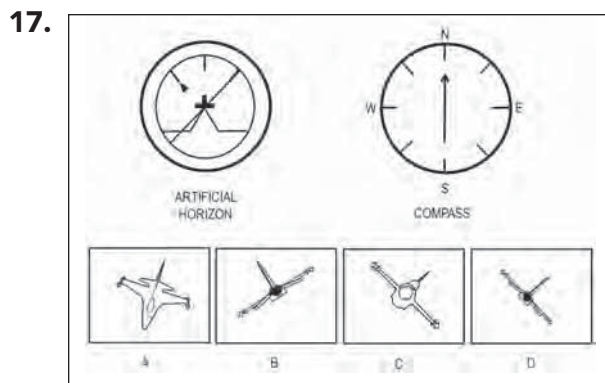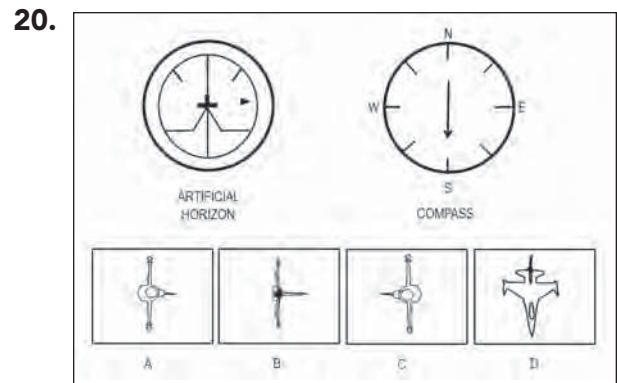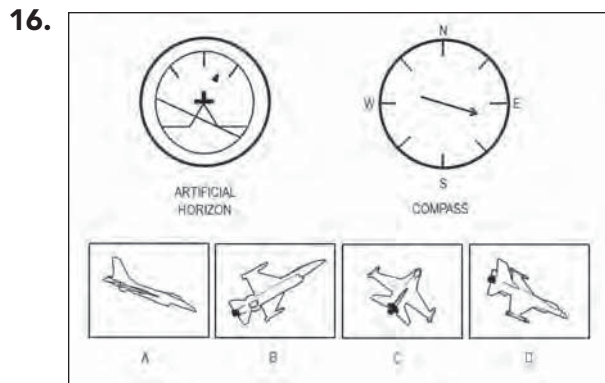
Subtest 6: Block Counting

Directions: The Block Counting subtest measures your ability to see into a three-dimensional stack of blocks to determine how many pieces are touched by the numbered blocks. It is also a test of your abilities to observe and deduce what you cannot specifically see. Closely study the way in which the blocks are stacked. You may find it helpful to remember that all of the blocks in a pile are the same size and shape. Each stack of blocks is followed by five questions pertaining only to that stack. You have three (3) minutes to complete this subtest.

Questions: 20
Time: 3 minutes

Use the following figure to answer questions 1 through 5.
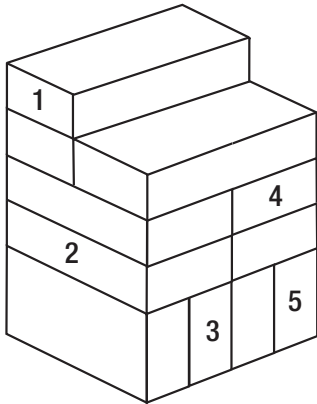
1. Block 1 is touched by _____ other blocks.
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5

2. Block 2 is touched by _____ other blocks.
   a. 2
   b. 3
   c. 4
   d. 5
   e. 6

3. Block 3 is touched by _____ other blocks.
   a. 2
   b. 3
   c. 4
   d. 5
   e. 6

4. Block 4 is touched by _____ other blocks.
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5

5. Block 5 is touched by _____ other blocks.
   a. 2
   b. 3
   c. 4
   d. 5
   e. 6

Use the following figure to answer questions 6 through 10.
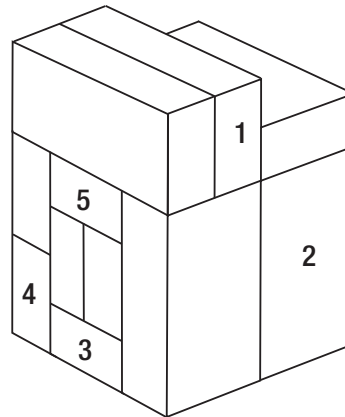
6. Block 1 is touched by _____ other blocks.
   a. 3
   b. 4
   c. 5
   d. 6
   e. 7

