

Mathematics Text I

Select the best answer for each and write the appropriate letter in the blank.

_____ 1. $16 + 4 \times (7 + 8) - 3 =$ _____?

- a. 117
- b. 145
- c. 73
- d. 65

_____ 2. $(18 + 17) (12 + 9) - (7 \times 16) (4 + 2) =$ _____?

- a. 53
- b. 63
- c. 321
- d. 323

_____ 3. The sum of 73, 2891, 406 and 98 is _____?

- a. 3468
- b. 3486
- c. 3648
- d. 4648

_____ 4. Which of the following numbers is divisible by 24 ?

- a. 192
- b. 268
- c. 248
- d. 596
- e.

_____ 5. Which of the following numbers is **prime**?

- a. 57
- b. 87
- c. 89
- d. 91

6. The product of 18 and 73 is _____?

- a. 1304
- b. 1324
- c. 1314
- d. 1342

7. The difference of 476 and 182 is _____?

- a. 654
- b. 86632
- c. 314
- d. 294

8. Evaluate $\frac{1}{100} + \frac{2}{1000} + \frac{3}{10} =$ _____?

- a. 0.213
- b. 0.312
- c. 0.123
- d. 0.231

9. Evaluate $\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$ _____.

- a. $\frac{3}{14}$
- b. $\frac{3}{16}$
- c. $\frac{3}{12}$
- d. $\frac{7}{8}$

10. Seventy-one and **twenty-one** ten thousandths is written in standard form as :

- a. 71.2100
- b. 71.0021
- c. 71.210000
- d. 71,2100

11. One thousand forty two and seven thousandths written form is _____?

- a. 1042.7000
- b. 10,427,000
- c. 1042.007
- d. 1042.0007

12. $\frac{1}{3} + \frac{5}{6} + \frac{1}{2} =$ _____?

- a. 1 and $\frac{2}{3}$
- b. $\frac{7}{11}$
- c. 1 and $\frac{1}{3}$
- d. $\frac{3}{5}$

13. $3\frac{1}{2} - 1\frac{2}{3} =$ _____?

- a. 1 and $\frac{1}{6}$
- b. 5 and $\frac{1}{6}$
- c. 6 and $\frac{1}{5}$
- d. 1 and $\frac{5}{6}$

14. $900 \times 0.09 =$ _____?

- a. 0.81
- b. 8.1
- c. 81
- d. 810

15. $\frac{7}{8} \div \frac{21}{4} =$ _____?

- a. $\frac{1}{6}$
- b. $\frac{1}{3}$
- c. 1 and $\frac{1}{2}$
- d. $\frac{2}{3}$

16. $\frac{3}{5} \times \frac{10}{3} =$ _____?

- a. $\frac{13}{15}$
- b. 2
- c. $\frac{1}{2}$
- d. $\frac{3}{25}$

17. $3.156 \times 0.12 = \underline{\hspace{2cm}}?$

- a. 0.37872
- b. 3.7872
- c. 37.872
- d. 378.72

18. $5\frac{1}{2} \div 2\frac{1}{3} = \underline{\hspace{2cm}}?$

- a. 2 and $\frac{5}{14}$
- b. 12 and $\frac{5}{6}$
- c. $\frac{6}{77}$
- d. 2 and $\frac{2}{3}$

19. $\frac{2}{2} + \frac{4}{3} = \underline{\hspace{2cm}}.$

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- a. 1 and $\frac{1}{5}$
- b. 7 and $\frac{1}{5}$
- c. 15
- d. 30

20. 3% of 24 = $\underline{\hspace{2cm}}?$

- a. 0.72
- b. 7.2
- c. 72
- d. 720

21. $1402 + 142 + 14.2 + 1.42 = \underline{\hspace{2cm}}?$

- a. 15596.2
- b. 1559.62
- c. 155.962
- d. 155962

22. $2010 \times 0.0001 = \underline{\hspace{2cm}}?$

- a. 0.0201
- b. 0.201
- c. 2.01
- d. 20.1

23. Find the **average** of 6.8, 3.5, 9.2, 7.45, and 6.05.

- a. 6.0
- b. 6.6
- c. 66
- d. 660

$\underline{\hspace{2cm}}$ 24. $47 \times 0.05 = \underline{\hspace{2cm}}?$

- a. 23.5
- b. 2.35
- c. 0.235
- d. 0.0235

_____ 25. $87 \div 0.01 =$ _____?

- a. 8700
- b. 870
- c. 87
- d. 8.7

_____ 26. $(0.5)(5)(0.5) =$ _____.

- a. 0.0125
- b. 0.125
- c. 1.25
- d. 12.5

_____ 27. Dividing by 0.2 is the same as multiplying by _____?

- a. $\frac{1}{2}$
- b. 0.5
- c. 2
- d. 5

_____ 28. $0.012 \div 3 =$ _____?

- a. 0.0004
- b. 0.004
- c. 0.04
- d. 0.4

_____ 29. $2.944 \div 0.23 =$ _____?

- a. 0.128
- b. 12.8
- c. 1.28
- d. 128

30. $\frac{0.25 + 0.25 + 0.25 + 0.25}{0.25} =$ _____?

- a. 0.75
- b. 7.5
- c. 4
- d. 0.04

31. $0.0088 \div 0.22 =$ _____?

- a. 4
- b. 0.4
- c. 40
- d. 0.04

32. $(0.15 \times 0.37) + (0.85 + 0.63) + (0.15 + 0.63) + (0.85 + 0.37) =$ _____?

- a. 0.0555
- b. 0.5355
- c. 1
- d. 0.9

33. Which of the following best approximate $68 \div 0.17 =$ _____?

- a. 0.4
- b. 4
- c. 40
- d. 400

e.

34. The decimal form of $11/6$ is _____?

- a. 1.83
- b. 1.86
- c. 0.83
- d. 0.67

35. $5/9$ of what number is 435 ?

- a. 288
- b. 87
- c. 783
- d. 29

36. Which of the following fractions is the greatest?

- a. $1/10$
- b. $0.1/0.10$
- c. $1/0.01$
- d. $1/0.001$

37. $4.7 - 3.12 =$ _____?

- a. 1.58
- b. 1.62
- c. 2.65
- d. 1.52

38. $19.4 - 12.72 + 5$ _____?

- a. 1.471
- b. 14.71
- c. 12.68
- d. 11.68

39. $\frac{27}{32} \div \frac{-3}{8} =$ _____?

- a. 2 and $1/4$
- b. -2 and $1/4$
- c. 4 and $1/2$
- d. -4 and $1/2$

40. $2\frac{3}{4} \times 4 =$ _____?

- a. 8 and $3/4$
- b. 5
- c. 11
- d. 12

41. $\frac{-1}{4} + \frac{5}{6} =$ _____.

- a. $7/12$
- b. 1 and $1/12$
- c. $5/12$
- d. 1 and $1/4$

_____42. $(-11.1) + (12.32) =$ _____.

- a. -1.22
- b. 12.2
- c. 1.22
- d. -12.2

_____43. What % of 50 is 15?

- a. 15%
- b. 25%
- c. 30%
- d. 35%

_____44. What % of 12 is 6 ?

- a. 50%
- b. 200%
- c. 6%
- d. 2%

_____45. $36 / 720 =$ _____?

- a. 20
- b. 200
- c. 5
- d. 0.05

_____46. What is $1/4$ % of 880?

- a. 0.22
- b. 2.2
- c. 22
- d. 220

_____47. What % of 2 and $1/2$ is $1/2$?

- a. $1/2$ %
- b. 5%
- c. 20 %
- d. 25 %

_____48. 180 is $66 \frac{2}{3}$ % of what number?

- a. 120
- b. 150
- c. 210
- d. 270

_____49. $\frac{1}{3}$ of what **number** is 42 ?

- a. 7
- b. 14
- c. 126
- d. 84

_____50. $8 \frac{1}{3} - 2 \frac{5}{5} =$ _____?

- a. 6 and $7/24$
- b. 6 and $17/24$
- c. 5 and $17/24$
- d. 6 and $4/5$

Mathematics Test II

Select the best answer for each and write the appropriate letter in the blank.

_____ 1. 27, 499 round to the nearest hundred is _____?

- a. 27, 400
- b. 27, 500
- c. 27, 000
- d. 28, 000

_____ 2. Twenty-four weeks is how many days?

- a. 140
- b. 168
- c. 176
- d. 196

_____ 3. Five hundred ninety-five days is how many weeks?

- a. 119
- b. 95
- c. 85
- d. 75

_____ 4. Eighteen bus loads of 56 students each went to join the Independence Day Celebration. One hundred seventy-four did not go. How many students are there in all?

- a. 160
- b. 1282
- c. 180
- d. 1182

_____ 5. Richard bowled 3 games and got scores of 139, 153, and 128. What was his average score for the three games?

- a. 130
- b. 140
- c. 150
- d. 160

_____ 6. What time will it be 3 and 1/2 hours after 7:15 PM?

- a. 3:45 AM
- b. 10:45 AM
- c. 3:45 PM
- d. 10:45 PM

_____ 7. What time was it 3 and 1/2 hours before 7:15 AM?

- a. 3:45 AM
- b. 10:45 AM
- c. 3:45 PM
- d. 10:45 PM

_____ 8. The fraction $52 / 91$ expressed in lowest term is _____?

- a. $4/7$
- b. $2/3$
- c. $3/7$
- d. $7/13$

_____ 9. Car A averages 8 km per liter of fuel. Car B averages 12 km per liter of fuel. If the price of fuel is \$10 per liter. How much less would a 600 - km. **trip cost** for Car A than for Car B?

- a. \$ 250
- b. \$ 500
- c. \$ 600
- d. \$ 750

_____ 10. Change $31/17$ to a **mixed** number.

- a. 14 and $1/17$
- b. 4 and $1/17$
- c. 2 and $3/7$
- d. 1 and $14/17$

_____ 11. 40 is what part of 64?

- a. $7/8$
- b. $3/8$
- c. $5/8$
- d. 1 and $3/5$

_____ 12. Change $13 \frac{3}{7}$ to an improper **fraction**.

- a. $91/7$
- b. $39/7$
- c. $273/7$
- d. $94/7$

_____ 13. What is the average speed in kph of a **car** travelling 160 kilometers in 5 hours?

- a. 32
- b. 40
- c. 80
- d. 90

14. $\frac{3}{4} + \frac{1}{6} + \frac{1}{8} =$ _____?

- a. $5/8$
- b. 1 and $1/24$
- c. $1/16$
- d. $3/8$

15. $15 \frac{1}{3} - 8 \frac{3}{4} =$ _____?

- a. 6 and $7/12$
- b. 7 and $2/3$
- c. 8 and $2/7$
- d. 7 and $2/7$

16. 8 inches is what part of a foot?

- a. $2/3$
- b. $7/12$
- c. $4/5$
- d. $5/6$

17. If 4 workers can **complete** 8 identical jobs in 4 days, how long will it take 6 workers to complete 12 such jobs?

- a. 3 days
- b. 4 days
- c. 5 days
- d. 6 days

_____18. A bookstore **sells** two kind of MSA Reviewer Books. "**College** Admission Test Reviewer (CATR)" and High School **Entrance Test** Reviewer (HSETR)". If it sells the CATR which **yield** a **profit** of \$62.00 per book, and it can sell 300 books in a month. It sells the HSETR at a profit of \$50.50 per book and it can sell 350 books in one month. **Which type** of book will yield more profit per month, and by how much?

- a. The HSETR will yield a greater profit by \$ 925.
- b. The CATR will yield a greater profit by \$ 925.
- c. Both books will yield exactly the same profit
- d. The CATR will yield a greater profit by \$ 1150.

_____19. Mr. Jose Suobiron inherited $\frac{5}{8}$ of his father's estate. He sold $\frac{2}{5}$ of his share. What part of the entire estate did he sell?

