

- Imprima o arquivo e resolva os exercícios nele mesmo.
- Faça de conta que é uma prova.
- Quando der 30 min assinale em que questão estava e continue fazendo como se tivesse mais tempo
- Corrija
- Volte para as que errou SEM ALTERAR nada do que foi feito originalmente e tente descobrir o erro. Se quiser refazer, refaça ao lado, sem apagar nada do original.
- Envie por email
- Não precisa fazer as 3 seções seguidas. Se quiser pode fazer em 3 momentos diferentes.

DATA SUFFICIENCY N.4

Time - 30 minutes
25 Questions

Directions: Each of the data sufficiency problems below consists of a question and two statements, labeled (1) and (2). In which certain data are given. You have to decide whether the data given in the statements are sufficient for answering the question. Using the data given in the statements plus your knowledge of mathematics and everyday facts (such as the number of days in July or the meaning of counterclockwise), you are to fill in oval.

- A if statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;
- B if statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;
- C if BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;
- D if EACH statement ALONE is sufficient to answer the question asked;
- E if statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

Numbers: All numbers used are real numbers.

Figures: A figure in a data sufficiency problem will conform to the information given in the question, but will not necessarily conform to the additional information given in statements (1) and (2).

You may assume that lines shown as straight are straight and that angle measures are greater than zero.

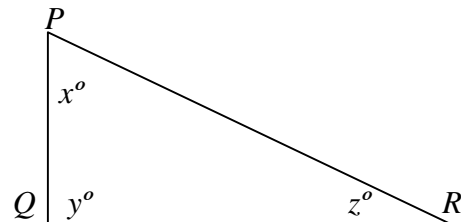
You may assume that the positions of points, angles, regions, etc., exist in the order shown.

All figures lie in a plane unless otherwise indicated.

Example:

In $\triangle PQR$, what is the value of x ?

- (1) $PQ = PR$
- (2) $y = 40$



Explanation: According to statement (1), $PQ = PR$; therefore, $\triangle PQR$ is isosceles and $y = z$. Since $x + y + z = 180$, $x + 2y = 180$. Since statement (1) does not give a value for y , you cannot answer the question using statement (1) by itself. According to statement (2), $y = 40$; therefore, $x + z = 140$. Since statement (2) does not give a value for z , you cannot answer the question using statement (2) by itself. Using both statements together, you can find y and z ; therefore, you can find x , and the answer to the problem is C.

1. For a certain bottle and cork, what is the price of the cork ?
 - (1) The combined price of the bottle and the cork is 95 cents.
 - (2) The price of the bottle is 75 cents more than the price of the cork.

2. Last year an employee received a gross annual salary of \$18,000, which was paid in equal paychecks throughout the year. What was the gross salary received in each of the paychecks ?
 - (1) The employee received a total of 24 paychecks during the year.
 - (2) The employee received a paycheck twice a month each month during the year.

3. What was Bill's average (arithmetic mean) grade for all of his courses ?
 - (1) His grade in social studies was 75, and his grade in science was 75.
 - (2) His grade in mathematics was 95.

4. If $x = 2y$, what is the value of xy ?
 - (1) $x > y$
 - (2) $3x - 2y = 14$

5. A regular garden that is 10 feet long and 5 feet wide is to be covered with a layer of mulch 0.5 foot deep. At which store, K or L, will the cost of the necessary amount of mulch be less ?
 - (1) Store K sells mulch only in bags, each of which costs \$7 and contains 6.25 cubic feet of mulch.
 - (2) Store L sells mulch only in bags, each of which costs \$40 and contains 25 cubic feet of mulch.

6. If $S = \{2, 3, x, y\}$, what is the value of $x + y$?
 - (1) x and y are prime numbers.
 - (2) 3, x , and y are consecutive odd integers in ascending order.

7. In $\triangle HGM$, what is the length of side HM ?
 - (1) $HG = 5$
 - (2) $GM = 8$

8. Claire paid a total of \$1.60 for stamps, some of which cost \$0.20 each, and the rest of which cost \$0.15 each. How many 20-cent stamps did Claire buy?
 - (1) Claire bought exactly 9 stamps.
 - (2) The number of 20-cent stamps Claire bought was 1 more than the number of 15-cent stamps she bought.