7. Block 2 is touched by _____ other blocks.
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5

8. Block 3 is touched by _____ other blocks.
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5

9. Block 4 is touched by _____ other blocks.
   a. 3
   b. 4
   c. 5
   d. 6
   e. 7

10. Block 5 is touched by _____ other blocks.
   a. 4
   b. 5
   c. 6
   d. 7
   e. 8

Use the following figure to answer questions 11 through 15.
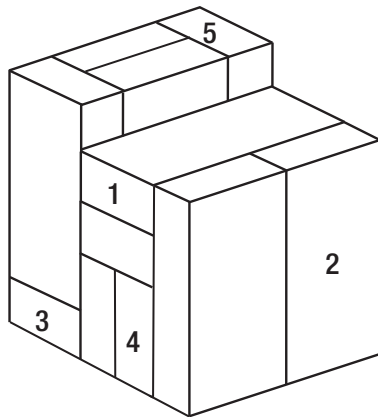
11. Block 1 is touched by _____ other blocks.
   a. 4
   b. 5
   c. 6
   d. 7
   e. 8

12. Block 2 is touched by _____ other blocks.
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5

13. Block 3 is touched by _____ other blocks.
   a. 4
   b. 5
   c. 6
   d. 7
   e. 8

14. Block 4 is touched by _____ other blocks.
   a. 2
   b. 3
   c. 4
   d. 5
   e. 6

15. Block 5 is touched by _____ other blocks.
   a. 2
   b. 3
   c. 4
   d. 5
   e. 6

Use the following figure to answer questions 16 through 20.
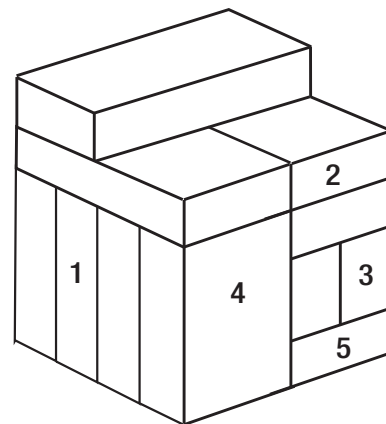
16. Block 1 is touched by _____ other blocks.
   a. 2
   b. 3
   c. 4
   d. 5
   e. 6

17. Block 2 is touched by _____ other blocks.
   a. 2
   b. 3
   c. 4
   d. 5
   e. 6

18. Block 3 is touched by _____ other blocks.
   a. 3
   b. 4
   c. 5
   d. 6
   e. 7

19. Block 4 is touched by _____ other blocks.
   a. 3
   b. 4
   c. 5
   d. 6
   e. 7

20. Block 5 is touched by _____ other blocks.
   a. 2
   b. 3
   c. 4
   d. 5
   e. 6

Subtest 7: Table Reading

Directions: The Table Reading subtest measures your ability to read tables quickly and accurately. Notice that the X values in each table are shown horizontally across the top of the table and the Y values are shown vertically along the left edge of the table. In this test, you are to find the entry that occurs at the intersection of the row and the column corresponding to the values given. On your answer sheet, fill in the letter that corresponds with the number at the intersection of the X and Y values. You have seven (7) minutes to complete this subtest.

Questions: 40
Time: 7 minutes

For sample Table Reading questions, see page 212.

Use the following table to determine the correct value for the X and Y values given in questions 1 through 5.

| | | X VALUE | | | | | | |
		−3	−2	−1	0	1	2	3
Y VALUE	−3	76	47	65	88	93	20	22
	−2	57	43	74	77	37	57	46
	−1	43	85	94	22	13	11	35
	0	48	30	68	67	48	58	56
	1	98	42	76	84	10	84	57
	2	76	35	10	62	93	37	43
	3	56	86	40	41	95	99	68

1. −3,0
   a. 85
   b. 48
   c. 76
   d. 40
   e. 56

2. −1,1
   a. 42
   b. 99
   c. 35
   d. 88
   e. 76

3. 2,0
   a. 58
   b. 35
   c. 20
   d. 37
   e. 10

4. 1,2
  a. 10
  b. 62
  c. 37
  d. 93
  e. 95

5. –2,2
  a. 98
  b. 42
  c. 35
  d. 86
  e. 40

Use the following table to determine the correct value for the X and Y values given in questions 6 through 10.

