

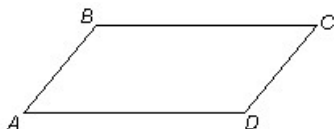
GMAT 数学

DATA SUFFICIENCY

SECTION 1

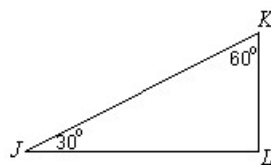
30 Minutes 25 Questions

- If today the price of an item is \$3,600, what was the price of the item exactly 2 years ago?
 - The price of the item increased by 10 per-cent per year during this 2-year period.
 - Today the price of the item is 1.21 times its price exactly 2 years ago.
- By what percent has the price of an overcoat been reduced?
 - The original price was \$380.
 - The original price was \$50 more than the reduced price.
- If the Longfellow Playground is rectangular, what is its width?
 - The ratio of its length to its width is 7 to 2.
 - The perimeter of the playground is 396 meters.
- What is the value of $x - 1$?
 - $x + 1 = 3$
 - $x - 1 < 3$
- Is William taller than Jane?
 - William is taller than Anna.
 - Anna is not as tall as Jane.



- In parallelogram $ABCD$ above, what is the measure of $\angle ADC$?
 - The measure of $\angle ABC$ is greater than 90° .
 - The measure of $\angle BCD$ is 70°

- Is x^2 equal to xy ?
 - $x^2 - y^2 = (x + 5)(y - 5)$
 - $x = y$
- Was 70 the average (arithmetic mean) grade on a class test?
 - On the test, half of the class had grades below 70 and half of the class had grades above 70.
 - The lowest grade on the test was 45 and the highest grade on the test was 95.
- What was John's average driving speed in miles per hour during a 15-minute interval?
 - He drove 10 miles during this interval.
 - His maximum speed was 50 miles per hour and his minimum speed was 35 miles per hour during this interval.
- Is $\triangle MNP$ isosceles?
 - Exactly two of the angles, $\angle M$ and $\angle N$, have the same measure
 - $\angle N$ and $\angle P$ do not have the same measure.
- Is n an integer greater than 4?
 - $3n$ is a positive integer.
 - $\frac{n}{3}$ is a positive integer.



- In $\triangle JKL$ shown above, what is the length of segment JL ?
 - $JK = 10$
 - $KL = 5$

13. A coal company can choose to transport coal to one of its customers by railroad or by truck. If the railroad charges by the mile and the trucking company charges by the ton, which means of transporting the coal would cost less than the other?

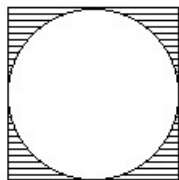
- (1) The railroad charges \$5,000 plus \$0.01 per mile per railroad car used, and the trucking company charges \$3,000 plus \$85 per ton.
- (2) The customer to whom the coal is to be sent is 195 miles away from the coal company.

14. Is $x - y > r - s$?

- (1) $x > r$ and $y < s$?
- (2) $y = 2$, $s = 3$, $r = 5$, and $x = 6$.

15. On a certain day it took Bill three times as long to drive from home to work as it took Sue to drive from home to work. How many kilometers did Bill drive from home to work?

- (1) Sue drove 10 kilometers from home to work, and the ratio of distance driven from home to work time to drive from home to work was the same for Bill and Sue that day.
- (2) The ratio of distance driven from home to work time to drive from home to work for Sue that day was 64 kilometers per hour.



16. The figure above represents the floor of a square foyer with a circular rug partially covering the floor and extending to the outer edges of the floor as shown. What is the area of the foyer that is not covered by the rug?

- (1) The area of the foyer is 9 square meters.
- (2) The area of the rug is 2.25π square meters.

17. At a certain university, if 50 percent of the people who inquire about admission policies actually submit applications for admission, what percent of those who submit applications for admission enroll in classes at the university?

- (1) Fifteen percent of those who submit applications for admission are accepted at the university.
- (2) Eighty percent of those who are accepted send a deposit to the university.

18. If x and y are nonzero integers, is $\frac{x}{y}$ an integer?

- (1) x is the product of 2 and some other integer.
- (2) There is only one pair of positive integers whose product equals y .

19. If x is an integer, what is the value of x ?

- (1) $\frac{1}{5} < \frac{1}{x+1} < \frac{1}{2}$
- (2) $(x-3)(x-4) = 0$

20. Is quadrilateral Q a square?

- (1) The sides of Q have the same length.
- (2) The diagonals of Q have the same length.

