

Answer Key

Subtest 1: Verbal Analogies

1. **b.** *Coffee* goes into a *cup* and *soup* goes into a *bowl*. Choices **a**, **c**, and **e** are incorrect because they are other utensils. The answer is not choice **d** because the word *food* is too general.
2. **c.** A *bicycle* is put into motion by means of a *pedal*. A *canoe* is put into motion by means of an *oar*. The answer is not choice **a** or **e** because water does not necessarily put the canoe into motion. Kayak (choice **b**) is incorrect because it is a type of boat similar to a canoe. Choice **d** is incorrect because a fleet is a group of boats.
3. **d.** A *window* is made up of *panes*, and a *book* is made up of *pages*. The answer is not choice **a**, because a novel is a type of book. The answer is not choice **b**, because glass has no relationship to a book. Choices **c** and **e** are incorrect because a book is not made up of covers or indexes.
4. **b.** An *actor* performs in a *play*. A *musician* performs at a *concert*. Choices **a**, **c**, **d**, and **e** are incorrect because none include people who perform.
5. **e.** A group of *lions* is called a *pride*. A group of *fish* swim in a *school*. Teacher (choice **a**) and student (choice **b**) refer to another meaning of the word *school*. The answer is not choice **c** or **d** because self-respect and learning have no obvious relationship to this particular meaning of school.
6. **b.** *Elated* is the opposite of *despondent*; *enlightened* is the opposite of *ignorant*.
7. **a.** If someone has been *humiliated*, they have been greatly *embarrassed*. If someone is *terrified*, they are extremely *frightened*. Choice **e** may be related to a feeling of fright, but it is not an extreme emotion and therefore is not as good a match as choice **a**. The answer is not choice **b** because an agitated person is not necessarily frightened. Choices **c** and **d** are incorrect because neither word expresses a state of being frightened.
8. **d.** An *odometer* is an instrument used to measure *mileage*. A *compass* is an instrument used to determine *direction*. Choices **a**, **b**, **c**, and **e** are incorrect because none is an instrument.
9. **c.** *Fray* and *ravel* are synonyms, as are *jolt* and *shake*.
10. **c.** An *elephant* is a *pachyderm*; a *kangaroo* is a *marsupial*.
11. **a.** A *psychologist* treats a *neurosis*; an *ophthalmologist* treats a *cataract*.
12. **c.** Upon harvesting, *cotton* is gathered into *bales*; *grain* is gathered into *shocks*.
13. **a.** *Division* and *section* are synonyms; *layer* and *tier* are synonyms.
14. **d.** A *mechanic* works in a *garage*; a *surgeon* works in a *hospital*.
15. **c.** A *chickadee* is a type of *bird*; a *Siamese* is a type of *cat*.
16. **e.** To *saunter* is to *walk* slowly; to *drizzle* is to *rain* slowly.
17. **b.** To *tailor* a suit is to *alter* it; to *edit* a manuscript is to *alter* it.
18. **a.** *Jaundice* is an indication of a *liver* problem; *rash* is an indication of a *skin* problem.
19. **c.** *Obsession* is a greater degree of *interest*; *fantasy* is a greater degree of *dream*.
20. **e.** *Slapstick* results in *laughter*; *horror* results in *fear*.
21. **b.** *Verve* and *enthusiasm* are synonyms; *devotion* and *reverence* are synonyms.

- 22. a.** A *conviction* results in *incarceration*; a *reduction* results in *diminution*.
- 23. b.** Being *erudite* is a trait of a *professor*; being *imaginative* is a trait of an *inventor*.
- 24. d.** *Dependable* and *capricious* are antonyms; *capable* and *inept* are antonyms.
- 25. c.** *Hegemony* means *dominance*; *autonomy* means *independence*.