X VALUE							
	–3	–2	–1	0	1	2	3
Y VALUE –3	23	34	35	36	49	74	58
–2	91	45	47	24	20	34	43
–1	82	36	56	35	29	55	23
0	73	27	65	36	39	67	54
1	74	18	64	47	48	88	65
2	65	20	52	58	50	79	74
3	12	39	13	69	68	60	37

6. –3,0
  a. 82
  b. 73
  c. 74
  d. 27
  e. 36

7. –2,1
  a. 27
  b. 74
  c. 64
  d. 18
  e. 13

8. 1,1
  a. 48
  b. 49
  c. 20
  d. 29
  e. 68

9. 0,3
  a. 58
  b. 47
  c. 69
  d. 13
  e. 60

10. 2, 0
  a. 36
  b. 67
  c. 39
  d. 54
  e. 48

Use the following table to determine the correct value for the X and Y values given in questions 11 through 15.

		X VALUE					
	−3	**−2**	**−1**	**0**	**1**	**2**	**3**
−3	43	35	19	21	24	90	83
−2	46	46	59	10	35	98	49
−1	57	54	48	99	43	78	30
0	68	76	37	88	45	67	36
1	79	58	24	77	65	87	38
2	10	49	11	66	67	56	48
3	34	22	50	55	87	76	74

(Y VALUE is labeled vertically along the left side of the table)

11. −1,2
   a. 37
   b. 24
   c. 87
   d. 50
   e. 11

12. 3,−1
   a. 83
   b. 49
   c. 30
   d. 57
   e. 50

13. −2,3
   a. 22
   b. 10
   c. 29
   d. 11
   e. 49

14. 0,0
   a. 88
   b. 99
   c. 77
   d. 66
   e. 55

15. 0,3
   a. 50
   b. 87
   c. 76
   d. 55
   e. 74

Use the following table to determine the correct value for the X and Y values given in questions 16 through 20.

		X VALUE					
	−3	**−2**	**−1**	**0**	**1**	**2**	**3**
−3	84	21	22	79	24	70	99
−2	58	25	34	86	35	60	87
−1	95	34	35	58	46	56	67
0	60	64	36	46	57	77	57
1	70	56	47	58	54	43	46
2	74	45	54	69	32	55	43
3	83	37	38	70	12	78	22

(Y VALUE is labeled vertically along the left side of the table)

16. 1,−3
   a. 12
   b. 78
   c. 32
   d. 24
   e. 70

17. 2,3
   a. 32
   b. 78
   c. 22
   d. 77
   e. 56

18. 2,–2
   a. 55
   b. 60
   c. 45
   d. 25
   e. 38

19. 1,0
   a. 79
   b. 95
   c. 57
   d. 87
   e. 36

20. 0,–2
   a. 25
   b. 69
   c. 77
   d. 86
   e. 54

Use the following table to determine the correct value for the X and Y values given in questions 21 through 25.

		X VALUE						
		–3	–2	–1	0	1	2	3
Y	–3	38	33	87	34	13	54	54
V A L U E	–2	94	21	68	35	14	75	36
	–1	58	31	69	64	25	86	47
	0	66	41	80	58	36	93	85
	1	77	54	88	61	47	20	77
	2	58	36	65	91	58	41	65
	3	45	47	43	92	66	55	45

21. 0,2
   a. 93
   b. 91
   c. 61
   d. 92
   e. 66

22. 1,1
   a. 47
   b. 69
   c. 33
   d. 77
   e. 58

23. –1,–1
   a. 36
   b. 65
   c. 54
   d. 68
   e. 69

24. 3,2
   a. 54
   b. 55
   c. 20
   d. 47
   e. 65

25. −3,−3
   a. 45
   b. 54
   c. 36
   d. 38
   e. 93

Use the following table to determine the correct value for the X and Y values given in questions 26 through 30.