- a. $\frac{1}{2}$
- b. $\frac{1}{4}$
- c. $\frac{2}{5}$
- d. $\frac{3}{8}$

_____20. 13 and $\frac{1}{3}$ ounces is what part of a pound?

(16 ounces = 1 pound)

- a. $\frac{2}{3}$
- b. $\frac{5}{6}$
- c. $\frac{3}{4}$
- d. $\frac{7}{8}$

_____21. 126 is $\frac{3}{7}$ of what number?

- a. 54
- b. 84
- c. 119
- d. 294

_____22. A **roll** of ribbon 51 yards long is to be divided into 408 **equal parts**. How many inches is the **length** of each part?

- a. 3.5
- b. 4.5
- c. 5.5
- d. 6.5

_____23. A water tank is $\frac{7}{8}$ full. When 21 **liters** of water is drawn out, the tank is $\frac{5}{8}$ full. What is the total capacity of the tank in liters?

- a. 63
- b. 84
- c. 87
- d. 93

_____24. A **painter** completes $\frac{2}{9}$ of a job in 3 days. At this rate, how many more days will it take him to finish the job?

- a. 7.5 days
- b. 9.5 days

- c. 10.5 days
- d. 13.5 days

_____25. A boy spent \$320, which was $\frac{5}{7}$ of what he had **originally**. How much did he have originally?

- a. \$ 438
- b. \$ 448
- c. \$ 476
- d. \$ 576

_____26. $0.0075 \times 1000 =$ _____?

- a. 0.075
- b. 0.75
- c. 7.5
- d. 75

_____27. Express 0.572 as a **common fraction** in lowest term?

- a. $\frac{71.5}{125}$
- b. $\frac{35.75}{62.5}$
- c. $\frac{14}{25}$
- d. $\frac{143}{250}$

_____28. Of the following which is the closest approximation to the product $0.33 \times 0.41 \times 0.625 \times 0.83 =$ _____?

- a. $\frac{3}{8}$
- b. $\frac{3}{4}$
- c. $\frac{6}{41}$
- d. $\frac{5}{72}$

_____29. Dividing by 0.125 is the same as multiplying by _____?

- a. $\frac{3}{8}$
- b. $\frac{1}{4}$
- c. $\frac{1}{8}$
- d. 8

_____30. If a **copper wire** is 3.7 feet long, its **length** in inches is _____?

- a. less than 40
- b. between 40 and 44
- c. between 44 and 45
- d. more than 45

_____31. $\frac{9}{0.09 \times 0.9} =$ _____?

- a. $\frac{9}{1000}$
- b. $\frac{9}{100}$
- c. $\frac{100}{9}$
- d. $\frac{1000}{9}$

_____32. How much money can be saved by buying 72 pens at \$90 per dozen than buying them for \$7.75 each?

- a. \$ 0.25
- b. \$ 3.00
- c. \$ 12.00
- d. \$ 18.00

_____33. Two countries produce $\frac{1}{8}$ and $\frac{3}{10}$ respectively of the world production of aluminum. What **fraction** of the world production do the two **nations** produce together?

- a. $\frac{7}{40}$
- b. $\frac{3}{40}$
- c. $\frac{17}{40}$
- d. $\frac{21}{40}$

_____34. Of 20 is 25 % of $x + 7$, then $x =$ _____?

- a. 73
- b. 80
- c. 87
- d. 93

_____35. If $5 \times 5 \times Z = 15 \times 15 \times 15$, then $Z =$ _____?

- a. 45
- b. 30
- c. 105
- d. 135

_____36. The morning class in school begin at 8:05 AM and end at 12:00 noon. There are five class **periods** of 45 minutes each with equal **intervals** between classes. How many minutes are there in each interval?

- a. 2
- b. 2.5
- c. 3
- d. 4.5

_____37. Every seat in a bus was taken and 7 people were standing. At the next stop 15 people got off and 3 got on. **How many** seats were empty after this stop if everyone was seated?

- a. 3
- b. 5
- c. 7
- d. 10

_____38. A boy scored 134, 145, and 150 in his first 3 games. What score must he make on his next **game** so that his average for the four games will be 149?

- a. 163
- b. 165
- c. 167
- d. 170

_____39. Angelo can type 9 pages in 12 minutes. How many pages can he type in 8 hours at the same rate?

- a. 180
- b. 360
- c. 390
- d. 540

_____40. Girlie **starts** cleaning the **yard** at 10 AM and by 11:20, she has finished $\frac{4}{5}$ of it. If she continues working at the same rate, at what time will she finish cleaning the yard?

- a. 11 : 10 AM
- b. 12 : 20 AM
- c. 11 : 40 AM
- d. 11 : 52 AM

_____41. If $\frac{3}{8}$ of a certain number is $\frac{2}{5}$, what is $\frac{3}{4}$ of that same number?

- a. $\frac{1}{5}$
- b. $\frac{2}{5}$
- c. $\frac{3}{5}$
- d. $\frac{4}{5}$

_____42. A bus travels 240 kilometers at 60 kph and then returns at 40 kph. What is the average speed in kilometers per hour for the round **trip**?

- a. 48
- b. 49
- c. 50
- d. 52

_____43. Mr. Albelda drives his car at **the rate** of 60 miles per hour. What is his rate in feet per second?

- a. 66
- b. 76
- c. 86
- d. 88

_____44. What is 0.05 percent of 6.5 ?

- a. 0.00325
- b. 0.0325
- c. 0.325
- d. 3.25

_____45. At Rosa Alvero Street, in Loyola Heights there are 8 **towns** houses and 52 private **individual** homes. What is **the ratio** of **town houses** to private individual homes?

- a. 2 : 27
- b. 2 : 13
- c. 1 : 13
- d. 4 : 13

_____46. If it takes 16 **pipes** 10 hours to fill 8 **tanks**, how long will it take 12 pipes to fill 9 tanks?

- a. 10 hours
- b. 12 hours
- c. 13 hours
- d. 15 hours

_____47. Mr. Cruz **borrow**s \$360,000. If he **pay**s back \$378,000 after one year, what is his interest rate?

- a. 1.5%
- b. 4.5%
- c. 5%
- d. 7.5%

_____48. If 6 men need \$3,600 worth of food for a three-day **camping trip**, how much will 2 men need for a 15-day trip?

- a. \$ 3, 600
- b. \$ 4, 800
- c. \$ 5, 400
- d. \$ 6, 000

_____49. What is 6% of 2.5 ?

- a. $\frac{5}{3} \%$
- b. 15
- c. $\frac{3}{20}$
- d. $\frac{3}{5}$

_____50. What is the value of $60 \times 31 \times 36 \times 7$?

- a. 468, 720
- b. 468, 721
- c. 468, 722
- d. 468, 723

Mathematics Test III

Select the best answer for each and **write** the appropriate **letter** in the blank.

_____1. If $9x - 7 = 18y$ then $\frac{9x - 7}{6} =$ _____?

- a. $2y$
- b. $3y$
- c. $6y$
- d. $y + 6$

_____2. A student buys an MSA Reviewer Book for \$175 after receiving a discount of 12.5%. What was the **marked** price?

- a. \$ 187.50
- b. \$ 200
- c. \$ 225
- d. \$ 250

_____3. A town house unit was sold for \$2.50 M, yielding a 25% profit. For how much would it be sold to yield only a 10% profit on the **cost**?

- a. \$ 2M
- b. \$ 2.25M
- c. \$ 2.2M
- d. \$2.45M

_____4. What single discount is equivalent to successive discounts of 5% and 10%?

- a. 10.5%
- b. 12.5%
- c. 14.5%
- d. 15%

_____5. How many miles are there in 40 kilometers?

- a. 25
- b. 64
- c. 32
- d. 60

_____6. If a water tank can be filled in $1\frac{3}{4}$ hours. What part of the tank can be filled in exactly 1 hour?

- a. $\frac{1}{2}$
- b. $\frac{3}{4}$
- c. $\frac{4}{7}$
- d. 1

_____ 7. If 5 items cost d dollars how much would x items cost at the same rate?

- a. $p / 5x$
- b. $5 / px$
- c. $x / 5p$
- d. $px / 55$

_____ 8. In a group of 8, 000 applicants for a civil service examination, 1600 failed to take the first part of the test. What percent of the total applicants took the first part of the test?

- a. 20%
- b. 30%
- c. 40%
- d. 80%

_____ 9. If the ratio $a : b$ is $11 : 9$, then $a + b$ is _____?

- a. 9
- b. 11
- c. 20

_____ 10. If 4 men can paint a fence in 2 days, what part of the job can be completed by one man in 8 days?

- a. $1/4$
- b. $1/2$
- c. $3/4$
- d. whole job
- e.

_____ 11. Of John's salary, $1/10$ is spent for clothing, and $1/4$ for board and lodging. What part of the salary is left for other expenditures and savings?

- a. $3/5$
- b. $13/20$
- c. $7/10$
- d. $2/5$
- e.

_____ 12. Which of the following fractions is closest to $1/3$?

- a. $1/5$
- b. $2/5$
- c. $2/3$
- d. $3/5$
- e.

_____ 13. Write 0.5 % as decimal.

- a. 5
- b. 0.5
- c. 0.05
- d. 0.005

_____ 14. If 10 parts of alcohol is mixed with 15 parts of water, what part of the mixture is alcohol?

- a. $2/3$
- b. $2/5$
- c. $1/3$
- d. $3/5$

_____ 15. If $2/5$ of the workers in a factory go on vacation in September and $1/3$ of the remainder take their vacation in October, what fraction of the workers take their vacation in some other time?

- a. $2/5$
- b. $1/3$
- c. $1/15$

d. $\frac{4}{15}$

_____ 16. A **bill** was passed by a vote of 7 : 5 . What part of the vote counts were in favor of the bill?

- a. $\frac{5}{7}$
- b. $\frac{7}{12}$
- c. $\frac{5}{12}$
- d. $\frac{7}{5}$

_____ 17. If a man travels for half of an hour at 60 km/hr, and for quarter of an hour for 120 km/hr, what is his average speed?

- a. 80 kph
- b. 90 kph
- c. 100 kph
- d. 120 kph

_____ 18. What part of an hour elapses between 9:52 AM and 10:16 AM ?

- a. $\frac{2}{5}$
- b. $\frac{1}{3}$
- c. $\frac{1}{6}$
- d. $\frac{1}{4}$

_____ 19. If **the ratio** of boys to girls is 3 : 7 . If the class has 40 students, how many additional boys are needed to **enroll** to make the ratio 2 : 1 ?

- a. 11
- b. 33
- c. 44
- d. 50

_____ 20. If 45 feet of uniform wire **weigh** 5 kilograms, what is **the weight** of 30 yards o the same wire?

- a. 5 kg
- b. 10 kg
- c. 15 kg
- d. 20 kg

_____ 21. A school has enough **oatmeal** to feed 15 children in 4 days. If 5 more children are added, how many days will the oatmeal last ?

- a. 3
- b. 12
- c. $1\frac{1}{3}$
- d. $5\frac{1}{3}$

_____ 22. If a car can **travel** 60 km on 12 **liters** of gasoline, how many liters will be needed in a 210 km trip ?

- a. 30
- b. 42
- c. 45
- d. 50

_____ 23. Write 7.5% as a fraction.

- a. $\frac{3}{4}$
- b. $\frac{3}{40}$
- c. $\frac{3}{400}$
- d. $\frac{3}{4000}$

_____24. Write $\frac{3}{8}\%$ as decimal.

- a. 0.00375
- b. 0.0375
- c. 0.375
- d. 3.75

_____25. Find 40% of 60.

- a. 0.24
- b. 2.4
- c. 24
- d. 240

_____26. Find 70% of 60.

- a. 420
- b. 4.2
- c. 4200
- d. 42

_____27. What is 175% of 24 ?

- a. 0.42
- b. 4.2
- c. 42
- d. 420

_____28. What percent of 60 is 42 ?

- a. 0.7
- b. 7
- c. 70
- d. 1.428

_____29. 54 is 20% of what number ?

- a. 2.7
- b. 270
- c. 10.8
- d. 108

_____30. 24 is 150% of what number ?

- a. 8
- b. 12
- c. 16
- d. 18

_____31. How many thirty- seconds are there in $62\frac{1}{2}\%$?

- a. 5
- b. 8
- c. 12
- d. 20

_____32. A shirt **marked** \$560 is sold for \$392. What was **the rate** of discount ?

- a. \$ 168
- b. \$ 123
- c. \$ 30%
- d. 70%

_____33. A **kinder** class has g number of girls and b number of boys. The ratio of boys to girls is _____ ?

- a. bg
- b. $b / (b+g)$
- c. g/b
- d. b/g

_____34. $\frac{\sqrt{\frac{1}{25} + \frac{1}{144}}}{}$ = _____ ?

- a. $1/17$
- b. $17/60$
- c. $13/60$
- d. $12/13$

_____35. A basketball team has won 24 games out of 36 **games played**. It has 24 more **games to play**. How many of these must the team win to make its record 80% for the season ?