Subtest 2: Arithmetic Reasoning

- 1. c.** Round 157 to 200 and round 817 to 800:
 $200 \times 800 = 160,000$.
- 2. d.** It is important to remember to include all three telephone sets (\$375 total), both computers (\$2,600 total), and both monitors (\$1,900 total) in the total value.
- 3. e.** To solve this problem, you must convert $3\frac{1}{2}$ to $\frac{7}{2}$ and then divide $\frac{7}{2}$ by $\frac{1}{4}$. The answer, $\frac{28}{4}$, is then reduced to the number 14.
- 4. a.** Cancel factors that are common to the numerator and denominator, then multiply:

$$\frac{5}{8} \times \frac{4}{7} = \frac{5}{\cancel{4}(2)} \times \frac{\cancel{4}}{7} = \frac{5}{14}$$
- 5. b.** You cannot simply take 25% off the original price, because the 10% discount after three years of service is taken off the price that has already been reduced by 15%. Figure the problem in two steps: After the 15% discount, the price is \$71.83. Another 10% off that gives you \$64.65.
- 6. c.** The problem is solved by dividing 204 by 1,700. The answer, 0.12, is then converted to a percentage—12%.
- 7. c.** Use the equation $.05(1) = .02(x)$, where x is the total amount of water in the resulting 2% solution. Solving for x , you get 2.5. Subtracting the 1 liter of water already present in the 5% solution, you will find that 1.5 liters need to be added.
- 8. e.** Each 9-foot wall has an area of $9(8)$, or 72 square feet. There are two such walls, so those two walls combined have an area of 144 square feet. Each 11-foot wall has an area of $11(8)$, or 88 square feet, and again there are two such walls: $88(2) = 176$. Finally, add 144 and 176 to get 320 square feet.
- 9. e.** Substituting 40 for C in the equation yields $F = (\frac{9}{5})(40) + 32 = 72 + 32 = 104$.
- 10. a.** The woman will have traveled 3.5 hours at 45 miles per hour for a distance of 157.5 miles. To reach her in 3 hours, the man must travel at 157.5 miles per 3 hours, or 52.5 mph.
- 11. a.** $J = 6K$. $J + 2 = 2(K + 2)$, so $6K + 2 = 2K + 4$, which means K equals $\frac{1}{2}$. J equals $6K$, or 3.
- 12. e.** The 827,036 bytes free on the flash drive plus 542,159 bytes freed when the file was deleted equals 1,369,195 bytes: 1,369,195 bytes minus 489,986 bytes put into the new file leaves 879,209 bytes free.
- 13. d.** First, add the number of patients to find the total: 63. Then, divide the number of patients by the number of nursing assistants: 63 divided by 7 is 9.
- 14. c.** Let E = emergency room cost; H = hospice cost, which is $\frac{1}{4}E$; N = home nursing cost, which is $2H$, or $2(\frac{1}{4})E$. The total bill is $E + H + N$, which is $E + \frac{1}{4}E + \frac{2}{4}E = 140,000$. Add the left side of the equation to get $\frac{7}{4}E = 140,000$. To solve for E , multiply both sides of the equation by $\frac{4}{7}$. $E = 140,000(\frac{4}{7})$, or 80,000. $H = \frac{1}{4}E$, or 20,000, and $N = 2H$, or 40,000.
- 15. b.** If half the students are female, then you would expect half of the out-of-state students to be female. One-half of $\frac{1}{12}$ is $\frac{1}{24}$.
- 16. c.** A foot in height makes a difference of 60 pounds, or 5 pounds per inch of height over 5'. A person who is 5'5" is $(5)(5)$ pounds, or 25 pounds, heavier than the person who is 5', so add 25 pounds to 110 pounds to get 135 pounds.

- 17. d.** The difference between 220 and this person's age is 190. The maximum heart rate is 90% of this: $(0.9)(190) = 171$.
- 18. e.** An amount equaling 30 ppm of the pollutant would have to be removed to bring the 50 ppm down to 20 ppm (30 ppm is 60% of 50 ppm).
- 19. e.** Let E = the estimate. One-fifth more than the estimate would be $\frac{6}{5}$, or 120%, of E , so $600,000 = (1.20)(E)$. Dividing both sides by 1.2 leaves $E = 500,000$.
- 20. b.** In terms of grams, 250 milligrams is $\frac{250}{1000}$ gram, or 0.250 grams.
- 21. c.** Three tons = 6,000 pounds. At 16 ounces per pound, 6,000 pounds = 96,000 ounces that can be carried by the truck. The total weight of each daily ration is 12 ounces + 18 ounces + 18 ounces = 48 ounces per soldier per day, and $\frac{96,000}{48} = 2,000$. So $\frac{2,000}{10 \text{ days}} = 200$ soldiers supplied.
- 22. e.** Multiply the weight of each recyclable by the best price it will bring and add the amount together: $2,200(0.07) = \$154$;
 $\$154 + 1,400(0.04) = \210 ;
 $\$210 + 3,100(0.08) = \458 ;
 $\$458 + \$900(0.03) = \$485$.
- 23. d.** The total number of miles, 3,450, divided by 6 days is 575 miles.
- 24. b.** The present number of men, 30, multiplied by 42 square feet of space is 1,260 square feet of space; 1,260 square feet divided by 35 men is 36 square feet, so each man will have 6 square feet of space less.
- 25. c.** Let T = Ted's age; S = Sam's age = $3T$;
 R = Ron's age = $\frac{S}{2}$, or $\frac{3T}{2}$. The sum of the ages is 55, which means $T + 3T + \frac{3T}{2} = 55$. To find the common denominator (2), you can add to the left side of the equation: $T = 10$. If Ted is 10, then Sam is 30, and Ron is $\frac{3T}{2}$, which is 15 years old.