		X VALUE					
		−3	−2	−1	0	1	2	3
Y V A L U E	−3	92	57	37	83	33	48	50
	−2	84	65	55	94	20	59	33
	−1	84	68	68	85	82	60	42
	0	10	69	77	86	92	17	35
	1	29	40	99	62	74	63	46
	2	39	42	80	73	85	48	47
	3	44	36	75	32	55	94	58

26. −3,3
   a. 58
   b. 50
   c. 92
   d. 84
   e. 44

27. 0,1
   a. 86
   b. 62
   c. 77
   d. 92
   e. 74

28. 2,0
   a. 17
   b. 80
   c. 94
   d. 58
   e. 75

29. 3,0
   a. 46
   b. 85
   c. 35
   d. 32
   e. 75

30. 3,1
   a. 39
   b. 37
   c. 46
   d. 29
   e. 69

Use the following table to determine the correct value for the X and Y values given in questions 31 through 35.

		X VALUE					
		−3	−2	−1	0	1	2	3
Y V A L U E	−3	66	24	97	11	12	91	21
	−2	77	43	67	22	31	82	23
	−1	88	44	68	33	23	73	34
	0	99	56	56	55	41	64	53
	1	10	67	47	65	62	55	64
	2	12	69	33	76	63	45	75
	3	13	87	42	89	47	36	83

31. −2,−2
a. 82
b. 45
c. 12
d. 43
e. 24

32. −2,3
a. 91
b. 36
c. 87
d. 24
e. 69

33. 0,−3
a. 22
b. 67
c. 76
d. 65
e. 11

34. 1,−3
a. 12
b. 47
c. 97
d. 13
e. 21

35. 1,1
a. 55
b. 52
c. 33
d. 99
e. 23

Use the following table to determine the correct value for the X and Y values given in questions 36 through 40.

		X VALUE						
		−3	−2	−1	0	1	2	3
Y	−3	44	13	83	35	45	99	33
	−2	65	24	25	46	65	89	44
V A	−1	76	32	47	57	43	70	56
L	0	83	53	65	68	27	67	57
U E	1	46	28	43	97	56	60	69
	2	57	91	78	66	33	61	80
	3	45	28	97	54	43	23	43

36. −3,0
a. 13
b. 35
c. 83
d. 25
e. 24

37. 0,2
a. 67
b. 66
c. 53
d. 91
e. 78

38. −2,−1
   a. 70
   b. 32
   c. 60
   d. 28
   e. 53

39. 0,−1
   a. 57
   b. 46
   c. 27
   d. 66
   e. 43

40. 1,3
   a. 43
   b. 69
   c. 56
   d. 76
   e. 46

Subtest 8: Aviation Information

Directions: The Aviation Information subtest measures your knowledge of aviation. This subtest is common to all three service selection tests, although the number of questions varies from one service to another. Each of the questions or incomplete statements is followed by five choices. You must decide which one of the choices best completes the statement or answers the question. Eliminating any obviously incorrect choices first will increase your chances of selecting the correct answer. You have eight (8) minutes to complete this subtest.

Questions: 20
Time: 8 minutes

For sample Aviation Information questions, see page 212.

1. An example of a high lift device would be
   a. flaps.
   b. slats.
   c. leading edge extensions.
   d. all the above.
   e. none of the above.

2. Aircraft performance increases in cold weather because
   a. cold air improves fuel flow.
   b. cold air is more dense.
   c. cold air is less dense.
   d. the engine exhaust is hotter than the surrounding air.
   e. none of the above.

3. If you wanted to roll the aircraft about its longitudinal axis, what flight control movement would accomplish this?
   a. aft stick movement
   b. trim tabs
   c. aileron deflection
   d. vertical stabilizer movement
   e. forward stick movement

4. The standard altimeter setting used in Class A airspace would be
   a. obtained from the nearest airfield.
   b. 30.00 in Hg.
   c. 29.92 in Hg.
   d. calculated from an air computer.
   e. none of the above.