- a. 12
- b. 18
- c. 18
- d. 24

_____36. If prices are reduced by 25% sales **increased** by $33 \frac{1}{3} \%$ what is the net effect on gross revenue ?

- a. they increase by 8 and $1/3$
- b. they decrease by 8 and $1/3$
- c. they remain the same
- d. they increase by 10%

_____37. An 8-meter rope is cut so that one part is $3/5$ of the other. How long in meters, is the shorter segment ?

- a. 2
- b. 3
- c. 4
- d. 5

_____38. When the gasoline gauge of an automobile shows $1/8$ full, 52.5 **liters** is needed to completely fill the gasoline **tank**. What is the capacity, in liters of the gasoline tank?

- a. 48
- b. 50
- c. 56
- d. 60

_____39. What part of gallon is 7 **pints**, given that 1 **quart** = 2 pints, 4 **quarts** = 1 gal. ?

- a. $7/8$
- b. $7/16$
- c. $7/4$
- d. $\frac{3}{4}$

_____40. If 7 is added to four times a number, the result is 91. What is the number ?

- a. 21
- b. 42
- c. 32
- d. 56

_____41. The area of a square is 36 sq. cm. What is the perimeter of **the square** ?

- a. 6 cm
- b. 24 cm
- c. 30 cm
- d. 36 cm

_____42. A truck can carry a load of $8 \frac{2}{3}$ tons. How many trips must the truck make to deliver $10 \frac{2}{3}$ tons of sand?

- a. 8
- b. 9
- c. 10
- d. 12

_____43. What is the value of

$$\frac{6a^2b^3}{9}$$

if $a = 2$ and $b = 3$?

- a. 18
- b. 24
- c. 36
- d. 72

_____44. $Z + \frac{4}{Z} = 4$, then $Z =$ _____?

- a. 1
- b. 2
- c. -1
- d. -2

_____45. $\frac{1}{x} \div \frac{1}{\frac{1}{x}} =$ _____ ?

- a. 1
- b. $1/x^2$
- c. x^2
- d. $2x$

_____46. $x \sqrt{0.0004} = 4 : x =$ _____ ?

- a. 80
- b. 100
- c. 200
- d. 400

47. A piece of wire is cut into three, so that the first is three times as long as the second and the second is three times as long as **the third**. What part of the entire piece is the shortest?

- a. $1/9$
- b. $1/10$
- c. $1/13$
- d. $1/15$

48. What is the average of the first 20 **positive integers** ?

- a. 9
- b. 9.5
- c. 10
- d. 10.5

49. A sales representative earns 5% commission on all sales between \$ 20, 000 and \$ 60, 000, and 8% on all sales over \$ 60,000. What is the commission in a week in which her total sales was \$ 80, 000 ?

- a. \$ 3, 600
- b. \$ 4, 600
- c. \$ 5, 600
- d. \$ 6, 400

50. $\sqrt{\frac{12}{27} + \frac{12}{9}}$

- a. 16/9
- b. 4/3
- c. 3/4
- d. 9/16

Mathematics Test IV

Select the best answer for each and rite the appropriate letter in the blank.

_____1. A car that cost \$ 1.2 M can be sold for \$ 600, 000 after 5 years of use. What will be the yearly depreciation cost ?

- a. \$ 100, 000
- b. \$ 12, 000
- c. \$ 120, 000
- d. \$ 600, 000

_____2. How many times does the digit 7 appear in the numbers from 1 to 100 ?

- a. 9
- b. 10
- c. 19
- d. 20

_____3. At the rate of \$ 44 per hundred sheets of colored bond paper, how much is the cost of 500 sheets ?

- a. \$ 121
- b. \$ 242
- c. \$ 440
- d. \$ 480

_____4. At \$ 25 per board foot of wood, what is the cost of 15 pieces of 2" x 2" x 12' ?

(1 board foot = 1 ft. x 1 ft. x 1 inch)

- a. \$ 18, 000
- b. \$ 15, 000
- c. \$ 1, 250
- d. \$ 1, 500

_____5. The decimal form of 0.56 % is _____ ?

- a. 0.0056
- b. 0.056
- c. 0.56
- d. 56

_____6. If 3 feet = 1 yard, how many yards are there in 27 feet ?

- a. 9
- b. 81
- c. 24
- d. 12

_____7. How many feet are there in 9 and $\frac{1}{3}$ yards ?

- a. 9
- b. 10
- c. 12
- d. 28

_____8. A hand-carved **wooden dining set** is priced at \$69, 950. If 20% discount is given to the customer, how much would he have to pay for the set ?

- a. \$ 53, 960
- b. \$ 54, 960
- c. \$ 55, 960
- d. \$ 56, 960

_____9. If an **article** priced at \$99.80 is subjected to a 10% VAT, what would be the total amount to be paid for the article ?

- a. \$ 89.82
- b. \$ 109.78
- c. \$ 109.80
- d. \$ 110.78

_____10. Find the **cost** of 6 and $\frac{1}{2}$ dozen eggs at \$ 30.00 per dozen.

- a. \$ 186
- b. \$ 190
- c. \$ 194
- d. \$ 195

_____11. A lady employee **purchased** an umbrella for \$ 180 less 20%. **How much should** she pay if its is subject to a 5 % **sales tax** ?

- a. \$ 151.20
- b. \$ 153
- c. \$ 160
- d. \$ 165

_____12. Mr. Mansueto Velasco Jr. is buying a piece of lot at Filinvest Homes East. The dimension of the **rectangular** lot is 14 meters by 30 meters at \$ 3, 500 per square meters, what would be the total **cost** of the lot ?

- a. \$ 308, 000
- b. \$ 105, 014
- c. \$ 735, 000
- d. \$ 1, 470, 000

_____13. How much must a salesman sell in a month to yield him a commission of \$ 12, 000, if his rate of commission is 5% on goods sold ?

- a. \$ 12, 000
- b. \$ 60, 000
- c. \$ 240, 000
- d. \$ 24, 000

_____14. How much would Charlie receive from his **monthly salary** of \$ 8,000 after deducting 2 and $\frac{1}{2}$ % for **SSS contribution** and 5% withholding tax ?

- a. \$ 7, 400
- b. \$ 7, 500
- c. \$ 7, 850
- d. \$ 7, 950

_____15. A student had \$ 1, 050 in his wallet. He spent \$ 640 for books and school **supplies**. What part of his money did he spend?

- a. $\frac{2}{5}$
- b. $\frac{3}{5}$
- c. $\frac{2}{3}$
- d. $\frac{3}{4}$

_____16. MS. Cecille Garcia saves 18% of her **monthly salary** of \$ 16, 500. How much does she saved in a year?

- a. \$ 34, 460
- b. \$ 35, 460
- c. \$ 110, 000
- d. \$ 260, 000

_____17. Mrs. Leny Ngo wishes to buy a **second hand** car, the cash price of which is \$ 150, 000. Not having ready cash she agrees to pay $\frac{1}{3}$ down and the balance in 10 monthly **installments** of 11, 000 each. What is the total price of the car ?

- a. \$ 160, 000
- b. \$ 170, 000
- c. \$ 110, 000
- d. \$ 260, 000

_____18. A **cross-stitch** store owner buys cross-stitch frame at \$ 12, 500 each. **How much should he sell each** in order to realize a **profit** of $\frac{3}{20}$ more than the buying price ?

- a. \$ 12, 750
- b. \$ 13, 375
- c. \$ 13, 350
- d. \$ 14, 375

_____19. This year XYZ company's **profit** was \$ 2, 440, 000, which is 22% more than last year's profit. How much was the profit last year ?

- a. \$ 1, 220, 000
- b. \$ 2, 000, 000
- c. \$ 1, 880, 000
- d. \$ 1, 900, 000

_____20. Mrs. Ramos **pays** \$ 1, 530 for a dress at 15 % discount. How much is the **marked price** ?

- a. \$ 1, 545
- b. \$ 1, 600
- c. \$ 1, 800
- d. \$ 1, 750

_____21. A customer buys 4 pairs of **socks originally** priced at \$ 60.00 each. If the **reduced price** is \$ 47.50, how much does he save on this purchase ?

- a. \$ 50
- b. \$ 60
- c. \$ 65
- d. \$ 70

_____22. Gerard left City A to drive to City B at 6:15 A.M. and arrived at 1:45 P.M. If he averaged 60 km per hour and stopped one hour for lunch, how far is City A to City B ?

- a. 390 km
- b. 420 km
- c. 450 km
- d. 270 km

23. The sum of $\sqrt{81} + \sqrt{100}$ is _____ ?

- a. $\sqrt{181}$
- b. 10
- c. 9
- d. 19

24. The sum of three consecutive **integers** is 54. Find the **smallest integer**.

- a. 16
- b. 17
- c. 18
- d. 19

25. **How many miles** does a car travel if it averages at a rate of 35 miles per hour for 3 hours and 24 minutes?

- a. 109
- b. 112
- c. 113
- d. 119

26. Elmer can deliver newspaper in his **route** for $1\frac{1}{2}$ hours. Wowie who takes his place one day finds that it takes him $1\frac{1}{2}$ longer to deliver these. How long will it take to deliver the papers if they work together ?

- a. 1 hour
- b. 1 hour 15 minutes
- c. 1 hour 20 minutes
- d. 3 hours

27. If it takes h hours to paint the wall, what part of the wall is **painted** in one hour ?

- a. h
- b. $1/h$
- c. hx
- d. x/h

28. A sack of corn will feed 18 **ducks** for 54 days. How long will it feed 12 ducks ?

- a. 36
- b. 60
- c. 72
- d. 81

29. Find the next number in the series 1, 4, 9, 16, _____ ?

- a. 20
- b. 25
- c. 26
- d. 30

30. A bag is sold for \$680 while **marked** at \$800. What was the rate of the discount ?

- a. 12%
- b. 15%
- c. 20%
- d. 25%

31. Six hundred examinees passed the **Licensure** Examination last year. This represents the $8\frac{1}{3}$ percent of the total examinees. How many examinees failed the **exam**?

- a. 6,000
- b. 6,200
- c. 6,600
- d. 7,200

32. If 4 miles = 6.44 km, then 14.49 km equals **how many miles** ?

- a. 7
- b. 8
- c. 9
- d. 10

_____33. $(a^2 - 4b^2)c$ is equivalent to $ac +$ _____ ?

- a. $2bc$
- b. $-2bc$
- c. $2b$
- d. $-2b$

_____34. In a certain class the ratio of boys to girls is 4 : 5. If the class has 54 students, how many are girls ?

- a. 24
- b. 30
- c. 12
- d. 27

_____35. Solve for x : $ax = bx + cx - d$, $a \neq b \neq c$.

a. $\frac{d}{a - b - c}$

b. $\frac{d}{b - a - c}$

c. $\frac{d}{b + c - a}$

d. $\frac{d}{b - c - a}$

_____36. The ratio of men athlete to women in an athletic meet is 5 : 3 and the total number of athlete is 2,400, how many additional women athlete would have to join to make the ratio of men to women 1 : 1 ?