Subtest 3: Word Knowledge

- 1. a.** To be gauche is to lack social experience, grace, or aplomb; not tactful.
- 2. b.** To enumerate is to ascertain the number of; to count.
- 3. c.** To be triumphant is to rejoice in celebration of victory.
- 4. c.** To be magnanimous is to be noble of mind or generous.
- 5. d.** To have an aversion to something is to have a feeling of repugnance for it or to dislike it.
- 6. d.** To be poignant means to be keenly distressing.
- 7. e.** An antagonist is an opponent.
- 8. c.** Perseverance means steadfast in one's course, or persistent.
- 9. a.** Homogeneous means of the same or a similar kind; alike.
- 10. c.** To be conspicuous is to be obvious to the eye or the mind.
- 11. d.** A recluse is a person who lives withdrawn from the world; a hermit.
- 12. e.** To tote something is to haul or carry it.
- 13. e.** To be preeminent is to be outstanding or have supreme rank.
- 14. c.** Something that is grotesque is distorted, misshapen, or bizarre.
- 15. c.** To be outmoded is to be out-of-date or obsolete.
- 16. b.** A statement that is garbled is scrambled and confusing, or unintelligible.
- 17. b.** If something is frail, it is easily broken or delicate.
- 18. e.** To be vindictive is to be vengeful or spiteful.
- 19. c.** An oration is a formal speech or an address.
- 20. b.** A glib remark is quick and insincere, or superficial.
- 21. e.** To be eccentric is to be unconventional or peculiar.
- 22. a.** A panacea is a remedy for all ills; a cure-all.
- 23. a.** To be detrimental is to be obviously damaging and harmful.

24. b. To be ostentatious is to be showy or pretentious.
25. a. To be negligible is to be unimportant or insignificant.

Subtest 4: Math Knowledge

1. c. When a number is marked off in groups of two digits each, starting at the decimal point, the square root of the largest square in the left hand group, whether one or two digits, is the first digit of the square root of the number. In this case (11-20-92), 9 is the largest square in 11, and 3 is the square root of 9.
2. b. A proportion can find an unknown side of a figure using known sides of a similar figure; a proportion can also find an unknown side using known perimeters. $\frac{93}{24} = \frac{31}{5}$. Cross-multiply: $93s = (31)(24)$.
3. d. Perimeter uses a single measurement such as an inch to describe the outline of a figure. Area and surface area use square measurements, an inch times an inch, to describe two-dimensional space. Volume uses the largest measurement; it uses the cubic measurement, an inch times an inch times an inch. Volume is three-dimensional; its measurement must account for each dimension.
4. b. The circumference of a circle is two times the radius times pi. So, in this case, the distance is 2 times 49, times 22, divided by 7, or 308 miles.
5. a. First, change (B) and (C) to decimals: $5\% = 0.05$; $\frac{1}{5} = 0.2$. Then, find out which choice is true.
6. d. (B) and (C) are both equal to $n \times n$.
7. b. You are given the diameter, so use $C = \pi d$. Plug in the diameter and pi and multiply: $(3.14)(10) = 31.4$.
8. e. Obtuse angles are greater than 90° . Only one answer choice, e, is greater than 90° .
9. c. When dividing variables with exponents, if the variables are the same, you subtract the exponents to arrive at your answer:

$$\frac{n^5}{n^2} = \frac{n \cdot n \cdot n \cdot n \cdot n}{n \cdot n} = n^{5-2} = n^3.$$
10. a. First, factor the radicand:

$$\sqrt{3n^2} = \sqrt{3 \cdot n \cdot n}$$
 Now take out the square root of the perfect square: $\sqrt{3 \cdot n \cdot n} = n\sqrt{3}$
 You arrive at $n\sqrt{3}$, choice a.
11. c. This is a simple addition series. Each number increases by $\frac{1}{6}$.
12. b. *Volume* = 4.6 cubic feet. This is a square-based pyramid; its volume is a third of a cube's volume with the same base measurements, or $\frac{1}{3}bh$. Plug its measurements into the formula: $\frac{1}{3}(2.4 \text{ ft.})2.4 \text{ ft.}$

$$\text{Volume of square pyramid} = \frac{1}{3}(5.76 \text{ sq. ft.})2.4 \text{ ft.} = \frac{1}{3}(13.824 \text{ cubic ft.}) = 4.608 \text{ cubic ft.}$$
13. c. In this question, $\frac{1}{5}$ of $820 = 164$;
 $164 - 42 = 122$.
14. e. Simplify the second term of the expression by factoring the radicand:

$$2\sqrt{7} - 3\sqrt{28} = 2\sqrt{7} - 3\sqrt{4 \cdot 7}$$
 Now simplify the radicand:

$$\sqrt{7} - 3\sqrt{4 \cdot 7} = 2\sqrt{7} - 3 \cdot 2\sqrt{7}$$
 Finally, combine like terms:

$$2\sqrt{7} - 6\sqrt{7} = -4\sqrt{7}$$
, choice e.
15. d. Divide numerical terms: $\frac{8xy^2}{2xy} = \frac{4xy^2}{xy}$.
 When similar factors, or bases, are being divided, subtract the exponent in the denominator from the exponent in the numerator. $\frac{4xy^2}{xy} = 4x^{1-1}y^{2-1}$.
 Simplify: $4x^0y^1 = 4(1)y = 4y$.
 The answer is $4y$, choice d.
16. c. In this question, $\frac{2}{5}$ of $25 = 10$; $10 - 6 = 4$.
17. a. In this question, 4% of $20 = 0.8$;
 $3 \times 0.8 = 2.4$.
18. c. First, solve for (A), (B), and (C): (A) = 49, (B) = 64, (C) = 15. Then, find out which choice is true.

- 19. d.** The factorial of a positive integer is that integer times each of the integers between it and 1. In this case, 5 times 4 times 3 times 2 equals 120.
- 20. d.** In this question, 15% of $30 = 4.5$; $20 - 4.5 = 15.5$, choice **d**.
- 21. a.** The reciprocal of a number is that number divided into one. In this case, that is $\frac{1}{10}$, or 0.1.
- 22. b.** First, set up the equation: $n + 2n = 99$. Then, solve: $3n = 99$; $n = 33$.
- 23. b.** First, solve for (A), (B), and (C): (A) = 40, (B) = 40, (C) = 20. Then, find out which choice is true.
- 24. d.** Using a proportion, find x : $\frac{12}{36} = \frac{4.5}{x}$. Cross-multiply: $12x = 36(4.5)$; $x = 13.5$. Polygon *CRXZ* is a rectangle whose sides measure 13.5, 54, 13.5, and 54. To find the perimeter of rectangle *CRXZ*, add the measures of its sides together.
- 25. a.** You are given the radius, so use $C = 2\pi r$. Plug in the radius and pi and multiply: $(2)(3.14)(22) = 157$. So your answer is 157 cm, or 1.57 m, choice **a**.

Subtest 5: Instrument Comprehension

QUESTION	ANSWER	HEADING	PITCH	ROLL
1.	D	068° east-northeast	none	right
2.	C	090° east	none	left
3.	B	170° south	down	right
4.	A	235° southwest	up	right
5.	B	045° northeast	up	left
6.	C	270° west	none	none
7.	C	225° southwest	down	left
8.	B	270° west	up	left
9.	B	180° south	down	none
10.	B	270° west	up	left
11.	A	135° southeast	down	left
12.	A	270° west	down	right
13.	C	180° south	down	none
14.	C	255° west-southwest	up	left
15.	A	270° west	up	right
16.	A	045° northeast	up	right

