

## Questions:

1. If  $4x + 6y = 72$  and  $\frac{1}{3}x - \frac{1}{2}y = -4$ , then .....
- a.  $x < y$
  - b.  $x > y$
  - c.  $x = y$
  - d.  $2x + 3 = y$
  - e.  $3x = y$

Answer : A

$$\begin{array}{l} 4x + 6y = 72 \\ \frac{1}{3}x - \frac{1}{2}y = -4 \end{array} \quad \times 6$$
$$\begin{array}{l} 4x + 6y = 72 \\ 2x - 3y = -24 \end{array} \quad \times 2 \rightarrow \begin{array}{l} 8x + 12y = 144 \\ 2x - 3y = -24 \end{array}$$
$$\begin{array}{r} 8x + 12y = 144 \\ -2x + 3y = 24 \\ \hline 10y = 168 \\ y = 16.8 \\ x = 3 \end{array}$$

$y > x$   
 $x < y$

2. If the value  $a = -7$  and  $b = 7$ ,  $x$  represents  $(a - b)^2$  and  $y = (b - a)^2$ , then .....
- a.  $x < y$
  - b.  $x > y$
  - c.  $x = y$
  - d.  $2x < 3y$
  - e. the relationship between  $x$  and  $y$  cannot be determined.

Answer: C

$$\begin{array}{l} a = -7 \\ b = 7 \end{array} \quad \begin{array}{l} x = (a - b)^2 \\ y = (b - a)^2 \end{array} \rightarrow \begin{array}{l} x = (-7 - 7)^2 = 196 \\ y = (7 + 7)^2 = 196 \end{array} \sim \text{equal.}$$

3. A Ralalian is paid  $x$  dollars an hour for the first 8 hours he works in a day. For every hour after the first 8 hours, he is paid  $y$  dollars an hour. If he works 12 hours in one day, what is his average hourly wage for that day?

- a.  $\frac{(x+2y)}{2}$   
 b.  $8x + 8y$   
 c.  $\frac{(x+2y)}{3}$   
 d.  $\frac{(x+y)}{3}$   
 e.  $\frac{x+y}{2}$

answer : C

$$\begin{aligned}
 3. \quad 8 \text{ hours} &= 8x \\
 12 \text{ hours} &= 8x + 4y \\
 \text{average salary} &= \frac{8x + 4y}{12} \\
 \textcircled{C} &= \frac{2x + y}{3}
 \end{aligned}$$

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4. If  $13p + 2q = 78$  and  $6q - 3p = 12$ , then the value of  $5p + 4q = ?$

- a. 90  
 b. 72  
 c. 45  
 d. 32  
 e. 9

Answer: C

$$\begin{aligned}
 4. \quad 13p + 2q &= 78 \quad | : 2 \rightarrow 6.5p + q = 39 \\
 -3p + 6q &= 12 \quad | : 3 \rightarrow -p + 2q = 4 \\
 \hline
 19.5p &= 35 \\
 p &= \frac{35}{19.5} \\
 q &= 39 - 6.5p \\
 q &= 39 - 6.5 \left( \frac{35}{19.5} \right) \\
 q &= \frac{110}{19.5} + \frac{231}{19.5} \\
 6q &= \frac{341}{19.5} \\
 q &= \frac{341}{117} \\
 5p + 4q &= \frac{370}{19.5} + \frac{1560}{117} \\
 &= \frac{370}{19.5} + \frac{1560}{117} \\
 &= \frac{370}{19.5} + \frac{1560}{117} \\
 &= 45
 \end{aligned}$$

5. An electronic store is packing small vcd players into larger boxes that measure 30 in, by 46 in, by 65 in. If the measurement of each vcd players is 6 in, by 2 in, by 5 in., then how many vcd players can be placed in the box?
- a. 1495
  - b. 1459
  - c. 1945
  - d. 1954
  - e. 1594

Answer: A

5. Volume vcd player:  
 $6 \cdot 2 \cdot 5 = 60 \text{ in}^3$

Volume box:  
 $30 \cdot 46 \cdot 65 = 89700 \text{ in}^3$

$\therefore \frac{89700}{60} = 1495 \quad \textcircled{A}$

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6. A store owner decided to raise the price of a particular item by exactly 10%. Of the following which is not the new price?
- a. \$2.2
  - b. \$78.1
  - c. \$57.3
  - d. \$37.4
  - e. \$19.8

Answer : C

6.  $2.2 / 1.1 = 2$        $37.9 / 1.1 = 34$   
 $20.1 / 1.1 = 21$        $19.8 / 1.1 = 18$   
 $52.3 / 1.1 = 52.09$       (C)

7. If  $1/x = 3.5$ . Then  $1/(x+2) = ?$

- a.  $7/9$
- b.  $16/7$
- c.  $7/16$
- d.  $9/7$
- e.  $7/4$

Answer : C

7.  $\frac{1}{x} = 3.5$ ,  $\frac{1}{x+2} = \dots?$   
 $x = \frac{1}{3.5} \rightarrow \frac{1}{\frac{1}{3.5} + 2} = \frac{1}{\frac{2}{7} + \frac{14}{7}}$   
 $\frac{1}{3.5 + 2} = \frac{1}{\frac{16}{7}} = \frac{7}{16}$   
 (C)

8. From 7:00 AM to 11:00 AM it rained 2.25 inches. At 11:00 AM the rain increased to fall at a rate of 1.25 inches every two hours. How many inches of rain landed on the ground by 5:00 PM?