9. If Ruth began a job and worked continuously until she finished, at what time of day did she finish the job ?

- (1) She started the job at 8:15 a. m. and at noon of the same day she had worked exactly half of the time that it took her to do the whole job.
- (2) She was finished exactly $7\frac{1}{2}$ hours after she had started.

10. What is the value of x ?

- (1) $3 + x + y = 14$ and $2x + y = 15$
- (2) $3x + 2y = 12 + 2y$

11. Is x an even integer ?

- (1) x is the square of an integer.
- (2) x is the cube of an integer.

12. If John is exactly 4 years older than Bill, how old is John ?

- (1) Exactly 9 years ago John was 5 times as old as Bill was then.
- (2) Bill is more than 9 years old.

13. Before play-offs, a certain team had won 80 percent of its games. After play-offs, what percent of all its games had the team won ?

- (1) The team competed in 4 play-off games.
- (2) The team won all of its play-off games.

14. If x and y are integers, is $xy + 1$ divisible by 3 ?

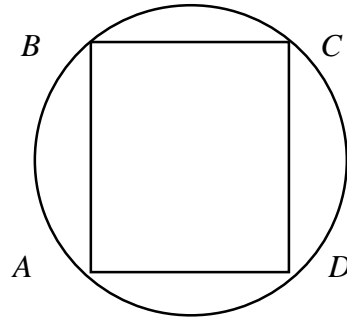
- (1) When x is divided by 3, the remainder is 1.
- (2) When y is divided by 9, the remainder is 8.

15. If $x \neq 0$, $|x| < 1$?

- (1) $x^2 < 1$
- (2) $|x| < \frac{1}{x}$

16. The cost to charter a certain airplane is x dollars. If the 25 members of a club chartered the plane and shared the cost equally, what was the cost per member ?

- (1) If there had been 5 more members and all 30 had shared the cost equally, the cost per member would have been \$40 less.
- (2) The cost per member was 10 percent less than the cost per person on a regularly scheduled flight.



17. Rectangle $ABCD$ is inscribed in a circle as shown above. What is the radius of the circle?

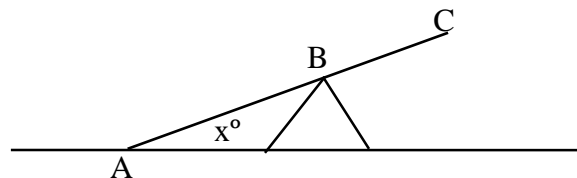
- (1) The length of the rectangle is $\sqrt{3}$ and the width of the rectangle is 1.
- (2) The length of arc AB is $\frac{1}{3}$ of the circumference of the circle.

18. Bowls X and Y each contained exactly 2 jelly beans, each of which was either red or black. One of the jelly beans in bowl X was exchanged with one of the jelly beans in bowl Y . After the exchange, were both of the jelly beans in bowl X black ?

- (1) Before the exchange, bowl X contained 2 black jelly beans.
- (2) After the exchange, bowl Y contained 1 jelly bean of each color.

19. Does $x + y = 0$?

- (1) $xy < 0$
- (2) $x^2 = y^2$



20. In the figure above, line AC represents a seesaw that is touching level ground at point A . If B is the midpoint of AC , how far above the ground is point C ?

- (1) $x = 30$
- (2) Point B is 5 feet above the ground.

21. If \square represents a digit in the 7-digit number 3,62 \square , 215, what is the value of \square ?

- (1) The sum of the 7 digits is equal to 4 times an integer.
- (2) The missing digit is different from any of the other digits in the number.

22. Last Tuesday a trucker paid \$155.76, including 10 percent state and federal taxes, for diesel fuel. What was the price per gallon for the fuel if the taxes are excluded?

- (1) The trucker paid \$0.118 per gallon in state and federal taxes on the fuel last Tuesday.
- (2) The trucker purchased 120 gallons of the fuel last Tuesday.