17.	B	090° east	up	none
18.	A	180° south	down	right
19.	C	270° west	up	right
20.	D	180° south	up	left

Subtest 6: Block Counting

1. b. Block 1 touches three blocks: one block to the left, one block below, and one block to the right.
2. b. Block 2 touches three blocks: two blocks to the right and one block below.
3. c. Block 3 touches four blocks: one block above, one block below, and two blocks to the right.
4. c. Block 4 touches four blocks: one block above, one block to the left, and two blocks below.
5. b. Block 5 touches three blocks: two blocks to the left and one block below.
6. b. Block 6 touches three blocks: one block to the left, one block to the right, and one block below.
7. e. Block 7 touches four blocks: two blocks below, one block to the right, and one block above.
8. d. Block 8 touches five blocks: one block below, two blocks to the left, and one block above.
9. c. Block 9 touches four blocks: one block below, one block to the left, one block to the right, and one block above.
10. d. Block 10 touches five blocks: four blocks above and one block to the right.
11. b. Block 11 touches three blocks: one block below and two blocks to the right.
12. e. Block 12 touches six blocks: three blocks above, one block to the left, and two blocks below.

13. e. Block 13 touches six blocks: three blocks above, one block to the right, and two blocks below.
14. d. Block 14 touches five blocks: two blocks above, one block below, one block to the right, and one block to the left.
15. b. Block 15 touches three blocks: one block above and two blocks to the left.
16. c. Block 16 touches four blocks: two blocks above, one block to the left, and one block below.
17. c. Block 17 touches four blocks: one block above, one block to the left, and two blocks below.
18. a. Block 18 touches two blocks: one block to the right and one block below.
19. a. Block 19 touches two blocks: one block to the left and one block below.
20. a. Block 20 touches two blocks: one block above and one block to the right.

Subtest 7: Table Reading

1. c. The intersection of the -3 column with the 2 row yields an answer of 23.
2. c. The intersection of the 2 column with the -2 row yields an answer of 48.
3. a. The intersection of the -2 column with the 3 row yields an answer of 44.
4. e. The intersection of the 0 column with the -1 row yields an answer of 14.
5. c. The intersection of the 3 column with the 1 row yields an answer of 32.
6. e. The intersection of the 2 column with the -1 row yields an answer of 14.

7. d. The intersection of the 0 column with the 0 row yields an answer of 61.
8. e. The intersection of the -2 column with the -1 row yields an answer of 49.
9. e. The intersection of the -1 column with the 2 row yields an answer of 99.
10. b. The intersection of the 3 column with the 3 row yields an answer of 53.
11. b. The intersection of the -1 column with the -1 row yields an answer of 43.
12. a. The intersection of the -2 column with the 1 row yields an answer of 49.
13. a. The intersection of the -3 column with the 0 row yields an answer of 18.
14. e. The intersection of the 1 column with the 3 row yields an answer of 57.
15. b. The intersection of the -3 column with the -2 row yields an answer of 86.
16. a. The intersection of the -3 column with the -3 row yields an answer of 24.
17. a. The intersection of the 2 column with the 2 row yields an answer of 14.
18. d. The intersection of the -2 column with the 3 row yields an answer of 74.
19. e. The intersection of the -1 column with the 0 row yields an answer of 43.
20. c. The intersection of the 0 column with the 2 row yields an answer of 64.
21. b. The intersection of the 2 column with the -3 row yields an answer of 43.
22. b. The intersection of the -1 column with the 3 row yields an answer of 88.
23. b. The intersection of the 2 column with the 2 row yields an answer of 22.
24. c. The intersection of the -3 column with the 1 row yields an answer of 81.
25. d. The intersection of the 2 column with the 3 row yields an answer of 11.
26. c. The intersection of the 9 column with the -4 row yields an answer of 52.
27. a. The intersection of the -5 column with the 9 row yields an answer of 54.
28. b. The intersection of the -1 column with the -4 row yields an answer of 93.
29. a. The intersection of the -3 column with the 8 row yields an answer of 29.
30. e. The intersection of the 5 column with the -3 row yields an answer of 43.
31. e. The intersection of the 0 column with the 7 row yields an answer of 21.
32. e. The intersection of the 4 column with the -4 row yields an answer of 34.
33. e. The intersection of the 7 column with the -3 row yields an answer of 51.
34. b. The intersection of the -9 column with the 3 row yields an answer of 74.
35. d. The intersection of the 1 column with the -8 row yields an answer of 12.
36. c. The intersection of the 0 column with the 0 row yields an answer of 18.
37. b. The intersection of the -5 column with the 0 row yields an answer of 74.
38. c. The intersection of the -2 column with the 7 row yields an answer of 11.
39. a. The intersection of the -8 column with the 5 row yields an answer of 55.
40. b. The intersection of the -6 column with the 4 row yields an answer of 68.