21. If K is a positive integer less than 10 and $N = 4,321 + K$, what is the value of K ?

- (1) N is divisible by 3.
- (2) N is divisible by 7.

22. A jewelry dealer initially offered a bracelet for sale at an asking price that would give a profit to the dealer of 40 percent of the original cost. What was the original cost of the bracelet?

- (1) After reducing this asking price by 10 percent, the jewelry dealer sold the bracelet at a profit of \$403.
- (2) The jewelry dealer sold the bracelet for \$1,953.

23. If n is an integer between 2 and 100 and if n is also the square of an integer, what is the value of n ?

- (1) n is the cube of an integer.
- (2) n is even.

24. Is $x^2 - y^2$ a positive number?

- (1) $x - y$ is a positive number.
- (2) $x + y$ is a positive number.

25. The surface area of a square tabletop was changed so that one of the dimensions was reduced by 1 inch and the other dimension was increased by 2 inches. What was the surface area before these changes were made?

- (1) After the changes were made, the surface area was 70 square inches.
- (2) There was a 25 percent increase in one of the dimensions.

SECTION 2**30 Minutes 25 Questions**

1. Who types at a faster rate, John or Bob?

- (1) The difference between their typing rates is 10 words per minute.
- (2) Bob types at a constant rate of 80 words per minute.

2. What is the average distance that automobile D travels on one full tank of gasoline?

- (1) Automobile D averages 8.5 kilometers per liter of gasoline.
- (2) The gasoline tank of automobile D holds exactly 40 liters of gasoline.

3. If l_1, l_2 and l_3 are lines in a plane, is l_1 perpendicular to l_3 ?

- (1) l_1 is perpendicular to l_2 .
- (2) l_2 is perpendicular to l_3

4. In a certain packinghouse, grapefruit are packed in bags and the bags are packed in cases. How many grapefruit are in each case that is packed?

- (1) The grapefruit are always packed 5 to a bag and the bags are always packed 8 to a case.
- (2) Each case is always 80 percent full.

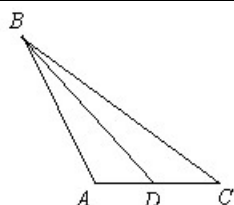
5. What is the value of x ?

- (1) $x + y = 7$
- (2) $x - y = 3 - y$

6. A rectangular floor that is 4 meters wide is to be completely covered with nonoverlapping square tiles, each with side of length 0.25 meter, with no portion of any tile remaining. What is the least number of such tiles that will be required?

- (1) The length of the floor is three times the width.
- (2) The area of the floor is 48 square meters.

7. If a rope is cut into three pieces of unequal length, what is the length of the shortest of these pieces of rope?
- (1) The combined length of the longer two pieces of rope is 12 meters.
 - (2) The combined length of the shorter two pieces of rope is 11 meters.
8. A certain company paid bonuses of \$125 to each of its executive employees and \$75 to each of its nonexecutive employees. If 100 of the employees were nonexecutives, how many were executives?
- (1) The company has a total of 120 employees.
 - (2) The total amount that the company paid in bonuses to its employees was \$10,000.
9. What fraction of his salary did Mr. Johnson put into savings last week?
- (1) Last week Mr. Johnson put \$17 into savings.
 - (2) Last week Mr. Johnson put 5% of his salary into savings.
10. For integers a , b , and c , $\frac{a}{b-c} = 1$,
What is the value of $\frac{b-c}{b}$?
- (1) $\frac{a}{b} = \frac{3}{5}$
 - (2) a and b have no common factors greater than 1.
11. If the price of a magazine is to be doubled, by what percent will the number of magazines sold decrease?
- (1) The current price of the magazine is \$1.00.
 - (2) For every \$0.25 of increase in price, the number of magazines sold will decrease by 10 percent of the number sold at the current price.
12. If J , K , L , M , and N are positive integers in ascending order, what is the value of L ?
- (1) The value of K is 3.
 - (2) The value of M is 7.
13. If a , b , and c are integers, is the number $3(a+b)-c$ divisible by 3?
- (1) $a+b$ is divisible by 3.
 - (2) c is divisible by 3.
14. Each M -type memory unit will increase the base memory capacity of a certain computer by 3 megabytes. What is the base memory capacity, in megabytes of the computer?
- (1) 2 M -type memory units will increase the computer's base memory capacity by 300 percent
 - (2) The memory capacity of the computer after 2 M -type memory units are added to the base memory capacity is 1.6 times the memory capacity of the computer after 1 M -type memory unit is added to the base memory capacity.
15. If $xyz \neq 0$, what is the value of $\frac{x^5 y^4 z^2}{z^2 y^4 x^2}$?
- (1) $x = 1$
 - (2) $y = 3$
16. What fractional part of the total surface area of cube C is red?
- (1) Each of 3 faces of C is exactly $\frac{1}{2}$ red.
 - (2) Each of 3 faces of C is entirely white.
17. If positive integer x is divided by 2, the remainder is 1. What is the remainder when x is divided by 4?
- (1) $31 < x < 35$
 - (2) x is a multiple of 3.



