GMAT Test 4

37 questions – 75 minutes

1. A salesperson gets a 15% commission on each sale he makes. How many sales of $270 each must he make in order to reach a salary of at least $1000?

(a) 15
(b) 24
(c) 25
(d) 26
(e) 52

The commission per sale is $40.5, multiply it by 25 sales and get to $1012.5. The correct answer is C.

2. In how many different ways can five people be seated on a five-seat bench if two of them must sit next to each other?

(a) 24
(b) 48
(c) 120
(d) 240
(e) 480

Treat the two that seat together as one person, now there are only 4 people to be seated in 4 places. This task has 4! Ways = 24. Remember that the two people sitting together can switch places on any of the 24 different ways, so we have 48 ways total. The correct answer is B.

3. Liqueur A contains 24% of alcohol. What is the alcohol concentration of the mixed cocktail of liqueur A and B?
(1) The mixing ratio of liqueur A and B is 1:4
(2) The alcohol concentration of liqueur B is 1.5 times greater than the alcohol concentration of the mixed cocktail.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
Statement (1) gives us the quantity of each of the liqueurs.

Statement (2) gives us the connection between the alcohol concentration of liqueur B and the mixed cocktail. The equation looks like this: $0.2*24 + 0.8(1.5X) = X$. The correct answer is C.

4. What is the average height of X buildings, each with height P meters, and 4X buildings each with height P/2?
(1) X = 5, P = 35.
(2) P = 40.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
Of course, statement (1) gives of the values of all the parameters, but the value of X is unnecessary. $(XP+2XP)/5X$ is equivalent to $3P/5$. Statement (2) also gives us the answer. The correct answer is D.

5. A, B, C and D are four consecutive points on a straight line. What is the distance between A to D?
(1) AC = 6.
(2) BD = 8.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
First, draw the line with the points marked.
We know AC and BD but it's not sufficient to know the length of AD.
If the question said the points are evenly spaced than the answer would be solvable. The correct answer is E.

6. The area of an isosceles trapezoid with sides of length 5 and bases of length 8 and 14 is?

(a) 22
(b) 32

(c) 44
(d) 55
(e) 56

The height of the trapezoid can be calculated using a right angle triangle of 3,4 and 5 created with the height, the side and half of the difference between the two bases. When finding the height of 4, the area is calculated as the product of the average of the bases and the height:

$$\left(\frac{8+14}{2}\right) \times 4 = 44$$

The correct answer is C.

7. One gallon of soft drink is made of 40% orange juice and 60% water, how many additional gallons of orange juice must be mixed in to make the orange juice 60% of the soft drink?

(a) 0.5
(b) 1
(c) 1.25
(d) 1.5
(e) 2

Use the average formula to solve the following equation:

$$\frac{1 \times 40\% + X \times 100\%}{1+X} = 60\%$$

X=0.5 gallon. The correct answer is A.

8. A merchant gets a 5% discount on each meter of fabric he buys after the first 2,000 meters and a 7% discount on every meter after the next 1,500 meters. The price, before discount, of one meter of fabric is \$2, what is the total amount of money the merchant spends on 4,500 meters of fabric?

(a) \$8,617
(b) \$8,710
(c) \$8,810
(d) \$8,835
(e) \$8,915

The price of the first 2,000 meters of fabric is \$2 = \$4,000. The price of the next 1,500 meters is 95% of \$2 = \$1.9 = \$2,850. The price of the last 1,000 meters is 93% of \$2 = \$1.86 = \$1,860. The total amount spent is: \$4,000+\$2,850+\$1,860=\$8,710. The correct answer is B.

9. If X, Y and Z are positive integers, is X greater than Z – Y?
(1) X – Z – Y > 0.
(2) $Z^2 = X^2 + Y^2$.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

(d) Either statement BY ITSELF is sufficient to answer the question.

(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

The best answer is A.

From statement (1) we learn that $X > Z + Y$ therefore X must be bigger than $Z - Y$ (positive integers).

From statement (2) we learn that $X^2 = Z^2 - Y^2$ and that tells us nothing relevant.

10. Zigfield bought his car using M% of his bank savings. He also bought a house that costs 4 times the price of the car. What is the price of the house?
(1) M = 12.
(2) The price of the car and the house was $140,000.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

(d) Either statement BY ITSELF is sufficient to answer the question.

(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

With statement (1) we know that the car cost 12% of his life savings.

From statement (2) we know that $140,000 is the price of both the car and the house.

Use simple ratio to find what is the cost of the house. The correct answer is B.