- a. 6
- b. 400
- c. 600
- d. 1,200

_____37. If prices are reduced by 20 %, quantity sold increase by 25 %. What is **the net** effect on the gross revenue?

- a. it increases by 5%
- b. it decreases by 5%
- c. it remains the same
- d. it increases by 10%

_____38. The average of three numbers is xyz . If the sum of two numbers is $x + y$, what is the other number?

- a. $3xyz - (x+y)$
- b. $xyz - (x+y)$
- c. z
- d. can't be determined from the given information

_____39. When $+ 13$ is added to $- 15$, the sum is _____ ?

- a. -2
- b. 2
- c. -18
- d. 18

_____40. When -15 is subtracted from -18 , the difference is _____?

- a. -3
- b. 3
- c. 33
- d. -33

_____41. When the product of (-4) and (-17) is divided by 2 , the quotient is _____ ?

- a. -34
- b. 34
- c. 68
- d. -66

_____42. If $5x + 17 = 32$, then $x =$ _____ ?

- a. 9.8
- b. -9.8
- c. 3
- d. -3

_____43. Solve for M :

$$\frac{M}{7} - \frac{M}{3} = 4$$

- a. 21
- b. -21
- c. -1
- d. 1

_____44. If $x + y = 4a$ and $x - y = 2b$ then $y =$ _____ ?

- a. $b - 2a$
- b. $2a - b$
- c. $2a + b$
- d. $a - 2b$

_____45. If $0.37m = 0.0111$ then $m =$ _____ ?

- a. 0.03
- b. 0.3
- c. 3
- d. 30

_____46. If $1 / M = 4$ and $S = 2$, what is S in terms of M ?

- a. $1 / 2M$
- b. $-2M$
- c. $-(1/2M)$
- d. $2M$

_____47. A horse is tied to a pole with a rope of 7 meters long. **How much** grazing area does it have?

- a. 154 sq. m.
- b. 164 sq. m.
- c. 314 sq. m.
- d. 174 sq. m.

_____48. What number is missing in this sequence : 5, 7, 11, 17, _____ ?

- a. 22
- b. 23
- c. 25
- d. 27

_____49. How many two-digit numbers can be formed from the digits 1, 2, 3, 4, and 5 if a digit cannot be used more than once?

- a. 10
- b. 15
- c. 20
- d. 25

_____50. What is the value of x in $5 : x = x : 125$?

- a. 5
- b. 15
- c. 20
- d. 25

_____51. If one bilao of pansit guisado serves 7 people, how many bilaos are needed to serve a banquet of 126 people?

- a. 15
- b. 16
- c. 17
- d. 18

_____52. If $x = 8$, which of the following has **the least** value?

- a. $x - 3$
- b. $3/x$
- c. $x/3$
- d. $3 - x$

_____53. If rain is pouring at the rate of 3 inches per hour, how many inches will it pour in 15 minutes?

- a. $1/36$
- b. $3/4$
- c. 45
- d. 5

_____54. If $(18 \times 3) \div a = 6$ then $a - 9 =$ _____?

- a. 0
- b. 1
- c. 9
- d. 10

_____55. If $a = 3$, $b = 2$, and $c = 4$, then the value of $(ac - bc) \div (a+b+c) =$ _____?

- a. $4/9$
- b. $2/3$
- c. $3/8$
- d. $1/2$

Mathematics Test V

Select the best answer for each and write the appropriate letter in the blank.

_____ 1. What number is as much more than 8 as it is less than 32 ?

- a. 20
- b. 40
- c. 60
- d. cannot be determined from the given information

_____ 2. A container van that is 3 meters wide, 5 meters long and 4 meters high will transport 200 crates whose volume is 6 cubic meters. How many trips will it take to transport all the crates?

- a. 20
- b. 25
- c. 30
- d. 35

_____ 3. A rectangular block of copper, with dimensions 4m x 6m x 9m, is melted and recast into a cubical block. Find the length of the side of the cubical block.

- a. 4 cm
- b. 6 cm
- c. 9 cm
- d. 12 cm

_____ 4. There are 9 male teachers for every 14 female teachers. If there are 69 teachers in all, how many teachers are female?

- a. 18
- b. 27
- c. 39
- d. 42

_____ 5. What would be the closest approximation to $\sqrt{66}$?

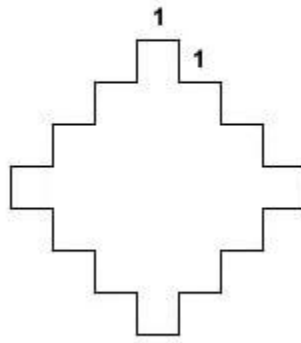
- a. 7.9
- b. 8
- c. 8.1
- d. 8.9

_____ 6. Manny can do a certain job in 1 day, Anna can do the same job in 2 days, and Josie can do the job in 3 days. How many days will it take them to do the job if they work together?

- a. $\frac{1}{6}$
- b. $\frac{1}{3}$
- c. $\frac{6}{11}$
- d. $\frac{1}{2}$

_____7. In the figure, all the line segments meet at right angles and each segments has a length of 1 unit. What is the area of the figure in square units?

Figure for No. 7



- a. 9
- b. 12
- c. 16
- d. 25

_____8. If $x - 3 = y$, then $(y - x)^3 =$ _____ ?

- a. 9
- b. -27
- c. 27
- d. 81

_____9. A speed of 90 km per hour is equivalent to how many meters per second?

- a. 20
- b. 25
- c. 30
- d. 45

_____10. A rectangular sheet of cardboard 5 inches long and 4 inches wide is cut into squares one inch on a side. What is the maximum number of such squares that can be formed?

- a. 18
- b. 20
- c. 9
- d. 16

_____11. A housewife bought 3 kilograms of beef priced at \$ 108.75 per kilogram. How much change did she receive from a five-hundred dollar **bill**?

- a. \$ 163.25
- b. \$ 193.75
- c. \$ 173.75
- d. \$ 180.25

_____12. A delivery of 480 baskets of mangoes is divided into two fruit stands so that the difference between the two orders is $\frac{1}{3}$ their average. What is the ratio of the smaller to the larger amount?

- a. 5 : 7
- b. 5 : 9
- c. 5 : 12
- d. 2 : 3

_____13. When the first and the last digits of 2, 836 are interchanged, the new number is _____.

- a. 3996 more than 2, 836
- b. 3996 less than 2, 836
- c. 1404 more than 2, 836
- d. 1404 less than 2, 836

_____14. If twice the value of a certain number is increased by 8 the result is 40. What is the number?

- a. 8
- b. 16
- c. 24
- d. 32

_____15. In a group of 120 persons, there are 32 more women than men. How many women are there in the group?

- a. 44
- b. 76
- c. 88
- d. 92

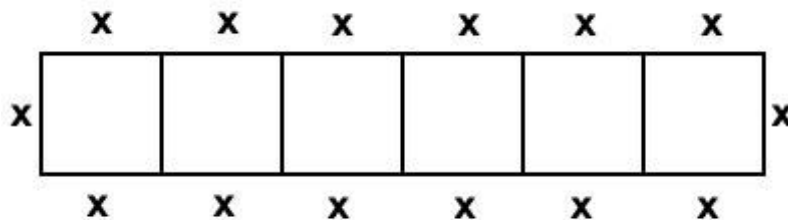
_____16. If **the dimensions** of a square change in such a manner that the area remains constant, what must happen to the other side if one side will be **increased** by $\frac{1}{4}$ of itself?

- a. it decreases by $\frac{1}{5}$
- b. it decreases by $\frac{1}{4}$
- c. it decreases by $\frac{1}{3}$
- d. it decreases by $\frac{1}{2}$

_____17. A man rowed 4 miles upstream for 2 hours. If the river flowed with a current of 2 miles per hour, how long did the man's return trip take?

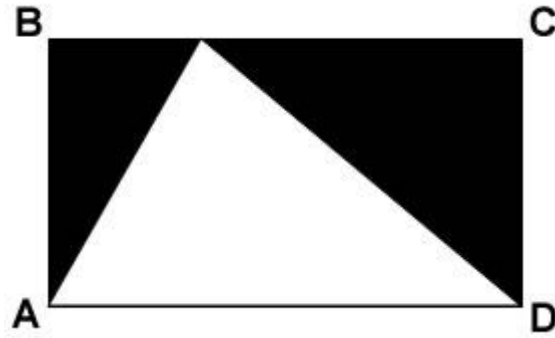
- a. $\frac{1}{3}$ hour
- b. $\frac{1}{2}$ hour
- c. $\frac{2}{3}$ hour
- d. 1 hour

_____18. The rectangle shown in the figure is divided into 6 equal squares. If the perimeter of the rectangle is 42 cm, what is the area of each square in cm^2 ?



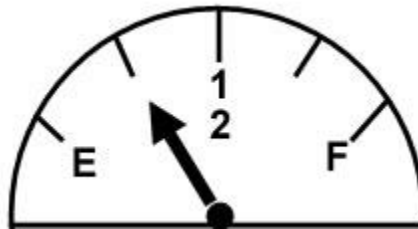
- a. 6
- b. 9
- c. 12
- d. 15

_____19. If the area of the rectangle ABCD shown below is 36 units, how many square units is the area of the shaded region?



- a. 12
- b. 16
- c. 18
- d. 24

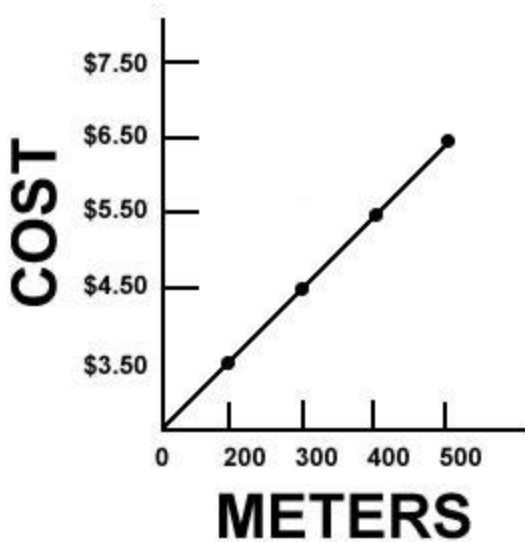
_____20. This tank holds 48 liters of gasoline and the car averages 5 kilometers per liter. Approximately how many kilometers can a car travel this given guage?



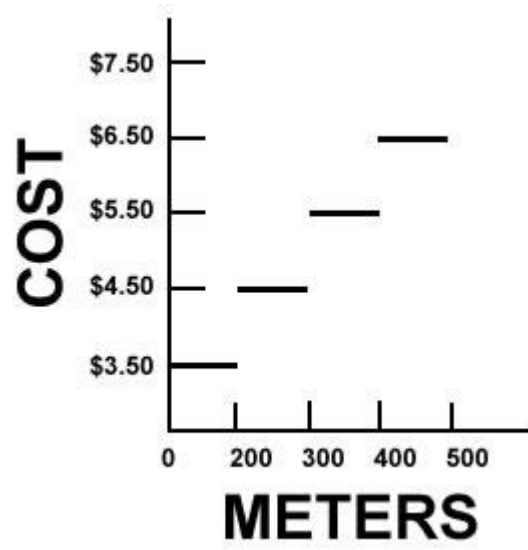
- a. 12
- b. 24
- c. 30
- d. 60

_____21. Which of the following graphs represents the taxi rates for a company that charges \$ 3.50 for the first 200 meters and \$ 1.00 for each additional 100 meters?

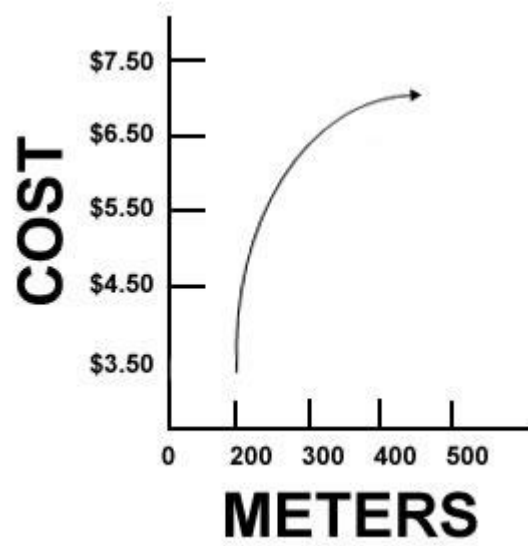
a.