23. Is x less than y ?

- (1) $x - y + 1 < 0$
- (2) $x - y - 1 < 0$

24. Is quadrilateral $RSTV$ a rectangle?

- (1) The measure of $\angle RST$ is 90° .
- (2) The measure of $\angle TVR$ is 90° .

25. If b is an integer, is $\sqrt{a^2 + b^2}$ an integer?

- (1) $a^2 + b^2$ is an integer.
- (2) $a^2 - 3b^2 = 0$

RESPOSTAS
DATA SUFFICIENCY N.4

1. C	14. C
2. D	15. D
3. E	16. A
4. B	17. A
5. C	18. E
6. B	19. C
7. E	20. B
8. D	21. C
9. A	22. D
10. D	23. A
11. E	24. E
12. A	25. B
13. E	

PROBLEM SOLVING N.7

30 Minutes

20 Questions

Directions: In this section solve each problem, using any available space on the page for scratchwork. Then indicate the best of the answer choices given.

Numbers: All numbers used are real numbers.

Figures: Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that its figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.

1. What is the average (arithmetic mean) of the numbers 15, 16, 17, 18, and 19?
 - (A) 14.2
 - (B) 16.5
 - (C) 17
 - (D) 17.5
 - (E) 18

2. Kathy bought 4 times as many shares in Company X as Carl, and Carl bought 3 times as many shares in the same company as Tom. Which of the following is the ratio of the number of shares bought by Kathy to the number of shares bought by Tom?
 - (A) $\frac{3}{4}$
 - (B) $\frac{4}{3}$
 - (C) $\frac{3}{1}$
 - (D) $\frac{4}{1}$
 - (E) $\frac{12}{1}$

3. Of the following, which is closest to $\frac{0.15 \times 495}{9.97}$?
 - (A) 7.5
 - (B) 15
 - (C) 75
 - (D) 150
 - (E) 750

4. A manager has \$6,000 budgeted for raises for 4 full-time and 2 part-time employees. Each of the full-time employees receives the same raise, which is twice the raise that each of the part-time employees receives. What is the amount of the raise that each full-time employee receives?
- (A) \$750
(B) \$1,000
(C) \$1,200
(D) \$1,500
(E) \$3,000
5. $x^2 - \left(\frac{x}{2}\right)^2$
- (A) $x^2 - x$
(B) $\frac{x^2}{4}$
(C) $\frac{x^2}{2}$
(D) $\frac{3x^2}{4}$
(E) $\frac{3x^2}{2}$
6. A hospital pharmacy charges \$0.40 per fluidram of a certain medicine but allows a discount of 15 percent to Medicare patients. How much should the pharmacy charge a Medicare patient for 3 fluidounces of the medicine? (128 fluidrams = 16 fluidounces)
- (A) \$9.60
(B) \$8.16
(C) \$3.20
(D) \$2.72
(E) \$1.02
7. $(-1)^2 - (-1)^3 =$
- (A) -2
(B) -1
(C) 0
(D) 1
(E) 2
8. At a certain bowling alley, it costs \$0.50 to rent bowling shoes for the day and \$1.25 to bowl 1 game. If a person has \$12.80 and must rent shoes. What is the greatest number of complete games that person can bowl in one day?
- (A) 7
(B) 8
(C) 9
(D) 10
(E) 11

9. If $\frac{x}{y} = 2$, then $\frac{x-y}{x} =$

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

10. If each photocopy of a manuscript costs 4 cents per page, what is the cost, in cents, to reproduce x copies of an x -page manuscript?

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

11. Ken left a job paying \$75,000 per year to accept a sales job paying \$45,000 per year plus 15 percent commission. If each of his sales is for \$750, what is the least number of sales he must make per year if he is not to lose money because of the change?

- (A) 40
- (B) 200
- (C) 266
- (D) 267
- (E) 600

MONTHLY KILOWATT-HOURS

	500	1,000	1,500	2,000
Present	\$24.00	\$41.00	\$57.00	\$73.00
Proposed	\$26.00	\$45.00	\$62.00	\$79.00

12. The table above shows present rates and proposed rates for electricity for residential customers. For which of the monthly kilowatt-hours shown would the proposed rate be the greatest percent increase over the present rate?