5. During the execution of an aerobatic loop, what sort of energy will an aircraft have at the top of a loop?
   a. kinetic
   b. potential
   c. forced
   d. assumed
   e. none of the above

6. Airfield runways are numbered in accordance with
   a. their compass headings.
   b. FAA directives.
   c. airfield altitude.
   d. average relative wind.
   e. runway length.

7. In which of the following takeoff or landing situations would you be most concerned about aircraft performance?
   a. low altitude airport on a hot day
   b. low altitude airport on a cold day
   c. high altitude airport on a hot day
   d. high altitude airport on a cold day
   e. low altitude airport located next to water

8. Lights that outline an airport taxiway are _____ in color.
   a. red
   b. blue
   c. green
   d. white
   e. alternating red and white

9. Extending wing flaps produces an increase in both lift and
   a. thrust.
   b. angle of attack.
   c. pressure.
   d. drag.
   e. energy.

10. The very thin layer of air flowing over the surface of an aircraft wing, an airfoil, or over the entire fuselage is called
   a. free-stream velocity air.
   b. the boundary layer.
   c. the slipstream.
   d. wake turbulence.
   e. wing drop.

11. If your cockpit turn and bank indicator shows a perfectly centered ball,
   a. the aircraft is in aerodynamically balanced flight.
   b. the aircraft weight and balance criteria have been met.
   c. the aircraft thrust-to-weight ratio is equal.
   d. the aircraft is pointed directly ahead.
   e. none of the above.

12. What effect do wing spoilers have when they are employed?
   a. true air speed is increased
   b. they aid in the production of lift by increasing effective wing area
   c. they disrupt the boundary layer airflow, increasing lift and reducing drag
   d. they disrupt the boundary layer airflow, reducing lift and increasing drag
   e. they augment boundary layer air to increase lift

13. The aircraft instrument that transmits signals that identify various aircraft parameters to air traffic control and flight monitoring organizations is the
   a. altimeter.
   b. attitude indicator.
   c. transponder.
   d. tachometer.
   e. UHF radio.

14. How would taking off into a headwind affect your aircraft?
  a. Your takeoff distance would be unchanged.
  b. Your takeoff distance would be longer with little to no increase in climb angle.
  c. Your takeoff distance would be shorter with an increased climb angle.
  d. Your takeoff distance would be shorter and your available engine power would be unchanged.
  e. None of the above.

15. The acronym VSI stands for
  a. variable situational index.
  b. velocity and speed instrument.
  c. vertical speed indicator.
  d. vertical stability index.
  e. variable speed instrument.

16. The VSI instrument indicates
  a. rate of climb.
  b. rate of descent.
  c. level flight.
  d. all of the above.
  e. none of the above.

17. If one end of a runway is numbered 33, what would the other end be numbered?
  a. 15
  b. 33
  c. 24
  d. 66
  e. There is not enough information provided.

18. Ground speed can be affected by which of the following?
  a. pressure
  b. altitude
  c. wind
  d. heat
  e. rain

19. The two main types of drag an aircraft experiences in flight are
  a. parasite and induced.
  b. controlled and unlimited.
  c. supersonic and transonic.
  d. kinetic and potential.
  e. uncontrolled and limited.

20. Bernoulli's Principle states that
  a. a body that is at rest will stay at rest unless acted upon by an outside force.
  b. when there is an increase in pressure, there must be a decrease in temperature.
  c. when there is an increase in velocity there must be a decrease in pressure.
  d. force times mass equals acceleration.
  e. air will circulate counterclockwise in the northern hemisphere.

Subtest 9: General Science

Directions: The General Science subtest measures your knowledge in the area of science. Each of the questions or incomplete statements is followed by five choices. You must decide which one of the choices best answers the question or completes the statement. Again, if you are unsure of an answer, use the process of elimination. Remember, there are no penalties for guessing. You have ten (10) minutes to complete this subtest.

Questions: 20
Time: 10 minutes

1. An element's location on the periodic table is determined by its number of
  a. electrons.
  b. neutrons.
  c. protons.
  d. nuclei.
  e. radons.