Subtest 8: Aviation Information

1. d. The rudder is the control surface on the vertical stabilizer or tail. Any deflection of the rudder makes the aircraft move about the yaw, or vertical axis.
2. b. The elevator is the control surface on the horizontal stabilizer. Any deflection of the elevator makes the aircraft move about the pitch axis. The pitch axis runs from one wingtip to the other, passing through the aircraft's center of gravity.

- 3. c.** The aileron is the control surface on the trailing edge of the wings. Any deflection of the aileron makes the aircraft move about the roll axis. The roll axis runs the length of the aircraft from nose to tail, passing through the center of gravity.
- 4. b.** Pushing the right rudder pedal in causes the rudder control surface to move into the windstream to the right, which pushes the tail of the airplane left, and the nose of the airplane right.
- 5. a.** *Angle of attack* is defined as the angle between the airfoil chord and the relative direction of motion.
- 6. c.** *Drag* refers to the rearward force on an aircraft caused by air friction and lift. More specifically, *parasite drag* refers to the component of drag associated with friction, and *induced drag* refers to the component associated with lift.
- 7. a.** *Camber* refers to the side (cross-section) view of a wing's shape. This shape causes the air to travel faster over the top portion of the wing and therefore causes lift.
- 8. e.** Pulling back on the aircraft controls causes the elevators to be deflected up into the airstream, which pushes the tail of the aircraft down and the nose of the aircraft up.
- 9. b.** Increasing the angle of attack of an aircraft will eventually cause a stall as the airflow over the wing detaches from the wing's surface.
- 10. b.** One knot (nautical mile per hour) is equal to approximately $\frac{8}{7}$ of a mph (mile per hour). A nautical mile is approximately 6,080 feet, but a statute mile is approximately 5,280 feet. The ratio of these distances can be approximated with the ratio of 8:7. Therefore 100 knots is a faster speed than 100 mph.
- 11. c.** Transponder codes are as follows:
- | | |
|---------------|------|
| Hijacking | 7500 |
| Loss of comms | 7600 |
| Emergency | 7700 |
- 12. d.** *Zulu time* refers to the time in Greenwich England, commonly known as *Greenwich Mean Time*. Zulu time is commonly used for aviation, especially when several time zones will be crossed.
- 13. a.** The Pitot system measures airspeed by measuring the impact pressure of the relative wind and comparing it to the static pressure. The static system measures static pressure, which indicates altitude.
- 14. b.** Pitch angle of an aircraft refers to the angle between the extended fuselage of the aircraft and the horizon. For example, an aircraft flying straight up would have a pitch angle of 90°.
- 15. a.** A wing with flaps fully extended will generally produce more lift and more drag. The flaps increase the wing's camber, which causes more lift and more induced drag.
- 16. d.** The wind flowing over a wing, which is creating lift, moves faster than the wind flowing beneath the wing. This increased velocity causes a lower air pressure on the top of the wing compared with the air pressure below the wing. This difference in air pressure is lift.
- 17. c.** Airport runways are numbered according to the first two digits of compass heading, with the zero omitted for headings between 010 and 090.
- 18. c.** Wake turbulence is caused by the higher-pressure air under a wing escaping in an outward direction from the wingtip to the lower-pressure air flowing above the wing. This escaping air will swirl upward, causing vortices, known as wake turbulence.

19. b. The port running lights are red; the starboard lights are green. Positional lights are white.
20. b. Mach 1 is the speed of sound for a given air density.