18. In the figure above, D is a point on side AC of $\triangle ABC$. Is $\triangle ABC$ is isosceles?

(1) The area of triangular region ABD is equal to the area of triangular region DBC .

(2) $BD \perp AC$ and $AD = DC$

19. If x is an integer, what is the value of x ?

(1) $-2(x + 5) < -1$

(2) $-3x > 9$

| Food | Number of Calories per Kilogram | Number of Grams of Protein per Kilogram |
|------|--|--|
| S | 2,000 | 150 |
| T | 1,500 | 90 |

20. The table above gives the number of calories and grams of protein per kilogram of foods S and T . If a total of 7 kilograms of S and T are combined to make a certain food mixture, how many kilograms of food S are in the mixture?

(1) The mixture has a total of 12,000 calories.

(2) The mixture has a total of 810 grams of protein.

21. If $y \neq 0$ and $y \neq -1$, which is greater,

$\frac{x}{y}$ or $\frac{x}{y+1}$?

(1) $x \neq 0$

(2) $x > y$

22. Each person on a committee with 40 members voted for exactly one of 3 candidates, F , G , or H . Did Candidate F receive the most votes from the 40 votes cast?

(1) Candidate F received 11 of the votes.

(2) Candidate H received 14 of the votes.

23. S is a set of integers such that

i) if a is in S , then $-a$ is in S , and

ii) if each of a and b is in S , then ab is in S .

Is -4 in S ?

(1) 1 is in S .

(2) 2 is in S .

24. If the area of triangular region RST is 25, what is the perimeter of RST ?

(1) The length of one side of RST is

$5\sqrt{2}$.

(2) RST is a right isosceles triangle.

25. If x and y are consecutive odd integers, what is the sum of x and y ?

(1) The product of x and y is negative.

(2) One of the integers is equal to -1 .

SECTION 3
30 Minutes 25 Questions

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 rectangular 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?

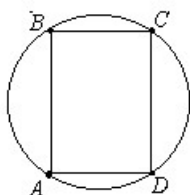
- (1) When x is divided by 3, the remainder is 1.
- (2) When y is divided by 9, the remainder is 8.

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

- (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?

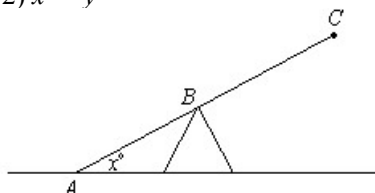
- (1) The length of the rectangle is $\sqrt{3}$ and the width of the rectangle is 1.
- (2) The length of arc AB is $\frac{1}{3}$ of the circumference of the circle.

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) $a^2 - 3b^2 = 0$

SECTION 4

30 Minutes 25 Questions

1. What is the value of x ?

- (1) x is negative.
- (2) $2x = -4$

2. Did United States carriers use more than 10 billion gallons of jet fuel during 1983?

- (1) United States carriers paid a total of \$9.4 billion for the jet fuel used in 1983.
- (2) United States carriers paid an average (arithmetic mean) of \$0.90 per gallon for the jet fuel used in 1983.

3. In Country S , if 60 percent of the women aged 18 and over are in the labor force, how many million women are in the labor force?

- (1) In Country S , women comprise 45 percent of the labor force.
- (2) In Country S , there are no women under 18 years of age in the labor force.

4. If x and y are different positive numbers, is z between x and y ?

- (1) $z > 0$
- (2) $z < y$

5. What percent of 16 is m ?

- (1) m is 5 percent of 10.
- (2) 400 percent of m is 2.