2. What are atoms of the same element that have different numbers of neutrons called?
   a. alloys
   b. isotopes
   c. alkali metals
   d. ions
   e. neurons

3. Marine biology is most closely associated with which field of science?
   a. geography
   b. botany
   c. oceanography
   d. geology
   e. seismology

4. Which of the following symbols represents a molecule of carbon dioxide?
   a. C
   b. O
   c. CO
   d. CO_2
   e. C_2O

5. The driver of a car you are riding in loses control in a snowstorm. The car spins 360 degrees and you are thrown against the car door. Which of the following is the best description of what you are experiencing?
   a. fundamental forces
   b. center of mass
   c. centrifugal force
   d. Coriolis effect
   e. center of gravity

6. If particles of food coloring are dropped into a glass of hot water, they will spread rapidly. This is an example of
   a. osmosis.
   b. respiration
   c. evaporation.
   d. active transport.
   e. diffusion.

7. Which of the following represents a chemical change?
   a. tearing a piece of paper
   b. melting an ice cube
   c. cooking a hamburger
   d. dissolving sugar in water
   e. the wind blowing

8. Carbohydrates are much better foods for quick energy than fats because they
   a. are digested more easily and absorbed more quickly.
   b. supply essential amino acids, which provide energy.
   c. are high in both protein and iron.
   d. carry oxygen to the blood.
   e. all of the above.

9. Which of the following atmospheric levels is closest to the Earth's surface?
   a. mesosphere
   b. stratosphere
   c. thermosphere
   d. troposphere
   e. necrosphere

10. All of the following are characteristics of reptiles *except*
   a. cold blood.
   b. lungs.
   c. land-dwelling adults.
   d. scaly skin.
   e. internal development of eggs.

11. Which of the following is a vertebrate?
   a. a sponge
   b. a starfish
   c. an octopus
   d. a snake
   e. an oyster

12. The process by which an organism adapts physiologically to the rigors of a new environment is known as
   a. natural selection.
   b. acclimatization.
   c. evolution.
   d. mutation.
   e. gestation.

13. Which of the following is the best description of what an omnivore eats?
   a. animal matter only
   b. vegetable matter only
   c. detritus only
   d. decomposing matter only
   e. both animal and vegetable matter

14. Which of the following has the shortest wavelength?
   a. ultraviolet
   b. x-rays
   c. microwave
   d. infrared
   e. visible

15. The fundamental force that is the natural force of attraction acting between objects with mass is which of the following?
   a. electromagnetism
   b. strong nuclear force
   c. weak nuclear force
   d. gravity
   e. radiomagnetism

16. Where is most of the mass of our solar system?
   a. Sun
   b. Earth
   c. Venus
   d. Jupiter
   e. Mercury

17. Absolute zero is equal to which of the following?
   a. 0° Fahrenheit
   b. 30° Fahrenheit
   c. 30° Kelvin
   d. –30° Kelvin
   e. –273° Celsius

18. Our solar system is made up of the Sun and how many planets?
   a. eight
   b. nine
   c. ten
   d. eleven
   e. twelve

19. A cell containing chloroplasts would most likely belong to which organism?
   a. rabbit
   b. fern
   c. roach
   d. lizard
   e. shark

20. In animal cells, what organelle contains the DNA?
   a. nucleus
   b. cytoplasm
   c. Golgi apparatus
   d. ribosomes
   e. endoplasmic reticulum

Subtest 10: Rotated Blocks

Directions: The Rotated Blocks subtest measures your ability to visualize and manipulate objects in space. For each question in this test, you will be shown a picture of a block. You must find a second block that is identical to the first. You have thirteen (13) minutes to complete this subtest.

Questions: 15
Time: 13 minutes

For sample Rotated Block questions, see page 202.

1. a. b. c. d. e.

2. a. b. c. d. e.

3. a. b. c. d. e.

4. a. b. c. d. e.

5. a. b. c. d. e.

6. a. b. c. d. e.

7. a. b. c. d. e.

8. a. b. c. d. e.

9. a. b. c. d. e.

10. a. b. c. d. e.

11. a. b. c. d. e.

12. a. b. c. d. e.

13. a. b. c. d. e.

14. a. b. c. d. e.