11. On a summer camp, 25% of the campers paid $120 each, 35% paid $80 each and the rest paid $65 each. What percentage of the total amount paid came from the campers who paid $80?

(a) 18%
(b) 21%
(c) 26%
(d) 33.3%
(e) 37.5%

Take 100 campers as an example to work with, 25 paid $120 =$3,000 total, 35 paid $80 = $2,800 total, and 40 (the rest) paid $65 = $2,600. The total amount paid is $8,400. The amount paid by the campers who paid $65 is

$$\frac{\$2,800}{\$8,400} = \frac{1}{3} = 33.3\%$$

The correct answer is D.

12. A snail, climbing a 20 feet high wall, climbs up 4 feet on the first day but slides down 2 feet on the second. It climbs 4 feet on the third day and slides down again 2 feet on the fourth day. If this pattern continues, how many days will it take the snail to reach the top of the wall?

(a) 12
(b) 16
(c) 17
(d) 20
(e) 21

The snail climbs 2 feet every 2 days, hence, on the 16th day he is 16 feet up the wall. The snail needs only the 17th day to climb 4 feet more and reach the top of the wall. The correct answer is C.

13. John spent a total of $135 on baseball tickets. The price of a ticket is either $12 for the field seats or $5 for the balcony. What is the minimum amount of dollars he could have spent for the $12 tickets?

(a) $48
(b) $60
(c) $84
(d) $96
(e) $120

Since John spent all of the $135 on the tickets, their prices must sum up to $135. The Minimum amount spent for the $12 tickets, is the smallest amount that is divisible by 12, and still leaves an amount divisible by 5. $60 is the smallest amount both divisible by 12 and leaving $135-$60=$75, which is divisible by $5. The correct answer is B.

14. One of the solutions of the equation $X^2-X-k=5$, is –3. What is the other solution of the equation?

(a) 4
(b) -4
(c) 5
(d) 6
(e) 24

First, plug in the solution –3 to find the value of k: $(-3)^2 – (-3) – k = 5$, k=7. Then solve: $X^2 – X – 7 – 5 = 0$ to find the second solution: X=4. The correct answer is A.

15. Is the largest of 7 consecutive numbers odd?
(1) The product of the seven numbers is zero.
(2) The sum of the seven numbers is zero.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
From statement (1) we learn that there is a 0 among the seven numbers, yet the largest number can be odd or even. (0, 1, 2, 3, 4, 5, 6)or (-1, 0, 1, 2, 3, 4, 5).
From statement (2) we know that the numbers are located symmetrically around the zero, therefore the largest number is even. The correct answer is B.

16. If X and Y are positive integers, what is the ratio between Y and X?
(1) XY = 150.
(2) Y is 22% of X.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
The question actually asks what is Y/X or X/Y.
Statement (1) is not sufficient because from the product of the two variables we can't make out the ratio. Statement (2) is sufficient by itself, $Y = 22X/100$ à $Y/X = 11/50$. The correct answer is B.

17. What is the value of $(X^2 + Y^2)$?
(1) $(X – Y)^2 = 36$.
(2) $(X + Y)^2 = 48$.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
Statement (1) can be written as $X^2 – 2XY +Y^2 = 36$.
Statement (2) can be written as $X^2 + 2XY +Y^2 = 48$.
Adding both equations will give: $2X^2 + 2Y^2 = 84$ à $X^2 + Y^2 = 42$.

Therefore, both statements are needed in order to solve the question and the correct answer is C.

18. There are X dogs in the dog hound, each dog eats Y Kg of food every day. What percent of the total food weight does each dog eat?
(1) If there were 3 dogs less then each dog could eat 1.2 Kg more than he is does now.
(2) If there were half the dogs, each dog could eat 3 Kg more than he is does now.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
In order to know the answer we need two equations:
From statement (1) we can write: $XY = (X – 3)(Y + 1.2)$.
From statement (2) we can write: $XY = (X/2)(Y + 3)$.
You don't need to solve the equations, the answer is C, both equations are needed to solve the question and the correct answer is C.

19. What is the sum of all even integers between 30 and 50, inclusive?

(a) 640
(b) 540
(c) 480
(d) 440
(e) 240
The sum of the even integers between 30 and 50 inclusive can be calculated using the product of the number of integers by their average. The average of a fixed-difference sequence of numbers can be calculated as the average of the largest and the smallest numbers: $(30 + 50) / 2 = 40$. We remember that between 30 and 49, inclusive, there are 20 numbers of which half are even and half odd. Add 1 (the number 50) to the 10 even numbers to receive a total of 11 even integers, multiply it by the average to get the sum: $40 \times 11 = 440$. The correct answer is D.