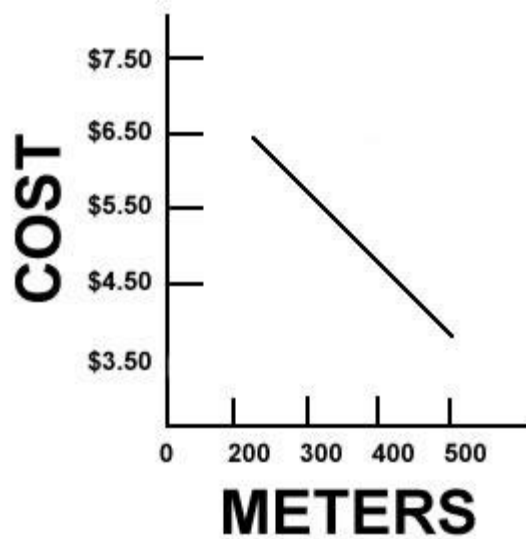
b.



c.



d.



_____22. A laboratory assistant was preparing a solution that should have included 40 milligrams of chemical. If he actually used 41.30 milligrams, what was his percentage error (to the nearest 0.01 %)?

- a. 0.0325%
- b. 0.325%
- c. 3.25%
- d. 32.5%

_____23. Menthol drops come in packs of 8 for \$ 3.60. Butterballs come in packs of 6 for \$ 2.25. Aida bought 48 pieces of candy. How many of each kind of candy did she buy, if she spent \$ 19.80?

- a. 6 packs of Menthol drops and no Butterballs
- b. 3 packs of Menthol drops and 4 packs of Butterballs
- c. 8 packs of Butterballs and no Menthol drops
- d. Choices A, B, and C are possibilities

Use the following table for questions 24 and 25.

TAX TABLE I						
(FOR COMPENSATION INCOME)						
If taxable income is :			Tax Due is :			
		NOT OVER \$	2,500	0 %		
OVER \$	2,500	BUT NOT OVER \$	5,000	1 %		
OVER \$	5,000	BUT NOT OVER \$	10,000	\$ 25 + 3 %	OF EXCESS OVER \$	5,000
OVER \$	10,000	BUT NOT OVER \$	20,000	\$ 175 + 7 %	OF EXCESS OVER \$	10,000
OVER \$	20,000	BUT NOT OVER \$	40,000	\$ 875 + 11 %	OF EXCESS OVER \$	20,000
OVER \$	40,000	BUT NOT OVER \$	60,000	\$ 3,075 + 15 %	OF EXCESS OVER \$	40,000
OVER \$	60,000	BUT NOT OVER \$	100,000	\$ 6,075 + 19 %	OF EXCESS OVER \$	60,000
OVER \$	100,000	BUT NOT OVER \$	250,000	\$ 13,675 + 24 %	OF EXCESS OVER \$	100,000
OVER \$	250,000	BUT NOT OVER \$	500,000	\$ 49,675 + 29 %	OF EXCESS OVER \$	250,000
OVER \$	500,000	BUT NOT OVER \$		\$ 122,175 + 35 %	OF EXCESS OVER \$	500,000

_____ 24. How much tax is due on a **taxable** income of \$65, 000?

- a. \$ 6, 075
- b. \$ 6, 050
- c. \$ 6, 094
- d. \$ 7, 025

_____ 25. How much tax is due on a taxable income of \$55, 000?

- a. \$ 4, 575
- b. \$ 5, 325
- c. \$ 6, 825
- d. \$ 18, 075

_____ 26. Anabelle paid \$ 19, 675 tax. If x was her income, which of the following statements is TRUE?

- a. \$ 60, 000 < x < \$ 100, 000
- b. \$ 100, 000 < x < \$ 250, 000
- c. \$ 40, 000 < x < \$ 60, 000
- d. \$ 250, 000 < x < \$ 500, 000

_____ 27. Mang Pablo decided to keep a record of the money he collects from his newspaper route. Using the information given, how much money does Mang Pablo collect in the month of February? (Note : Assume that February has 28 days and the February 1 was on a Sunday).

DELIVERY	WEEKLY RATE		NUMBER OF CUSTOMERS	INCOME
Daily Except Sunday	\$ 42	x	75	\$ 3, 150
Sunday Only	\$ 10	x	60	\$ 600
all week (daily and Sunday)	\$ 52	x	120	\$ 6, 240

- a. \$ 9, 990
- b. \$ 19, 980
- c. \$ 39, 960
- d. \$ 49, 950

_____28. If 10 soldiers can survive for 12 days in 15 packs of rations, **how many** packs will be needed for 8 men to survive for 18 days?

- a. 16 packs
- b. 17 packs
- c. 18 packs
- d. 19 packs

_____29. If it takes Victor twice as long to earn \$ 600 as it takes Warnen to earn \$ 400, what is **the ratio** of Victor's per day to Warnen's pay per day?

- a. 3 : 1
- b. 3 : 2
- c. 3 : 4
- d. 4 : 3

Use the following table for the question 30 to 32.

TYPE OF VEHICLE - COST OF FUEL FOR 100 - KM TRIP					
car	-	\$ 500	truck	-	\$ 2, 000
motorcycle	-	\$ 175	airplane	-	\$ 3, 000
bus	-	\$ 875			

_____30. What is the cost of fuel for a 120-km trip by car?

- a. \$ 400
- b. \$ 480
- c. \$ 520
- d. \$ 600

_____31. If the total wages of a bus driver for 100-km trip is \$ 970, and the only cost for a bus are the fuel and the driver's wage. How much should a bus company charge to charter a bus with a driver for a 200-km trip in order to obtain 50% more than the cost?

- a. \$ 2, 330
- b. \$ 5, 535
- c. \$ 2, 720
- d. \$ 2, 767.50

_____32. If 5 buses, 9 cars, 4 motorcycles make a 100-km trip. What is the average fuel cost per vehicle?

- a. \$ 521.94
- b. \$ 526.67
- c. \$ 531.94
- d. \$ 516.67

_____33. A store owner bought 2 dozen cans of corned beef at \$ 30 each. He sold two-thirds of them at 25% profit but was forced to take a 30% loss on the rest. What was his total profit (or loss) on the item?

- a. a loss of \$ 48
- b. a gain of \$ 48
- c. no gain or loss
- d. gain of \$ 4

Use the table below for questions number 34 to 36.

	% OF PROTEIN	% OF CARBOHYDRATES	% OF VITAMINS	COST PER 100 GRAM
Salad A	20	15	40	\$ 25.00
Salad B	10	25	30	\$ 30.00
Salad C	20	10	50	\$ 35.00

_____34. The cost of x purchasing grams of Salad A, y grams of Salad B and z grams of Salad C will be _____.

- a. $(25x + 30y + 35z)$ pesos
- b. $90xyz$ pesos
- c. $(25x + 30y + 35z)$ cents
- d. $(5x + 6y + 7z)$ dollars

_____35. Which of the following diets would supply the most grams of vitamins?

- a. 500 grams of Salad A
- b. 400 grams of Salad B
- c. 200 grams of Salad A, 100 grams of Salad B and 200 grams of Salad C
- d. 200 grams of Salad A, 50 grams of Salad B and 200 grams of Salad C

_____36. All of the following diets would supply at least 85 grams of carbohydrates. Which of the diets costs the least?

- a. 100 grams of Salad A, 200 grams of Salad B and 300 grams of Salad C.
- b. 300 grams of Salad A, 100 grams of Salad B and 200 grams of Salad C.
- c. 200 grams of Salad A, 100 grams of Salad B and 300 grams of Salad C.
- d. 100 grams of Salad A, 300 grams of Salad B and 200 grams of Salad C.

_____37. If jackfruits are twice as expensive as watermelons, and watermelons are one-third as expensive as durians. What is the ratio of the price of one **jackfruit** to one **durian**?

- a. 3 : 2
- b. 2 : 3
- c. 6 : 1
- d. 1 : 6

_____38. A retailer buys a pack of sugar from Uniwide Sales for \$459. He then marks up the price by $\frac{1}{3}$ and sells it at a discount of $16\frac{2}{3}\%$. What was his profit in this item?

- a. \$ 153
- b. \$ 102
- c. \$ 26.50
- d. \$ 51.00

_____39. Forrest Gump walks down the road for 30 minutes at a rate of 3 mph. He waits 10 minutes for a bus, which brings him back to his starting point at 4 : 25. If he began his walk at 3:35 the same afternoon, what was the average speed on the bus?

- a. 3 mph
- b. 4.5 mph
- c. 7.5 mph
- d. 9 mph

_____40. Miss Felisa Gascon had \$ 2 million to invest. She invested part of it at 4% a year and the remainder at 5% per year. After one year she earned \$ 95, 000 in interest. How much of the original investment was placed at 5% rate?

- a. \$ 900,000
- b. \$ 1,250,000

- c. \$ 1,500,000
- d. \$ 1,600,000

_____41. Which of the following is NOT a possible remainder if a positive **integer** is divided 5

- a. 0
- b. 1
- c. 3
- d. 5

_____42. In a building plan, $\frac{1}{4}$ cm represents 2 meters. If the main entrance is supposed to be 8 meters wide, how would its representation be on the plan?

- a. 1 cm
- b. $\frac{1}{2}$
- c. 2 cm
- d. $\frac{1}{16}$ cm

_____43. A real estate agent marks a certain property up 40% above the original cost. Then he gives a client a 15% discount. If the final selling price of the property was \$8.619 M, what was the original cost of the property?

- a. \$ 6.63 M
- b. \$ 7.26 M
- c. \$ 7.8 M
- d. \$ 99.12 M

_____44. If $\frac{2}{3}$ the perimeter of a square is 16, then what is the length of one of its sides?

- a. 6
- b. 8
- c. 9
- d. 12

_____45. What values of x can satisfy the equation $(3x + 6)(2x - 8) = 0$?

- a. -4 and 2 only
- b. 4 only
- c. -2 only
- d. -2 and 4 only

_____46. If 8 men can plant 288 trees in one day, how many trees can **12 men** plant in 5 days?

- a. 432
- b. 960
- c. 1,800
- d. 2,160

_____47. If the length of a rectangle is increased by 25% and its width is decreased by 20%, what happens to the area of the rectangle?

- a. increase by 5%
- b. decrease by 5%
- c. increase by 45%
- d. no change

_____48. The formula for the volume of a sphere is $V = \frac{4}{3} \pi r^3$. If the radius (r) is tripled, what will be the ratio of the new volume to the original volume?

- a. 1 : 3
- b. 3 : 1
- c. 9 : 1
- d. 27 : 1

_____49. The scale on a map is 1 : 8. If a surveyor reads a certain measurement on the map as 4.6 cm instead of 5.0 cm, what will be the resulting approximate percent error on the full size model?

- a. 4%
- b. 8%
- c. 64%
- d. 93%

_____50. In a certain recipe, 225 grams of beef are called for to make 6 servings. If Mrs. Alferez wants to use the recipe for 8 servings, how many grams of beef must she use?

- a. 275 grams
- b. 300 grams
- c. 337.5 grams
- d. 400 grams

Vocabulary & Idiomatic Expressions

Select the best meaning for each of the underlined word and **write** the appropriate **letter** in the blank.