- a. 7
- b. 9.75
- c. 6
- d. 3.25
- e. 7.125

Answer : C

8.  $2.25 \rightarrow 11.00 \text{ AM}$   
 $2.25 + \frac{1.25 \times 2}{2} \rightarrow 5 \text{ PM}$   
 $2.25 + 1.25 = 3.5 \text{ inch} \rightarrow 5 \text{ PM}$   
 (C)

9. The price of a pack of Primero (Ralali face mask product) is \$3.48. The price of a ten pack of the same face mask is \$31.00. The ten pack of Primero is what percentage cheaper than purchasing ten packs of Primero individually?

- a. 21%
- b. 38%
- c. 32%
- d. 11%
- e. 20%

Answer : D

9. before discount  $\rightarrow 39.8$   
 after discount  $\rightarrow 31.0$

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2.8

$$\frac{2.8}{29.8} \times 100\% = 11\% \quad \textcircled{D}$$

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10. The development of the Ralali website update can be completed within 8 days by x developer. If the work is done by 14 developers, then how long it take to complete the website update?

- a.  $\frac{x}{112}$  days
- b.  $\frac{4}{7}x$  days
- c.  $\frac{7}{4}x$  days
- d.  $\frac{112}{x}$  days
- e.  $\frac{112}{7}x$  days

answer : C

10.  $\frac{1}{8} = \frac{\text{work}}{\text{days}} \times 14 = \frac{14}{8} = \frac{7}{4} \quad \textcircled{C}$

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11. Primero can produce 50pcs face mask of one package each in 12 minutes, approximately how many face masks does it produce in one hour??

- a. 210
- b. 510
- c. 150
- d. 250
- e. 120

Answer : D

11.  $\frac{60}{12} = 5 \rightarrow 50 \cdot 5 = 250$  (D)

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12. If 28 is p% of 70, then p equal to ....

- a. 40
- b. 35
- c. 30
- d. 20
- e. 15

answer : A

12.  $\frac{28}{70} = \frac{p}{100} = 40$  (A)

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13. A tank full of oil has 80 kg of weights. If the tank is half filled with oil, then the total weight is 46kg. How many kg does the tank weigh if it is empty?

- a. 6
- b. 12
- c. 23
- d. 24
- e. 34

answer: B

13.  $\begin{aligned} \text{netto} &= \\ 46 - x &= 50\% \\ 80 - x &= 100\% \\ x &= 12 \text{ Kg} \end{aligned}$  (B)

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14. The average monthly income of 350 sellers with personal entities in Ralali is 5.5 million rupiah, and the ratio of the number of sellers between men and women is 3:4. If the average income of the male group is 5.6 million rupiah. What is the average income of the women group?

- a. Rp. 5,4M
- b. Rp. 5,425M
- c. Rp. 5,450M
- d. Rp. 5,525M
- e. Rp5,540M

answer: B

14. 3:4

$$\begin{aligned} \text{Avg Salary} &= \frac{3 \cdot 5.6 + 4 \cdot x}{3 + 4} \\ &= \frac{16.8 + 4x}{7} \\ 5.5 &= \frac{16.8 + 4x}{7} \\ 38.5 &= 16.8 + 4x \\ x &= 5.925 \end{aligned}$$

(B)

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15. If the average from 2,3, x, and y is 5. Then the average from 4, 5, 6, x, and y is .....

- a. 4,6
- b. 5,0
- c. 5,6
- d. 6,0
- e. 6,4

answer : D

$$\left| \begin{aligned} 15. 2+3+x+y &= 20 \\ x+y &= 15 \end{aligned} \right| \left| \begin{aligned} 4+5+6+x+y &= 15 \\ \hline &= 6 \end{aligned} \right| \text{(D)}$$

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16. If  $m = a - 5$  and  $n = a - 7$ . Then  $3m - 2n = ?$

- a.  $a - 1$
- b.  $a - 29$
- c.  $3a + 1$
- d.  $5a - 1$
- e.  $5a + 29$

answer : A

$$\begin{aligned} 16. \quad & 3(a-5) - 2(a-7) \\ & = 3a - 15 - 2a + 14 \\ & = a - 1 \quad (A) \end{aligned}$$

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17. If  $p = q + 2$ ,  $q = r - 1$ , and  $r = 5$ . Then the correct one is ?