Subtest 9: General Science

1. c. Air consists of 78% nitrogen, 21% oxygen, and the remainder is made up of noble gases and rare earth elements.
2. c. Boyle's law states that for a given pressure, temperature and volume are directly proportional.
3. b. Ohm's law states that current and resistance are inversely proportional. Therefore, any increase in one would result in a corresponding decrease in the other.
4. a. Ultraviolet, x-ray, and gamma ray wavelengths are all shorter than visible light. Infrared wavelengths are slightly longer than visible light on the electromagnetic spectrum.
5. a. The pH scale ranges from 0 to 14. If a substance has a pH of 7.0, it is considered neutral; pH values of less than 7 indicate acids, and values greater than 7 are bases.
6. e. Protons are subatomic particles located in the nucleus of an atom and have positive electrical charges.
7. d. Vectors are defined by both length and direction.
8. c. The pancreas is the organ responsible for insulin production.
9. b. The four planets in our solar system that are considered gas giants are Jupiter, Saturn, Uranus, and Neptune.
10. c. Carbon dioxide, or CO_2 , is made up of both carbon and oxygen.
11. c. The dissolved solution is in equilibrium with the undissolved in saturated solutions.
12. d. The molecule CH_3NH_2 contains one atom of carbon, one atom of nitrogen, and five atoms of hydrogen, for a total of seven atoms.
13. e. The Celsius scale is part of the metric system. On the Celsius scale, the freezing point of water is 0° ; the boiling point is 100° .
14. a. Momentum equals mass (amount of matter in an object) times velocity (speed in a given direction).
15. e. To express a number in scientific notation, you move the decimal as many places as necessary until there is only one digit to the left of the decimal. For 617,000, you move the decimal to the left by five decimal places. The fact that you had to move it to the left means that the 10 should be raised to a positive power, so the result is 6.17×10^5 .
16. e. Gravity pulls the ball downward as it moves forward.
17. c. Igneous rocks make up a group of rocks formed from the crystallization of magma (lava).
18. a. One hundred centimeters equals 1 meter, and 1,000 meters equals 1 kilometer.
19. b. Fiber is found only in plants. Raw vegetables, fruit with seeds, whole cereals, and bread are possible sources of fiber.
20. a. Deciduous forests are characterized by having mild temperatures and many trees that periodically shed leaves.

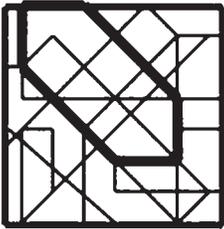
Subtest 10: Rotated Blocks

1. a.
2. a.
3. e.
4. c.
5. c.
6. d.
7. b.
8. c.

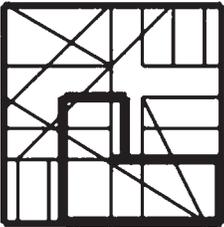
- 9. a.
- 10. b.
- 11. b.
- 12. a.
- 13. b.
- 14. a.
- 15. c.

Subtest 11: Hidden Figures

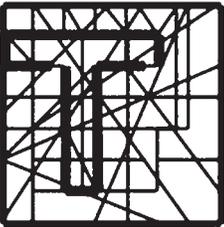
1. b.



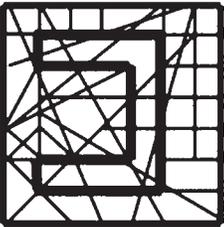
2. c.



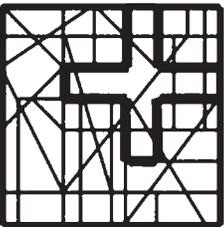
3. e.



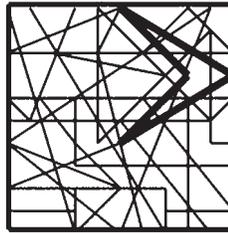
4. d.



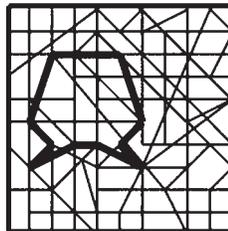
5. a.



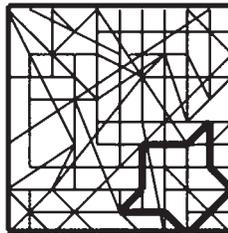
6. d.



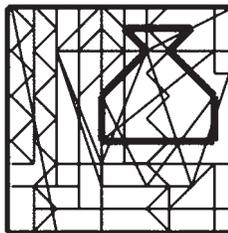
7. e.



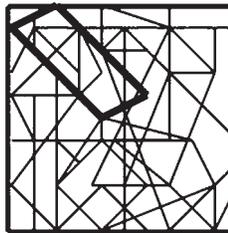
8. a.



9. c.



10. b.



11. d.