_____1. The lotto **winners** will be selected at random.

- a. by chance
- b. by competition
- c. by testing
- d. by interviewing

_____2. Dr. Antonio prescribe massive doses of antibiotics for his patients with tuberculosis.

- a. daily
- b. double
- c. heavy
- d. encourage

_____3. Carry on with your work.

- a. continue
- b. carry the work
- c. stop
- d. be on time

_____4. Cleanliness is still at a discount in many parts of the country.

- a. valued fully
- b. not to be valued fully
- c. attended to
- d. believed

_____5. Mr. Henry Sy is now rolling in money.

- a. very rich
- b. famous
- c. losing money
- d. successful in business

_____6. Jek os the apple of his mother's eye.

- a. adored
- b. dearly loved
- c. always watched
- d. pride

_____7. He got the money to fund his checks in the bank at the eleventh hour.

- a. 11:00 AM
- b. 11:00 PM
- c. just in time
- d. 11th hour of the day

_____ 8. She is generous to a fault.

- a. excessively
- b. seldom
- c. rarely
- d. infrequent

_____ 9. The marketing officers were asked to go over the figures in their reports before the conference.

- a. compute
- b. calculate
- c. revise
- d. review

_____ 10. We were forced to postpone the meeting.

- a. call off
- b. put off
- c. delay
- d. do without

_____ 11. Punctuality is imposed in this office.

- a. being cheerful
- b. being courteous
- c. being on time
- d. being efficient

_____ 12. Jomar resolved to act more wisely next time.

- a. promised
- b. hoped
- c. decided
- d. consented

_____ 13. The woman reported that the diamonds snatched from here were genuine.

- a. valuable
- b. real
- c. imitations
- d. synthetic

_____ 14. Myla loves to eat a prodigious amount of home-made bread.

- a. tiny
- b. moderate
- c. huge
- d. slight

_____ 15. MSA Math Tutoring Center and Gerpress Printing are going to merge by the middle of the year.

- a. change owners
- b. become one
- c. expand
- d. divide into two

_____ 16. It is futile to argue with the boss once he has made up his mind.

- a. useful
- b. useless
- c. hopeful
- d. encouraging

_____ 17. One symptom of H-fever is nose-bleeding.

- a. symbol
- b. caused
- c. sign
- d. pain

_____ 18. The post is titled; please straighten it.

- a. sloping
- b. high
- c. adjustable
- d. level

_____ 19. The union's grievance committee met with the school directors to protest the teacher's dismissal.

- a. retirement
- b. personnel
- c. scholarship
- d. complaint

_____ 20. A conscientious teacher spends hours preparing lesson plans and computing student's grades.

- a. creative
- b. careful
- c. proficient
- d. efficient

_____ 21. His boss appeared to be in an affable mood that Albert decided to ask for a raise.

- a. agreeable
- b. cheerful
- c. courteous
- d. uncertain

_____ 22. Three authors collaborated in preparing this book.

- a. work together
- b. collate
- c. communal
- d. contribute

_____ 23. The DPWH secretary obeyed the president's order in a complaisant manner.

- a. obliging
- b. make perfect
- c. complaint
- d. making up for

_____ 24. Mrs. Leny Ngo cannot keep her complicity in this affair secret very long.

- a. complication
- b. involvement
- c. comprise
- d. conspiracy

_____ 25. The search for a consort for the heiress of the throne ended happily.

- a. escort
- b. body guard
- c. husband
- d. prince

_____26. Miss Sabina's employer offered to defray the **cost** of her trip to Hong Kong.

- a. provide for the payment of
- b. charge
- c. turn side
- d. reduce

_____27. The Saudi Arabian Government decapitated three criminals in March, 1996.

- a. hang
- b. imprisoned
- c. beheaded
- d. release

_____28. Japanese cuisine is now famous in Manila.

- a. fast food
- b. chefs
- c. restaurant
- d. style of cooking

_____29. Her exemplary performance was mentioned in the meeting.

- a. effort
- b. effective
- c. outstanding
- d. ineffective

_____30. When Lea was asked to sing, she did not falter.

- a. hesitate
- b. pretend
- c. give-in
- d. go-on

Synonyms

Direction : You are given four options in each number (a, b, c, d). Choose the correct **letter** which is similar in meaning to the given word.

_____1. **ABORTIVE**

- a. fruitful
- b. consuming
- c. unsuccessful
- d. familiar

_____2. **ABSTINENCE**

- a. unrestrained
- b. overdosing
- c. self-indulgence
- d. restrained eating or drinking

_____3. **AUGMENT**

- a. attract
- b. increase
- c. aware
- d. anoint

_____ 4. AVENGE

- a. vindicate
- b. turn away
- c. avert
- d. prevent

_____ 5. BOISTEROUS

- a. sedate
- b. noisy
- c. supportive
- d. expurgate

_____ 6. BROCHURE

- a. paper
- b. pamphlet
- c. pin
- d. map

_____ 7. CHASTE

- a. pure
- b. immortal
- c. virgin
- d. saint

_____ 8. COERCE

- a. collect
- b. force
- c. scold
- d. abort

_____ 9. CONSTRUE

- a. contradict
- b. question
- c. surprise
- d. explain

_____ 10. CONSENSUS

- a. order
- b. effect
- c. rational
- d. general agreement

_____ 11. DEFAULT

- a. perfection
- b. discard
- c. failure to act
- d. defeat

_____ 12. EFFIGY

- a. dummy
- b. effective
- c. effort
- d. elevate

_____ 13. EGRESS

- a. treasure
- b. suffice
- c. exist
- d. entrance

_____ 14. FRANCHISE

- a. expansion
- b. license
- c. branch
- d. fad

_____ 15. GARNISH

- a. adorn
- b. measured
- c. gamble
- d. injure

_____ 16. INGENUOUS

- a. natural
- b. insert
- c. innovate
- d. dignity

_____ 17. MILITANT

- a. troop
- b. combative
- c. paternal
- d. servile

_____ 18. MIRE

- a. entangle
- b. mirage
- c. error
- d. courage

_____ 19. WINSOME

- a. magical
- b. tolerance
- c. recovery
- d. pleasing

_____ 20. SWERVE

- a. skew
- b. fast
- c. swift
- d. hit

Antonyms

Direction : You are given four options in each number (a, b, c, d). Choose the correct **letter** which is opposite in meaning to the given word.

_____ 1. SUMPTUOUS

- a. restrained
- b. lavish
- c. splendid
- d. rich

_____ 2. FICKLE

- a. discern
- b. cordial
- c. loyal
- d. liberate

_____ 3. COMPLY

- a. conform
- b. rebel
- c. obey
- d. observe

_____ 4. CASTIGATE

- a. penalize
- b. punish
- c. berate
- d. reward

_____ 5. PRIM

- a. improper
- b. correct
- c. wooden
- d. ceremonial

_____ 6. CRITICAL

- a. captious
- b. carping
- c. unimportant
- d. crimp

_____ 7. AUTONOMY

- a. unconstrained
- b. dependence
- c. unsobordinate
- d. independence

_____ 8. DISARRAY

- a. vigorous
- b. embroil
- c. orderly
- d. dominate

_____ 9. ABIDE

- a. derision
- b. settle
- c. intricate
- d. refuse to endure

_____ 10. RECOLLECT

- a. forget
- b. dilatory
- c. misplace
- d. radical

_____ 11. HYBRID

- a. strong
- b. pure-bred
- c. transform
- d. weak

_____ 12. HYPOTHETICAL

- a. logical
- b. abstract
- c. axiomatic
- d. theoretical

_____ 13. AMBIGUITY

- a. intensity
- b. clarity
- c. temporary
- d. normally

_____ 14. RECOIL

- a. liberate
- b. active
- c. intensity
- d. plunge forward

_____ 15. DISPARITY

- a. tentative
- b. coherent
- c. likeness
- d. grave

_____ 16. LUMINARY

- a. nonentity
- b. fugitive
- c. traveler
- d. witness

_____ 17. SOBRIETY

- a. seriousness
- b. gravity
- c. mirth
- d. property

18. INDUSTRY

- a. persevering
- b. dynamic
- c. assiduous
- d. sloth

19. ALLEVIATE

- a. worsen
- b. remove
- c. oppose
- d. despair

20. AFFLUENCE

- a. allure
- b. agility
- c. befriend
- d. poverty

Analogy

Direction : Each item consists of a pair of words which relate to each other in a certain way. Below each item are four other pairs labelled A, B, C, D. Choose the pair of words which relate to each the most nearly the same way as the words in the original pair.

____1.	Saw	:	Carpenter	:	:
	a. sneakers	:	runner	c. scissors	: seamstress
	b. brief	:	lawyer	d. brush	: painter
____2.	Honesty	:	Mendacity	:	:
	a. fortitude	:	courage	c. beauty	: truth
	b. depravity	:	turpitude	d. cravenness	: courage
____3.	Refuge	:	Asylum	:	:
	a. truancy	:	school	c. chapel	: church
	b. remove	:	courthouse	d. confinement	: dungeon
____4.	Torch	:	Liberty	:	:
	a. laurel	:	peace	c. laws	: courts
	b. weights	:	measures	d. scales	: justice

____5.	Diamond	:	Hard	:	:
	a. paper	:	brittle	c. rubber	: elastic
	b. metal	:	heavy	d. feather	: light
____6.	Gasoline	:	Octane	:	:
	a. milk	:	cream	c. juice	: pulp
	b. alcohol	:	proof	d. oil	: tanker
____7.	Gulp	:	Sip	:	:
	a. confide	:	tell	c. stare	: glance
	b. admire	:	scorn	d. observe	: participate

_____8.	Lake	:	Ocean	:	:	
	a. repent	:	sin	c. valley	:	hill
	b. tree	:	forest	d. island	:	continent
_____9.	Smell	:	Rank	:	:	
	a. savory	:	odor	c. hear	:	sound
	b. taste	:	rancid	d. decibel	:	music
_____10.	Tuition	:	Student	:	:	
	a. insurance	:	premium	c. parking	:	ticket
	b. fare	:	passenger	d. deposit	:	interest
_____11.	Profit	:	Gambler	:	:	
	a. soldier	:	conflict	c. coach	:	advice
	b. alcohol	:	proof	d. change	:	rebel

_____12	Doctor	:	Cure	:	:	
	a. broom	:	sweep	c. juror	:	judge
	b. criminal	:	sentence	d. patient	:	nurse
_____13.	Theather	:	Intermission	:	:	
	a. vacation	:	holiday	c. delegation	:	convention
	b. school	:	recess	d. convict	:	parole
_____14.	Wash	:	Hose	:	:	
	a. door	:	knob	c. write	:	pencil
	b. inflate	:	tire	d. fly	:	kite
_____15.	Endorse	:	Candidate	:	:	
	a. raze	:	building	c. eradicate	:	mistake
	b. anger	:	provoke	d. advocate	:	change

Verbal Reasoning

Select the best answer for each and write the appropriate letter in the blank.

____1. Static is the opposite of

- a. resistant
- b. dynamic
- c. tardy
- d. electrical

____2. Modest is to vain as foolish is to

- a. pretty
- b. conceit
- c. wise
- d. proud

____3. Navy is to sea as Army is to

- a. land
- b. mountains
- c. air
- d. ships

_____ 4. **Cube** is to **square** as **sphere** is to

- a. circle
- b. ball
- c. polygon
- d. triangle

_____ 5. **Car** is to **chauffeur** as **horse** is to

- a. vehicle
- b. butler
- c. jockey
- d. cart

_____ 6. **Head** is to **hat** as **foot** is to

- a. hair
- b. glove
- c. face
- d. sock

_____ 7. **Woman** is to **feminine** as **man** is to

- a. boy
- b. masculine
- c. guy
- d. male

_____ 8. **Word** is to **sentence** as **sentence** is to

- a. phrase
- b. letter
- c. sentence
- d. paragraph

_____ 9. **Always** is to **often** as **never** is to

- a. occasional
- b. usual
- c. seldom
- d. everytime

_____ 10. **Farm** is to **fence** as **bird** is to

- a. hedge
- b. feather
- c. warehouse
- d. stake

_____ 11. **Doctor** is to **nurse** as **executive** is to

- a. accountant
- b. salesman
- c. desk
- d. secretary

_____ 12. **Wealth** is to **indigent** as **nourishment** is to

- a. happiness
- b. emaciated
- c. stature
- d. variety

- a. studio
- b. brief
- c. blueprint
- d. courthouse

- delay
- waves
- ashes
- melancholy

- beacon
- sign
- prophecy
- prediction

- d. the importance of a preface and of writing a good one.