6. Kay put 12 cards on a table, some faceup and the rest facedown. How many were put facedown?

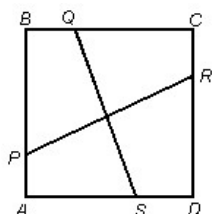
- (1) Kay put an even number of the cards faceup.
- (2) Kay put twice as many of the cards faceup as she put facedown.

7. Is $\triangle RST$ a right triangle?

- (1) The degree measure of $\angle R$ is twice the degree measure of $\angle T$.

- (2) The degree measure of $\angle T$ is 30.
8. If x is a positive number, is x greater than 1?

- (1) $1 > \frac{1}{x}$
 (2) $-\frac{1}{x} > -1$



9. The figure above shows four pieces of tile that have been glued together to form a square tile $ABCD$. Is $PR = QS$?
- (1) $BQ = CR = DS = AP$
 (2) The perimeter of $ABCD$ is 16.
10. How old is Jim?
- (1) Eight years ago Jim was half as old as he is now.
 (2) Four years from now Jim will be twice as old as he was six years ago.
11. What is the value of x ?
- (1) When x is multiplied by 8, the result is between 50 and 60.
 (2) When x is doubled, the result is between 10 and 15.
12. At a certain state university last term, there were p students each of whom paid either the full tuition of x dollars or half the full tuition. What percent of the tuition paid by the p students last term was tuition from students who paid the full tuition?
- (1) Of the p students, 20 percent paid the full tuition.
 (2) The p students paid a total of \$91.2 million for tuition last term.
13. If a bottle is to be selected at random from a certain collection of bottles, what is the probability that the bottle will be defective?
- (1) The ratio of the number of bottles in the collection that are defective to the number that are not defective is 3:500.
 (2) The collection contains 3,521 bottles.
14. If a grocery shopper received \$0.25 off the original price of a certain product by using a coupon, what was the original price of the product?
- (1) The shopper received a 20 percent discount by using the coupon.
 (2) The original price was 25 percent higher than the price the shopper paid by using the coupon.
15. What was Casey's total score for eighteen holes of golf?
- (1) Casey's score for the first nine holes was 13 less than his score for the last nine holes.
 (2) Twice Casey's score for the last nine holes was 58 more than his score for the first nine holes.
16. What is the rate, in cubic feet per minute, at which water is flowing into a certain rectangular tank?
- (1) The height of the water in the tank is increasing at the rate of 2 feet per minute.
 (2) The capacity of the tank is 216 cubic feet.
17. Is the positive integer n equal to the square of an integer?
- (1) For every prime number p , if p is a divisor of n , then so is p^2 .
 (2) \sqrt{n} is an integer.

18. What is the volume of a certain cube?

- (1) The sum of the areas of the faces of the cube is 54.
- (2) The greatest possible distance between two points on the cube is $3\sqrt{3}$

19. What is the value of $k^2 - k$?

- (1) The value of $k - \frac{1}{k}$ is 1.
- (2) The value of $2k - 1$ is $\sqrt{5}$

20. In the figure above, what is the product of the lengths of AD and BC ?

- (1) The product of the lengths of AC and BE is 60.
- (2) The length of BC is 8.

21. At a business association conference, the registration fee for members of the association was \$20 and the registration fee for nonmembers was \$25. If the total receipts from registration were \$5,500, did more members than nonmembers pay the registration fee?

- (1) Registration receipts from members were \$500 greater than receipts from nonmembers.
- (2) A total of 250 people paid the registration fee.

22. If x and y are positive integers and x is a multiple of y , is $y = 2$?

- (1) $y \neq 1$
- (2) $x + 2$ is a multiple of y .

23. What is the value of n ?

- (1) $n(n-1)(n-2) = 0$
- (2) $n^2 + n - 6 = 0$

24. If x and y are integers between 10 and 99, inclusive, is $\frac{x-y}{9}$ an integer?

- (1) x and y have the same two digits, but in reverse order.
- (2) The tens' digit of x is 2 more than the units digit, and the tens digit of y is 2 less than the units digit.

25. Pam and Ed are in a line to purchase tickets. How many people are in the line?

- (1) There are 20 people behind Pam and 20 people in front of Ed.
- (2) There are 5 people between Pam and Ed.