20. The price (p) of product X depends on the yearly number of units produced (n) according to the following formula: $p = (500-n) / 10$. What will the estimated price per unit be next year if an estimated number of 260 units will be sold?

(a) 24
(b) 26
(c) 50

(d) 60

(e) 240

Plug the number of units into the given formula to find the price per unit: p = (500-260) /10. P=24. The correct answer is A.

21. John must arrange 3 different physics books and 3 different mathematics books on one shelf. If the first book on the leftmost side is a mathematics book and no physics book is next to another physics book, how many different arrangements exist?

(a) 6

(b) 9

(c) 36

(d) 120

(e) 720

The leftmost book is a mathematics book; the next is physics and so on. So, the odd places books are the mathematics books and the even placed books are the physics books. The mission is therefore, arranging three mathematics books in three places (3! =6 arrangements) and three physics books in three places (3! =6 arrangements). The total number of different arrangements is the product of the two missions: 3! x 3! = 6 x 6 = 36. The correct answer is: C.

22. An investor receives a total combined return of 7% on his two different investments. On his $10,000 investment he receives a return of 6%. What is the return on his $20,000 investment?

(a) 7.25%

(b) 7.5%

(c) 8%

(d) 8.5%

(e) 9%

The combined return is 7% of $30,000 = $2,100. Subtract the 6% return on his $10,000 investment = $600. $2,100-$600=$1,500. This is the return on his second investment of $20,000. $1,500 of $20,000 is a 7.5% return. The correct answer is B.

23. What is the probability of getting an identical result on three consecutive tosses of a coin?

(a) 1/2

(b) 1/4

(c) 1/8

(d) 1/16

(e) 1/2 + 1/4

The first toss will be either heads or tails. The probability that the result on the second toss is identical to the first is 1/2. The probability that the result on the third toss is

identical to that of the second is also 1/2. The total probability is, therefore, 1/2 x 1/2 = 1/4. The correct answer is B.

24. If x and y are positive integers, is $5^x(1/4)^y < 1$?
(1) Y = 3x.
(2) X = 2.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
Use statement (1) to write: $5^x(1/4)^{3x} = (5/64)^x$. Because x is a positive integer only, the expression will always be smaller than 1. This statement alone provides us the answer.
Use statement (2) to write: $5^2(1/4)^y$ **à** the answer here is dependent on y, a different combinations of the variable y will give different results. Therefore the correct answer is A.

25. If A is a prime number, what is the value of A?
(1) 0 < A < 10.
(2) (A – 2) is divisible by 3.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
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(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
Statement (1) narrows down A to be one of: 1, 2, 3, 5 and 7. This statement is insufficient.
Statement (2) is also insufficient; there are a lot of numbers that fulfill this statement, like 17, 23 and many more. Even after you combine both statements, there are still two options: 5 and 2. In both, when subtracting 2 we get a number that is divisible by 3. The correct answer is E.

26. What is the value of (A/5 + B/5)?
(1) A + B = 100.
(2) $\dfrac{A + B}{10} = 10$.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

(d) Either statement BY ITSELF is sufficient to answer the question.

(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

Statement (1) is sufficient enough because all you need to do is divide both sides by to get the answer, (20).

Statement (2) is also sufficient by it self, because all you need to do is to multiply both sides by 2 to get the correct answer. The correct answer is D.

27. A salesperson receives a base salary of $1000 per month and a commission of 7.5% of the selling price of each item sold above the first 50 items. If this month she sold 210 items for $150 each, what will her monthly salary be?

(a) $1,500

(b) $1,800

(c) $2,100

(d) $2,500

(e) $2,800

The salesperson receives a commission on 210-50=160 sales. The commission on every sale is 7.5% of $150 = $11.25. And 160 x 11.25 = $1800. The correct answer is: B.

28. What is the probability that the sum of the results when two dice are rolled simultaneously will be 9?

(a) 1/3

(b) 7/36

(c) 1/6

(d) 10/36

(e) 1/9

When two dice are rolled together, there are 4 different possibilities to receive a sum of 9: [3,6], [4,5], [5,4], [6,3], out of a total of 36 different possibilities.

$$\frac{4}{36} = \frac{1}{9}$$

The correct answer is E.