_____4. According to the author, all of the following are true EXCEPT

- a. a preface gives the author his first opportunity to address the reader directly.
- b. many reviewers turn immediately to the preface of a book before reading the contents
- c. both foreword and preface are written by the author
- d. the preface states the author's motivation for writing book

Although there are many attributes of maturity, one that is obviously important may be singled out: the ability to make fruitful, loving relationships with other people on equal terms, without either being dominated or dominating. This achievement implies an acceptance of the other person as he or as she is, without any wish to alter, to direct, or to submit; a recognition of the other person as a separate entity and therefore of oneself as a separate entity also.

_____5. A word that can be used in place of "alter" as used in this passage is

- a. reject
- b. accept
- c. change
- d. educate

_____6. From this passage, one could conclude that

- a. the ability to make fruitful, loving relationships with other people on equal terms is the most important attribute of maturity.
- b. the rate of maturation is different from individual to individual
- c. the ability to make fruitful, loving relationships with other people on equal terms can be taught.
- d. the ability to make fruitful, loving relationships with other people on equal terms is the only attribute of maturity
- e. every human beings has the ability to make fruitful, loving relationships with other people on equal terms

Enzymes are organic compounds. These compounds contain the element carbon. Enzymes are made in the cell and functions as catalysts. A catalyst speeds up a chemical reaction without taking part in the reaction. It is neither changed in any way nor destroyed by the reaction taking place. Each enzyme may take care of only one reaction. There are many enzymes in a living cell because there are many chemical reactions taking place all the time. Without enzymes, the cell would not be able to work.

_____7. According to the author, all of the following are true about enzymes EXCEPT

- a. Enzymes are organic compounds
- b. Enzymes are made in the cell
- c. Enzymes speed up a chemical reaction
- d. There are many enzymes in a living cell
- e. The cell would be able to work without enzymes

_____8. From the passage, one could conclude that

- a. enzymes are important in inheritance
- b. enzymes are made of protein
- c. enzymes are indispensable for the cell to do its work
- d. enzymes can slow down chemical reaction
- e. enzymes function within a very narrow range of acidity or alkalinity.

An argument has gone on for years that focuses on the question of how much monetary or other help should be given to the poor. The argument on one side stresses the deprivation and misfortunes those of low income must carry through and appeals to the moral instincts of those in government positions to use compassion in their judgments. On the other side, people speak about the role that laziness has played in developing poverty and how public assistance progress vitiates incentives to work and to save.

_____9. Which of the following would be a good title for the ideas in this passage?

- a. How Much Should be Granted to the Poor?
- b. Government Assistance
- c. Poverty and the Poor
- d. The Poverty Problem
- e. Human Rights

- _____ 10. According to the above passage, providing assistance for the poor is
- a. an important ingredient of a democracy.
 - b. a debatable question.
 - c. not a good choice.
 - d. just perpetuating poverty.
 - e. not up to those in policy-making positions.

No, your autobiography is not a marketable subject, unless you are a movie star, politician, or other type of celebrity. A book concerning your travels abroad is not a likely candidate either. A marketable subject is one that is of interest to the general public or at least appeals to a sizeable speciality group, and that has not been adequately covered elsewhere. Remember the six magic words: "Find a need and fill it."

- _____ 11. According to the author, all of the following are true about a marketable subject for a book EXCEPT
- a. one that is of interest to the general public
 - b. appeals to a sizeable speciality group
 - c. tackles a topic that has not been adequately covered elsewhere
 - d. a book concerning your travels abroad
 - e. autobiography of a celebrity
- _____ 12. A good title for this selection would be
- a. My Autobiography
 - b. Have You Chosen a Marketable Subject?
 - c. How to Write a Book
 - d. How to Write an Autobiography
 - e. How to Write an autobiography

Talahulugan

Panuto: Piliin ang salitang pinakamalapit ang ibig sabihin sa salitang may salungguhit.

- _____ 1. Itakda ang araw ng kasal.
- a. Italaga
 - b. Itunton
- _____ 2. Itaguyod sa pag-aaral.
- a. Subaybayan
 - b. Ilagay
- _____ 3. Kalaro ni Anabelle.
- a. Kasama sa laro
 - b. Kasama
- _____ 4. Nayanig ang lupa.
- a. Naalog
 - b. Nagiba
- _____ 5. Mga karapatang nauukol sa tao.
- a. angkop
 - b. halaga
- _____ 6. Maganda ang pagkakalimbag sa aklat na ito.
- a. pagsusulat
 - b. pakakaimprenta

_____ 7. Matalima kaya ni Jose ang utos ng ina?

- a. Masunod
- b. Masuway

_____ 8. Mahinusay na sagot.

- a. Maayos
- b. Magalang

_____ 9. Malimang sa pagsukli.

- a. Malito
- b. Tama

_____ 10. Nakaririmarim na gawain.

- a. Nakakamuhi
- b. Kahanga-hanga

_____ 11. Nagaarimuhunan si Anita.

- a. nangangaral
- b. nagtitipid

_____ 12. Nakakatulig na ingay.

- a. nakakabingi
- b. nakakagalak

_____ 13. Lapnos na daliri.

- a. putol
- b. laplap

_____ 14. Palaib na naman ang buwan, kaya mainit ang ulo niya.

- a. palaki
- b. paliit

_____ 15. Si Miguelito ay napaka likit.

- a. masunurin
- b. matigas ang ulo

_____ 16. Ang Iraq ay libid sa kalaban.

- a. marami
- b. napapaligiran

_____ 17. Ang bato ay nahulog sa libok.

- a. ilog
- b. bangin

_____ 18. Ligaligin ang kaisipan.

- a. bagabagin
- b. payapain

_____ 19. Magaganda ang kanilang daral

- a. dala
- b. kasangkapan

_____ 20. Ang dasto ng kanyang kamison sa manipis nyang damit ay kitang kita.

- a. bakas
- b. burda

Wastong Gamit

Punan ng tamang sagot ang patlang sa bawat pangungusap.

_____ 1. Si Aling Ana ay _____ sa mga lumang kagamitan ng mga anak.

- a. matipid
- b. masinop

_____ 2. Ang sawing palad na ina ay naging _____ sa pagkawala ng kanyang anak.

- a. tulala
- b. tunganga

_____ 3. Mag-ingat sa paglilinis nang inyong _____.

- a. tainga
- b. tenga

_____ 4. Ang larawan ng kanyang impo ay _____.

- a. luma na
- b. matanda na

_____ 5. Ang aking ama ay _____ nang maaga.

- a. bumangon
- b. nagbangon

_____ 6. Ang bubungan ng gusali ay _____.

- a. butas-butas na
- b. punit-punit na

_____ 7. Ang noo ni Elizabeth ay _____.

- a. malawak
- b. malapad

_____ 8. Ang bulok na isda ay _____.

- a. humahalimuyak
- b. umaalingasaw

_____ 9. Liku-likong landas ang kanilang _____ sa paghahanap sa nawawalang bata.

- a. tinalunton
- b. tinakbo

_____ 10. Taos-pusong pasasalamat ang aming _____ sa inyong lahat.

- a. ibinibigay
- b. ipinaabot

_____ 11. Tapat ang binata sa kanyang _____.

- a. pangarap
- b. pangako

_____ 12. Ang taong magalang ay _____ ng balana.

- a. kinaiinisan
- b. kinalulugdan

_____ 13. Ang _____ ay tiyak na magtatagumpay.

- a. nagsisikap
- b. magsikap

_____ 14. Ang nangingislap na mga mata ng dalaga ay _____ ng kaligayahan.

- a. nagbabadya
- b. nagagawa

_____ 15. Napapaligaya mo ang iyong mga magulang _____ mabuti kang anak.

- a. kung
- b. kong

_____ 16. Ang mga maglang ay _____ na nangangaral sa mga anak na nalilihis ng landas.

- a. mahina
- b. malumanay

_____ 17. Marahang lumakad ang parada nang _____ dumating.

- a. sila
- b. sila'y

_____ 18. Masipag _____ nang liksyon si Philip kaya nanguna siya sa pagsusulit.

- a. mag-aral
- b. mag-aaral

_____ 19. _____ ng hangin ang makapal na ulap.

- a. Inahon
- b. Tinangay

_____ 20. Ang paksang pinag-uusapan ay _____ sa Pork Barrel Fund.

- a. tungkol
- b. sapagkat

Analytical Ability

Select the best answer for each and write the appropriate letter in the blank.

_____ 1. Orani is bigger than Abucay. Limay is bigger than Orani. Which town is the **smallest**?

- a. Orani
- b. Abucay
- c. Limay
- d. can't be determined from the given information

_____ 2. Cecille and Joan are fair. Angela and Alexine are dark. Cecille and Alexine are tall. Who is tall and dark?

- a. Cecille
- b. Joan
- c. Angela
- d. Alexine

_____ 3. *If you present a blue pass, then you may enter the gate of each Echanté Kingdom.* If the statement above is true, which of the following must also be true:

- I. If you do not present a blue pass, then you may not enter the park.
 - II. If you may enter the gate, then you must have presented a blue pass.
 - III. If you may not enter the gate, then you did not present a blue pass.
- a. I only
 - b. II only
 - c. III only
 - d. I, II and III

For question 4 and 5

Grace, Joie, Thiel and Nelia sit in this order in a row left to right. Grace changes places with Thiel and then Thiel changes places with Joie.

_____ 4. Who is at right end of the row?

- a. Grace
- b. Joie
- c. Thiel
- d. Nelia

_____ 5. Who is to the left of Thiel?

- a. Grace
- b. Joie
- c. Nelia
- d. can't be determined from the given information

_____ 6. Monday was wetter than Sunday, but sunnier than Saturday. Which day was the wettest?

- a. Monday
- b. Tuesday
- c. Saturday
- d. Sunday

_____ 7. If town A is north-west of town B, then which of the following is always true?

- a. Town A is 2 km. north of town B
- b. Town B is 2 km. west of town A
- c. Town B is south-west of town A
- d. Town B is south-east of town A

_____ 8. Today is a Wednesday. Which of the following is always true?

- a. January begun on a Wednesday this year
- b. Three days ago was Sunday
- c. Four days from now will be Saturday
- d. Six days ago was also a Wednesday

_____ 9. Which of the following contradicts the view that, *only smart become rich*?

- a. Girlie was smart, yet she was poor her whole life.
- b. Leny Ngo is stupid, she amassed a large fortune by the age of 40.
- c. Some smart people do not desire to become rich.
- d. Both "smart" and "rich" are relative terms.

For question no. 10

Sabina: I just heard that Linda flunk out of collage.

Rosalie: That can't be true; she got straight A's in high school.

_____ 10. From the conversation above, it can be inferred that

- a. Rosalie thinks that Sabina is lying.
- b. Sabina knows that Linda flunked out of college
- c. Rosalie thinks that Linda is still in college.
- d. Rosalie assumes that no one who got straight A's in high school is likely to flunk out of collage.

NUMBER SEQUENCE

Find the next number in each of the following series.