**15.** a. b. c. d. e.
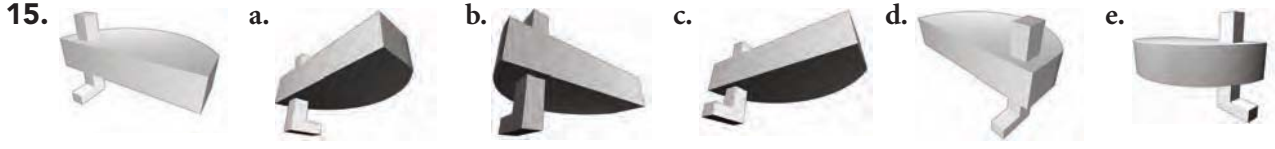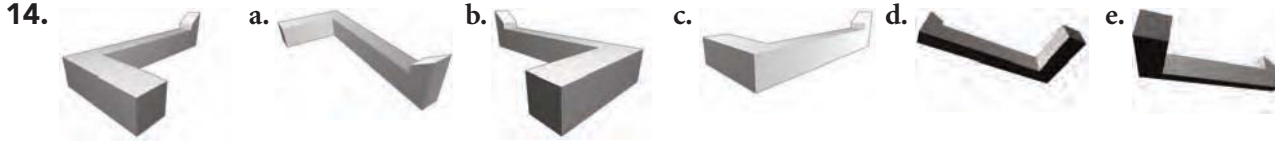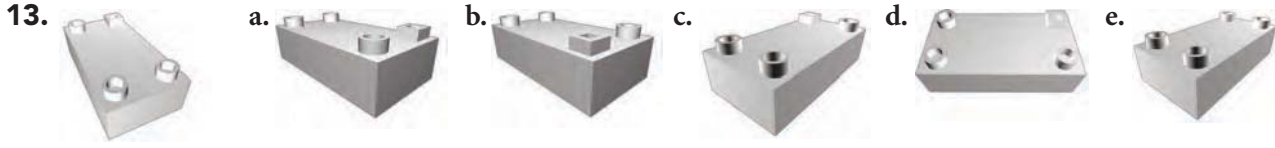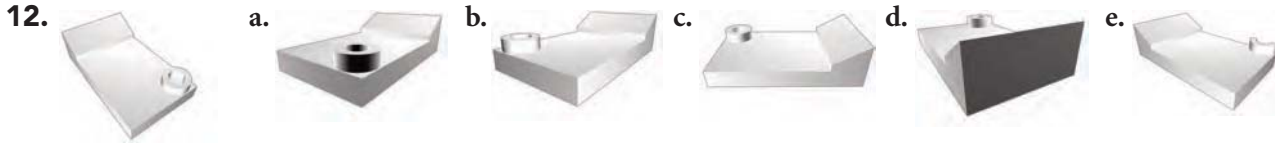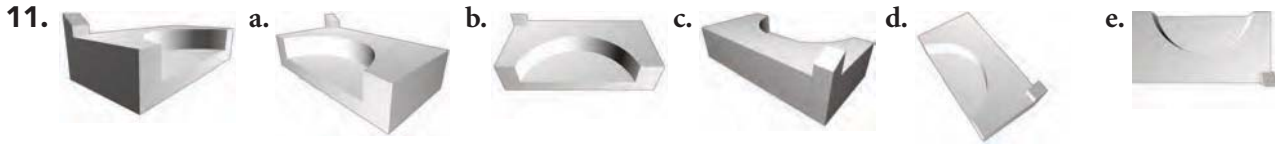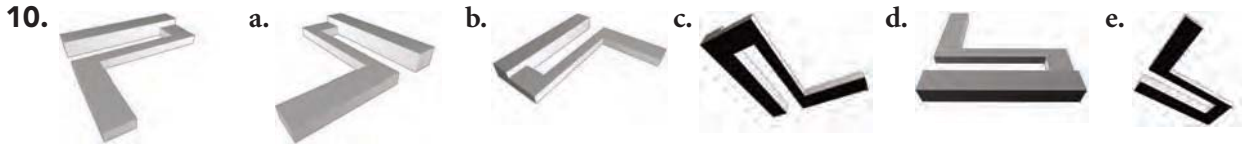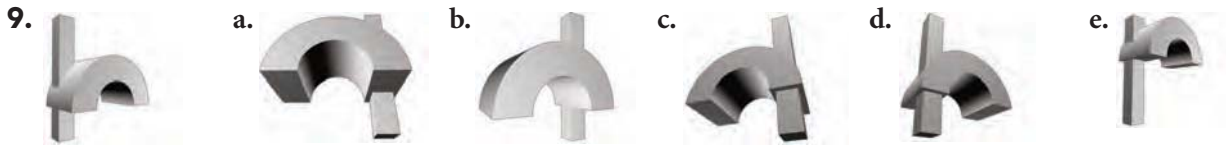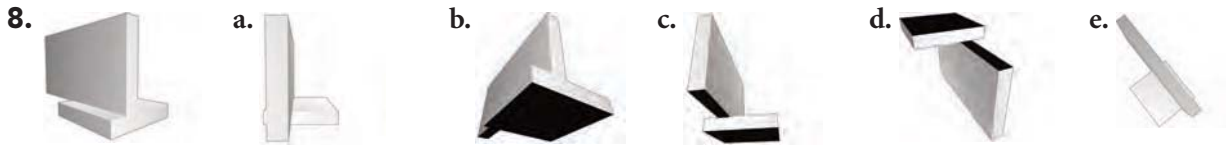
Subtest 11: Hidden Figures