- a.  $p < q < r$
- b.  $p < r < q$
- c.  $q < r < p$
- d.  $q < p < r$
- e.  $r < p < q$

answer : C

$$\begin{aligned} 17. \quad & q = 4 \quad r = 5 \\ & p = 6 \\ & q < r < p \quad (C) \end{aligned}$$

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18.  $(165)^2 - (164)^2 =$

- a. 1
- b. 100
- c. 329
- d. 229
- e. 349

answer : C

$$\begin{aligned} 18. \quad & a^2 - b^2 = (a+b)(a-b) \\ & = (165+164)(1) \\ & = 329 \quad (C) \end{aligned}$$

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19. SunCloth Department Store reduces the price of a \$40 shirt by 15%, but later raises it again by 20% of the sale price. What is the final price of the shirt?

- a. \$44.40
- b. \$42
- c. \$40
- d. \$40.80
- e. \$40.60

answer : D

$$\begin{aligned}
 19. \quad & 40 - 15\% = 34 \\
 & 34 + 20\% = 34 + 6.8 \\
 & = 40.8
 \end{aligned}$$

(D)

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20. A new project was carried out by 20 Ralali engineers with an estimated processing time of 30 days. For some reason, entering the 11th day, the project was suspended and resumed 2 days later. One week before the end of the project completion period, only 80% of the engineers were able to continue their work until it was finished. With such conditions, the project will be delayed at least ..... days.

- a. 4
- b. 5
- c. 6
- d. 7
- e. 8

answer : B

$$\begin{aligned}
 20. \quad & \text{Total Kapasitas pengerjaan: } 600 \\
 & \text{hari ke 11} \rightarrow 600 - 220 = 380 \\
 & \bullet \text{ terdapat } : 20 \text{ orang} \\
 & \quad \text{ke 8 jam sehari: } 16 \text{ hari} \\
 & \bullet \text{ One week before the end} \\
 & \quad \text{ke pengerjaan: } 20 - 20\% = 16 \\
 & 380 - 220 = 160 \\
 & \bullet 16 \cdot 7 = 112 \rightarrow 160 - 112 = 48 \\
 & \rightarrow 48 / 16 = 3 \text{ hari}
 \end{aligned}$$

(B)

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21. There are 12 categories of products offered at Ralali Marketplace including Agriculture & Food, Automotive & Transportation, Beauty Sport & Fashion, Building Materials, Computer & Communication, Electronics, Furniture & Decorations, Healthcare & Medical, Horeca, Machinery & Industrial Parts, Office & Store Supplies, and Services.

At the time of data profiling, Buyers will usually be asked to choose the 3 categories they are most interested in shopping at Ralali. Determine how many variations of the category are formed!

- a. 120 variations
- b. 320 variations
- c. 220 variations
- d. 1320 variations
- e. 420 variations

answer : C

$$\begin{aligned}
 21. \quad 12C_3 &= 12! \\
 &= \frac{(12-3)! \cdot 3!}{1! \cdot 1! \cdot 1!} \\
 &= \frac{9! \cdot 3!}{1! \cdot 1! \cdot 1!} \\
 &= 220 \quad \textcircled{C}
 \end{aligned}$$

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The following is the Ralali Agent user data and the fraud detection results found. Based on this data we assume that you already understand the Bayes theorem works. This data row is used to answer questions 22-23.

	<i>Fraud Detected</i>	<i>No Fraud Detected</i>	Row Total
<i>Fraud Agent</i>	96	4	100
<i>Non Fraud Agent</i>	45	855	900
Column Total	141	859	1000

Assumptions:

- A = Fraud Detected
- B = Fraud Agent
- A' = No Fraud Detected
- B' = Non Fraud Agent

22. In this case, if the detection result is a Fraud Agent, what is the percentage chance that the User Agent is actually a Fraud Agent?  
From here the probability sought is the actual Fraud Agent (B) and a statement if the detection result is Fraud Agent (A).

- a. 78.09%
- b. 68.09%
- c. 68.90%
- d. 31.91%
- e. 21.91%

answer : B

$$22. \frac{96}{141} = 68.09\% \text{ (B)}$$

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23. In this case, if the detection result is a No Fraud Agent, what is the percentage chance that the User Agent is actually a No Fraud Agent?  
From here the probability sought is the actual Non Fraud Agent (B') and a statement if the detection result is No Fraud Agent (A').

- a. 78.09%
- b. 68.09%
- c. 68.90%
- d. 31.91%
- e. 21.91%

answer : A

$$23. \frac{818 - 145}{920} = 78.09\% \text{ (A)}$$

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