

Sample problems for Math.Biz selection test

1. What is the minimum number of weights which enable us to weigh any integer number of grams of gold from 1 to 100 on a standard balance with two pans? (Weights can be placed only on the left pan)
 - a) 5
 - b) 6
 - c) 7
 - d) 8

2. A class consists of 10 students. Each of them has registered for 3 courses. Each course instructor conducts an exam out of 50. The average percentage marks of all 10 students across all courses they have registered for, is 70%. Two of them apply for revaluation in a course. If none of their marks reduce, and the average of all 10 students across all courses becomes 70.4%, the maximum possible increase in marks for either of the two students is
 - a) 2
 - b) 3
 - c) 4
 - d) 6

3. Let S_n be sum of the first n terms of an A.P. $\{a_n\}$. If $S_7 = S_{13}$, what is the ratio of $a_4 : a_7$
 - a) 13:7
 - b) 7:13
 - c) 7:4
 - d) 4:7

4. ABCD is a quadrilateral whose diagonals AC and BD intersect at O. If triangles AOB and COD have areas 4 and 9 respectively, then the minimum area that ABCD can have is
 - a) 26
 - b) 25
 - c) 21
 - d) 16

5. The profits of XYZ Company rose 10% from March to April, then rose by 50% from April to May, and then dropped 20% from May to June. What was the percent increase for the whole quarter, from March to June?
- 28%
 - 32%
 - 35%
 - 40%

6. Match the following

1 Arithmetic mean	a. $\sqrt[n]{x_1 x_2 x_3 \dots x_n}$
2 Geometric mean	b. $\frac{t_{n+1}}{2} \dots$ where t_k is the k th observation in the data
3 Median	c. $(x_1 + x_2 + x_3 + \dots + x_n)/n$
4 Mode	d. The observation which repeats maximum number of types

- (1-a) (2-b) (3-c) (4-d)
 - (1-c) (2-a) (3-d) (4-b)
 - (1-c) (2-d) (3-b) (4-a)
 - (1-c) (2-a) (3-b) (4-d)
7. Company AB is being sold, and both Company A and Company B were considering the purchase. The price of Company AB is 50% more than Company A has in assets, and this same price is also 100% more than Company B has in assets. If Companies A and B were to merge and combine their assets, the price of Company AB would be approximately what percent of these combined assets?
- 66%
 - 78%
 - 86%
 - 115%
8. Consider the following two factually true statements:
- Bill's mother tells him that smoking is unhealthy, and he must not do it.
 - Bill's mother smokes.

Based on the above two facts, Bill (purely based on logic) concludes "Smoking must not be bad; it is okay for me to smoke." Which of the following is true? (1 point)

- Bill's conclusion is logical using statement 1 and 2.
- Bill's mother should quit smoking before advising Bill to quit smoking.
- Statement 2 is irrelevant and therefore the conclusion should only be based on statement 1.
- It is Bill's personal choice whether he wants to quit smoking or not.

9. Which of the following statement about the picture below is true?



- a) Percentage bar graph will be more appropriate instead of pie chart
- b) Pie chart is the correct way to present the data
- c) Pie chart is incorrect because the survey participants could have selected multiple choices
- d) None of the above

10. Neha, a sales representative for a large consumer goods company, is paid 3% of the total profits earned by his company. Her company averages 10% profit on sales. If Neha's total income for the year was Rs. 60,000, what total sales did her company realize?

- a) Rs. 2 crores
- b) Rs. 20 lakhs
- c) Rs. 20 crores
- d) None of the above