- (A) 500
- (B) 1,000
- (C) 1,500
- (D) 2,000
- (E) Each of the percent increases is the same.

13. If a , b , and c are three consecutive odd integers such that $10 < a < b < c < 20$ and if b and c are prime numbers, what is the value of $a + b$?

- (A) 24
- (B) 28
- (C) 30
- (D) 32
- (E) 36

14. Of a group of people surveyed in a political poll, 60 percent said that they would vote for candidate R. Of those who said they would vote for R, 90 percent actually voted for R, and of those who did not say that they would vote for R, 5 percent actually voted for R. What percent of the group voted for R?

- (A) 56%
- (B) 59%
- (C) 62%
- (D) 65%
- (E) 74%

15. If $r = 1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27}$ and $s = 1 + \frac{1}{3}r$, then s exceeds r by

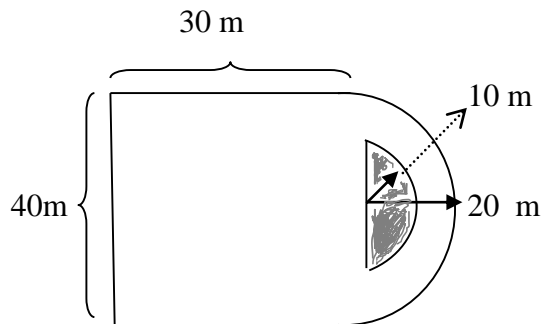
- (A) $\frac{1}{3}$
- (B) $\frac{1}{6}$
- (C) $\frac{1}{9}$
- (D) $\frac{1}{27}$
- (E) $\frac{1}{81}$

16.
$$\frac{0.025 \times \frac{15}{2} \times 48}{5 \times 0.0024 \times \frac{3}{4}} =$$

- (A) 0.1
- (B) 0.2
- (C) 100
- (D) 200
- (E) 1,000

17. A student responded to all of the 22 questions on a test and received a score of 63.5. If the scores were derived by adding 3.5 points for each correct answer and deducting 1 point for each incorrect answer, how many questions did the student answer incorrectly?

- (A) 3
- (B) 4
- (C) 15
- (D) 18
- (E) 20

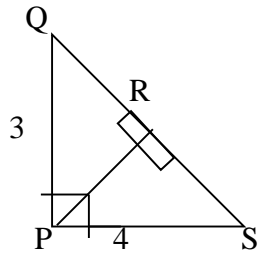


18. The figure above represents a rectangular parking lot that is 30 meters by 40 meters and an attached semicircular driveway that has an outer radius of 20 meters and an inner radius of 10 meters. If the shaded region is not included, what is the area, in square meters, of the lot and driveway?

- (A) $1,350\pi$
- (B) $1,200 + 400\pi$
- (C) $1,200 + 300\pi$
- (D) $1,200 + 1,200\pi$
- (E) $1,200 + 150\pi$

19. One-fifth of the light switches produced by a certain factory are defective. Four-fifths of the defective switches are rejected and $\frac{1}{20}$ of the nondefective switches are rejected by mistake. If all the switches not rejected are sold, what percent of the switches sold by the factory are defective?

- (A) 4%
- (B) 5%
- (C) 6.25%
- (D) 11%
- (E) 16%



20. In $\triangle PQS$ above, if $PQ = 3$ and $PS = 4$, then $PR = ?$

- (A) $\frac{9}{4}$
- (B) $\frac{12}{5}$
- (C) $\frac{16}{5}$
- (D) $\frac{15}{4}$
- (E) $\frac{20}{3}$

RESPOSTAS
PROBLEM SOLVING N.7

1. C	11. D
2. E	12. B
3. A	13. D
4. C	14. A
5. D	15. E
6. B	16. E
7. E	17. A
8. C	18. E
9. C	19. B
10. D	20. B

PROBLEM SOLVING N.8

30 Minutes

20 Questions

Directions: Is this section solve each problem, using any available space on the page for scratchwork. Then indicate the best of the answer choices given.