29. What is the units' digit of the following expression $(13)^5(15)^4(17)^5$?

(a) 0

(b) 1

(c) 3

(d) 5
(e) 9
When multiplying any number by a number with a units' digit of 5, the units' digit of the product will be either 5 (when all numbers are odd) or 0 (when there is at least one even number). Since in this question there are no even numbers, the units' digit is 5. The correct answer is D.

30. Is $B^3 \geq B^2$?
   (1) B is an integer.
   (2) B is positive.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
There are two cases in which the inequality will not be true, when B is a fraction or when B is negative. Statements (1) and (2) cover both of these cases and therefore both statements, taken together, are sufficient. The correct answer is C.

31. If Peter spends $460 on three pairs of shoes, how much did the least expansive shoes cost?
(1) The ratio between the most expansive shoes to the least expansive shoes is 3 to 1.
(2) The ratio between the least expansive shoes to all the other ones is 1 to 5.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
We need to find what is the price of the least expansive among three shoes.
Statement (1) gives us the ratio between the most expansive shoes and the least expansive one but that's not sufficient because we have no information about the middle priced shoes.
Statement (2) is sufficient. If the ratio between the least expansive to all the shoes is 1 to 5 than we can calculate the price of the least expansive shoes, (460/6). The correct answer is B.

32. What percent of 20 is Y?
(1) 50 percent of Y is 5.
(2) Y percent of 200 is 20.

(a) Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.
(b) Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.
(c) Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.
(d) Either statement BY ITSELF is sufficient to answer the question.
(e) Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.
The question, in other words, is asking what is the value of (Y/20 x 100). So all we need to find out is the value of Y. Statement (1) gives us Y, it is equal to 10.
Statement (2) is also sufficient, it also tells us that Y is equal to 10. The correct answer is D.

33. What is the number of different ways to choose a chairman, two deputies and two assistants for the class committee out of 7 students up for election?

(a) 25
(b) 210
(c) 630
(d) 840
(e) 2520
There are 7 different choices for chairman,

$$\binom{6}{2} = \frac{6!}{2! \times 4!} = \frac{6 \times 5}{2 \times 1} = 15$$

choices for the two deputies (choosing 2 out of 6), and

$$\binom{4}{2} = \frac{4!}{2! \times 2!} = \frac{4 \times 3}{2 \times 1} = 6$$

choices for the two assistants. The total is 7 x 15 x 6 = 630 choices. The correct answer is: C.

34. A factory has a fixed cost of $45,000 a month, and a cost of $2.5 for every item produced. If the selling price of a single item is $5, what is the number of items must be sold monthly for the factory to cover its cost exactly?

(a) 9,000
(b) 14,000
(c) 18,000
(d) 22,500
(e) 27,000

To find the number of items sold that makes the revenues equal to the cost, solve the following equation:

$$\$45,000 + \$2.5 \times X = \$5 \times X$$

X=18,000. The correct answer is C.

35. John traveled 80% of the way from Yellow-town to Green-fields by train at an average speed of 80 miles per hour. The rest of the way John traveled by car at an average speed of *v* miles per hour. If the average speed for the entire trip was 60 miles per hour, what is *v* in miles per hour?

(a) 30
(b) 40
(c) 50
(d) 55
(e) 70

Take 100 miles as the total mileage traveled, then calculate the total distance divided by the total time to receive the average speed for the whole trip:

$$\frac{100}{\dfrac{80}{80} + \dfrac{20}{v}} = 60$$

And *v*=30 miles per hour. The correct answer is B.

36. The ratio between the number of sheep and the number of horses at the Stewart farm is 4 to 7, If each horse is fed 230 ounces of horse food per day and the farm needs a total 12,880 ounces of horse food per day, what is the number of sheep in the farm?

(a) 18
(b) 28
(c) 32
(d) 56
(e) 60

The number of horses can be calculated using the total weight of daily horse food divided by the weight each horse is fed daily:

$$\frac{12,880}{230} = 56$$

There are 56 horses at the farm. Since the ratio is 4 to7, between the sheep and horses, the number of sheep is:

$$\frac{56}{7} = 8 \Rightarrow 8 \times 4 = 32$$

There are 32 sheep. The correct answer is C.

37. The volume of water inside a swimming pool doubles every hour. If the pool is filled to its full capacity within 8 hours, in how many hours was it filled to one quarter of its capacity?

(a) 2
(b) 4
(c) 5
(d) 6
(e) 7
Solve this question backwards. If the pool was full on the 8th hour, it was half filled on the 7th and one quarter filled on the 6th. The correct answer is D.