Directions: The Hidden Figures subtest measures your ability to see a simple figure in a complex drawing. Above each group of questions are five figures, lettered A, B, C, D, and E. Below this set of figures are several numbered drawings. You are to determine which lettered figure is contained in each of the numbered drawings. Each numbered drawing contains only *one* of the lettered figures. The correct figure in each drawing will always be of the same size and in the same position as it appears in the top set of figures. Look at each numbered drawing and decide which one of the five lettered figures is contained in it. You have eight (8) minutes to complete this subtest.

Questions: 15
Time: 8 minutes

For sample Hidden Figures questions, see page 217.

Use the following figure to answer questions 1 through 5.
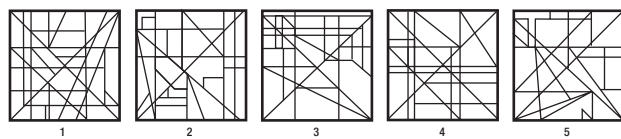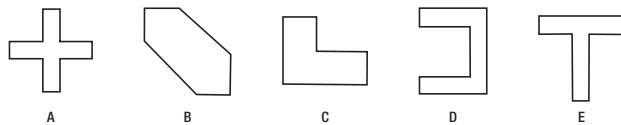
1. The hidden figure in block 1 is _____.
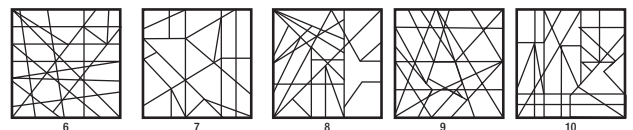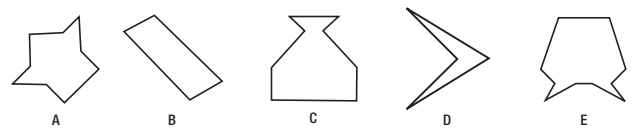   a. A
   b. B
   c. C
   d. D
   e. E

2. The hidden figure in block 2 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

3. The hidden figure in block 3 is _____.
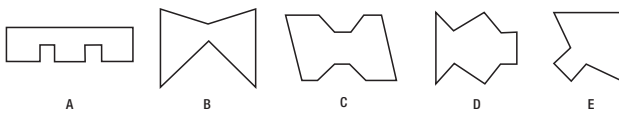   a. A
   b. B
   c. C
   d. D
   e. E

4. The hidden figure in block 4 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

5. The hidden figure in block 5 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

Use the following figure to answer questions 6 through 10.

6. The hidden figure in block 6 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

7. The hidden figure in block 7 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

8. The hidden figure in block 8 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

9. The hidden figure in block 9 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

10. The hidden figure in block 10 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

11. The hidden figure in block 11 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

12. The hidden figure in block 12 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

13. The hidden figure in block 13 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

14. The hidden figure in block 14 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E

Use the following figure to answer questions 11 through 15.

15. The hidden figure in block 15 is _____.
   a. A
   b. B
   c. C
   d. D
   e. E