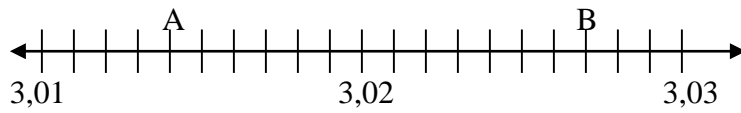
Numbers: All numbers used are real numbers.

Figures: Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that its figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.

1. A certain club has 237 local branches, one national office, and one social service office. If each local branch has 2 officers, and each of the two other offices has 4 officers, how many officers does the club have altogether?
 - (A) 482
 - (B) 476
 - (C) 474
 - (D) 239
 - (E) 235

2. An employee is paid a salary of \$300 per month and earns a 6% commission on all her sales. What must her annual sales be in order for her to have a gross annual salary of exactly \$21,600?
 - (A) \$22,896
 - (B) \$26,712
 - (C) \$300,000
 - (D) \$330,000
 - (E) \$360,000

3. Of the 1,000 students who entered College X as freshmen in September 1979, 112 did not graduate in May 1983. If 962 students graduated in May 1983, how many of the graduates did not enter College X as freshmen in September 1979?
 - (A) 38
 - (B) 74
 - (C) 112
 - (D) 150
 - (E) 188



4. On the number line above, what is the length of segment AB?

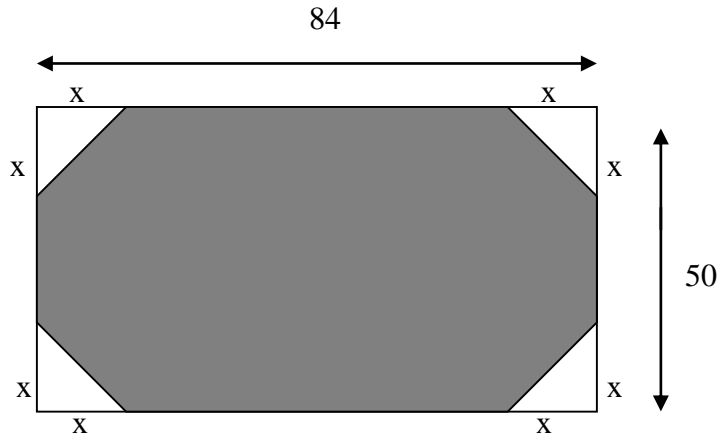
- (A) 13
- (B) 1.4
- (C) 1.3
- (D) 0.13
- (E) 0.013

5. Which of the following has a value greater than 1?

- (A) $\frac{2}{\sqrt{3}}$
- (B) $\frac{\sqrt{2}}{2}$
- (C) $\left(\frac{3}{4}\right)^2$
- (D) $\left(\frac{7}{8}\right)^3$
- (E) $2\left(\frac{3}{7}\right)$

6. If $\frac{m^2 + m - 3}{3} = 1$, then m could equal

- (A) -1
- (B) 0
- (C) 1
- (D) 2
- (E) 3



7. The figure above represents a rectangular desk blotter in a holder with dimensions shown. If $x = 8$ centimeters, what is the area, in square centimeters, of the shaded portion of the blotter?
- (A) 4,200
 (B) 4,184
 (C) 4,124
 (D) 4,072
 (E) 3,944
8. The number 25 is 2.5% of which of the following?
- (A) 10
 (B) 62.5
 (C) 100
 (D) 625
 (E) 1,000
9. Cottages at a resort are rented for half the summer price in each of the 3 spring months and one-third the summer price in each of the 6 fall and winter months. If each cottage brings in a total of \$3,861 when rented for each of the 12 months of the year, what is the monthly rent for each of the 3 summer months?
- (A) \$297
 (B) \$594
 (C) \$702
 (D) \$858
 (E) \$1,782

10. In 1980 John's salary was \$15,000 a year and Don's salary was \$20,000 a year. If every year thereafter, John receives a raise of \$2,450 and Don receives a raise of \$2,000, the first year in which John's salary will be more than Don's salary is
- (A) 1987
 - (B) 1988
 - (C) 1991
 - (D) 1992
 - (E) 2000
11. Which of the following is equal to $\frac{351}{558}$?
- (A) $\frac{7}{11}$
 - (B) $\frac{39}{62}$
 - (C) $\frac{19}{31}$
 - (D) $\frac{117}{196}$
 - (E) $\frac{107}{186}$
12. On a certain airline, the price of a ticket is directly proportional to the number of miles to be traveled. If the ticket for a 900-mile trip on this airline costs \$120, which of the following gives the number of dollars charged for a k -mile trip on this airline?
- (A) $2k/15$
 - (B) $2/15k$
 - (C) $15/2k$
 - (D) $15k/2$
 - (E) $40k/3$
13. If $n/41$ is 1 more than $m/41$, then $n =$
- (A) $m - 41$
 - (B) $m + 1$
 - (C) $m + 41$
 - (D) $m + 42$
 - (E) $41m$
14. A discount of 20% on an order of goods followed by a discount of 10% amounts to
- (A) less than one 15% discount
 - (B) the same as one 15% discount
 - (C) the same as one 30% discount
 - (D) less than a discount of 10% followed by a discount of 20%
 - (E) the same as a discount of 10% followed by a discount of 20%

15. If k is an even integer and p and r are odd integers, which of the following CANNOT be an integer?

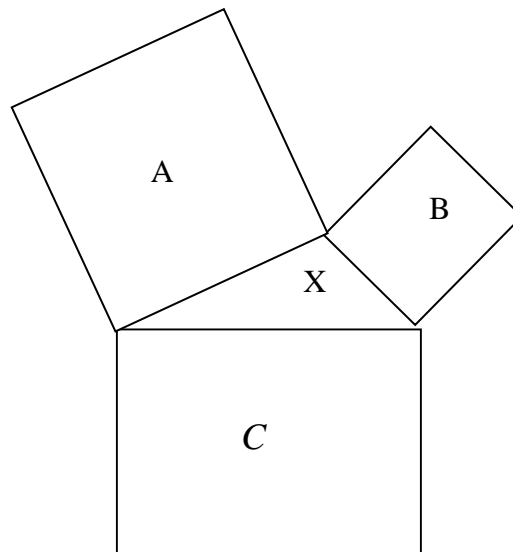
- (A) r/k
- (B) k/p
- (C) p/r
- (D) kp/r
- (E) kr/p

16. Today Al is 3 times as old as Pat. In 13 years, Al will be one year less than twice as old as Pat will be then. How many years old is Al today?

- (A) 12
- (B) 33
- (C) 36
- (D) 42
- (E) 49

17. When the integer n is divided by 17, the quotient is x and the remainder is 5. When n is divided by 23, the quotient is y and the remainder is 14. Which of the following is true?

- (A) $23x + 17y = 19$
- (B) $17x - 23y = 9$
- (C) $17x + 23y = 19$
- (D) $14x + 5y = 6$
- (E) $5x - 14y = -6$



Note: Figure not drawn to scale.

18. In the figure above, three squares and a triangle have areas of A , B , C , and X as shown. If $A = 144$, $B = 81$, and $C = 225$, then $X =$

- (A) 150
- (B) 144
- (C) 80
- (D) 54
- (E) 36

19. Three types of pencils, J, K, and L, cost \$0.05, \$0.10, and \$0.25 each respectively. If a box of 32 of these pencils costs a total of \$3.40 and if there are twice as many K pencils as L pencils in the box, how many J pencils are in the box?

- (A) 6
- (B) 12
- (C) 14
- (D) 18
- (E) 20

20. Forty percent of the rats included in an experiment were male rats. If some of the rats died during the experiment and 30% of the rats that died were male rats, what was the ratio of the death rate among the male rats to the death rate among the female rats?

- (A) $\frac{9}{14}$
- (B) $\frac{3}{4}$
- (C) $\frac{9}{11}$
- (D) $\frac{6}{7}$
- (E) $\frac{7}{8}$

RESPOSTAS
PROBLEM SOLVING N. 8

1. A	11. B
2. C	12. A
3. B	13. C
4. E	14. E
5. A	15. A
6. D	16. C
7. D	17. B
8. E	18. D
9. B	19. C
10. D	20. A