1.	3	10	13	23	36	_____
2.	2	4	4	16	16	_____
3.	3	9	6	15	9	_____
4.	$\frac{1}{4}$	$\frac{1}{2}$	1	2	4	_____
5.	729	243	81	27	9	_____
6.	1	3	4	7	11	_____
7.	2	4	7	11	16	_____

8.	6	11	21	41	81	_____
9.	2	3	5	9	17	_____
10.	1	4	9	16	25	_____
11.	3	5	9	15	23	_____
12.	0	1	8	27	64	_____
13.	0	7	7	14	21	_____
14.	2	8	10	18	28	_____
15.	.1	.2	.4	.8	1.6	_____
16.	$\frac{1}{3}$	$\frac{2}{3}$	$1\frac{1}{3}$	$2\frac{2}{3}$	$5\frac{1}{3}$	_____
17.	30	40	60	70	90	_____
18.	1	3	6	10	15	_____
19.	2	3	5	9	17	_____
20.	2	5	10	17	26	_____
21.	2	4	6	8	10	_____
22.	2	3	5	7	11	_____

23.	1	1	2	4	8	_____
24.	8	1	8	2	8	_____
25.	3	1	4	5	9	_____
26.	1	3	2	5	3	_____
27.	1	2	4	8	16	_____
28.	1	6	15	20	15	_____
29.	1	8	27	64	125	_____
30.	2	6	12	20	30	_____

CLERICAL OPERATIONS ALPHEBETIZING

Arrange the words in **alphabetical order**.

_____1.

- A. Cruz, Edgardo R.
- B. Cruz, Edmundo A,
- C. Cruz, Edmund B.
- D. Cruz, Eduardo A.

- a. ACBD
- b. ABCD
- c. ABDC
- d. BDCA

_____2.

- A. Dionisio, Emelina C.
- B. Dionisio, Elvira A.
- C. Dionisio, Elena Z.
- D. Dionisio, Emerlina B.

- a. BCAD
- b. ABCD
- c. CBAD
- d. ACBD

_____3.

- A. Fil - Estate Golf Managers
- B. Fil - Estate Golf's Dev. Inc.
- C. Fil - Estate Finance Corp.
- D. Fil - Estate Management Inc.

- a. ABCD
- b. BACD
- c. CABD
- d. ABDC

_____4.

- A. Leon, Carlos de
- B. Leon, Carlito de
- C. Leon, Carlos E de
- D. Leon, Carlo de

- a. ABCD
- b. BACD
- c. ACDB
- d. ABDC

_____5.

- A. G & W Project Development Consultants
 - B. G & W Video World - Photo Coverage
 - C. GW Construction Supply
 - D. G & W Architects
-
- a. DCBA
 - b. DCAB
 - c. CDAB
 - d. DBAC

_____6.

- A. MB Radiator Repair Shop
 - B. MB Power Industrial Corp.
 - C. MB Marketing Corp.
 - D. MB Group Inc.
-
- a. CDAB
 - b. DCBA
 - c. ABCD
 - d. DCBA

_____7.

- A. Pacific Glass Corp.
 - B. Pacific Holidays
 - C. Pacific Hardware Co. Inc.
 - D. Pacific Industrial Electric
-
- a. CABD
 - b. ACBD
 - c. ABCD
 - d. DCBA

_____8.

- A. Shell Gas Phils. Inc
 - B. Shell Distribution Co. Inc.
 - C. Shell Chemical Co. Inc.
 - D. Shell Maya Service Center
-
- a. DABC
 - b. CABD
 - c. CBAD
 - d. CBDA

_____9.

- A. Manila Bay Club Corp.
 - B. Manila Bay Toncion Inc.
 - C. Manila Bay Spining Mills
 - D. Manila Bay Hosiery Mills
-
- a. ADCB
 - b. ADBC
 - c. ABCD
 - d. ACBD

_____10.

- A. Santos, Leticia
- B. Santos, Letty
- C. Santos, Lita
- D. Santos, Lolit

- a. ABCD
- b. CDAB
- c. DCBA
- d. ABDC

_____11.

- A. Marcelo, Felisa G.
- B. Marcelo, Ezperanza L.
- C. Marcelo, Eva A.
- D. Marcelo, Elias C.

- a. ADCB
- b. ADBC
- c. DACB
- d. DBCA

_____12.

- A. three - forty
- B. three - fifty
- C. three - hundred
- D. three - eighty

- a. BACD
- b. CBAD
- c. ABCD
- d. DBAC

_____13.

- A. Pres. Fidel V. Ramos
- B. Chairman Nur Misuari
- C. Senator Angara
- D. Cong. Defensor

- a. BADC
- b. BDAC
- c. DBCA
- d. DCBA

_____14.

- A. Dr. Andress Mendoza
- B. Atty. John Mercado
- C. Engr. Cesar B. Alferez
- D. Prof. Merle J. Suobiron

- a. CBAD
- b. ACDB
- c. BACD
- d. BCAD

_____ 15.

- A. horn - book
- B. horn - pipe
- C. honk
- D. homesick

- a. CDBA
- b. DCAB
- c. DABC
- d. CDAB

_____ 16.

- A. natty
- B. natural
- C. nativity
- D. native

- a. DCAB
- b. CDBA
- c. DBAC
- d. CABD

_____ 17.

- A. discord
- B. discontent
- C. discern
- D. discomfort

- a. ABCD
- b. CDBA
- c. CABD
- d. CDAB

_____ 18.

- A. BULAN
- B. BOCAUE
- C. BUTUAN
- D. BUSTOS

- a. BADC
- b. ADBC
- c. ABCD
- d. BCAD

_____ 19.

- A. BANGUED
- B. BANAUE
- C. BASCO
- D. BALIUAG

- a. BCAD
- b. CBAD
- c. ABCD
- d. DBAC

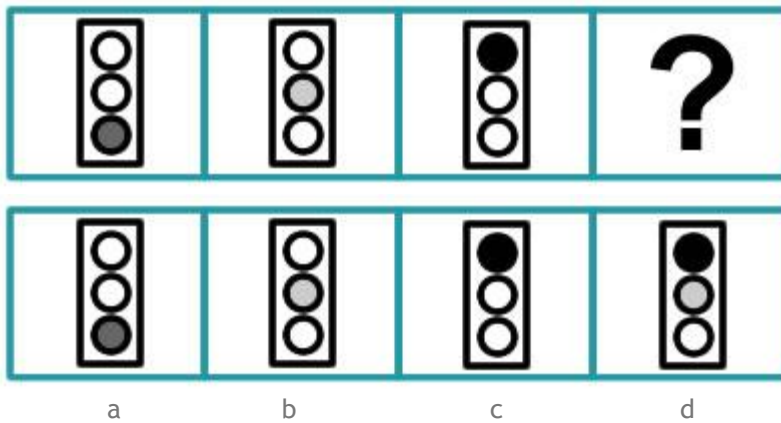
20.

- A. BRUNEI
- B. BAHRAIN
- C. BELGIUM
- D. BRISBANE
- a. BCDA
- b. CBAD
- c. ABCD
- d. BACD

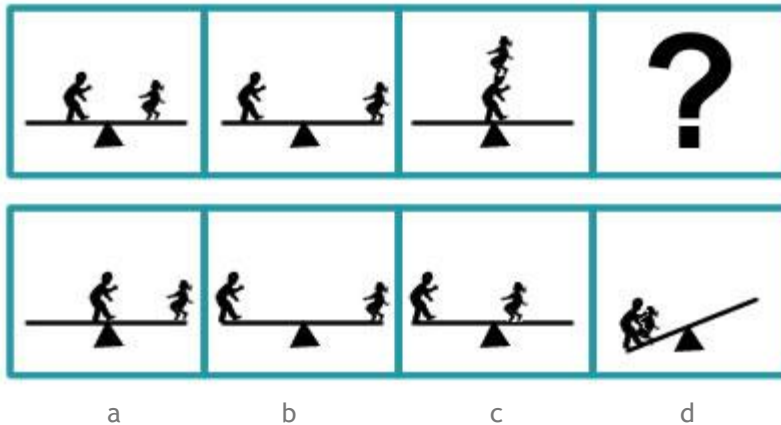
ABSTRACT REASONING

Direction : The three figures or **symbols** in each problem set are related to each other in a certain way. **Select** what should be the fourth figure or symbol. **Write** the appropriate **letter** in the blank.

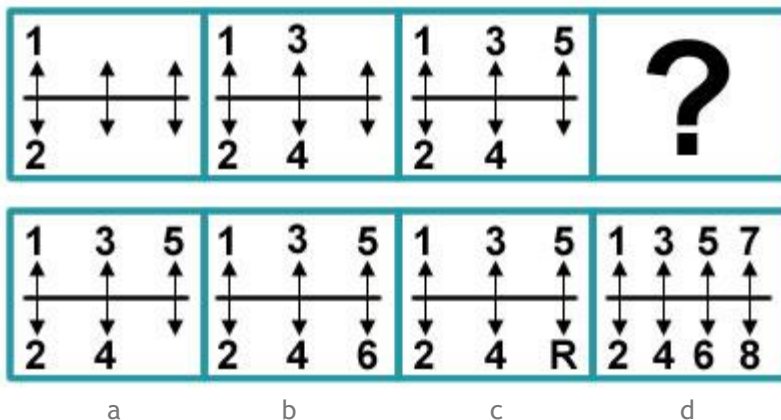
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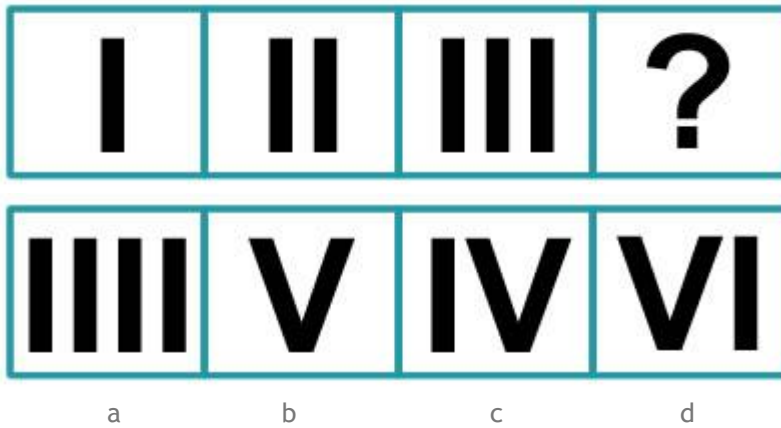
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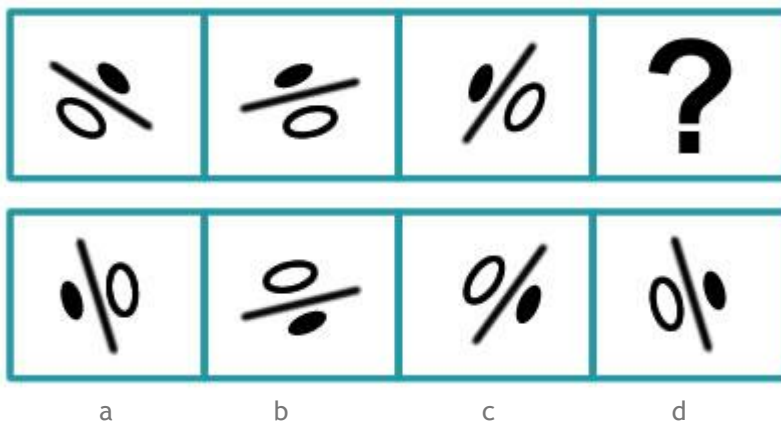
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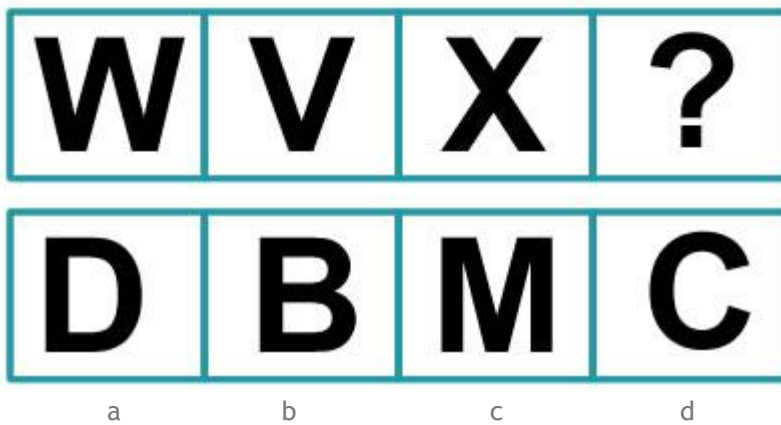
____4.



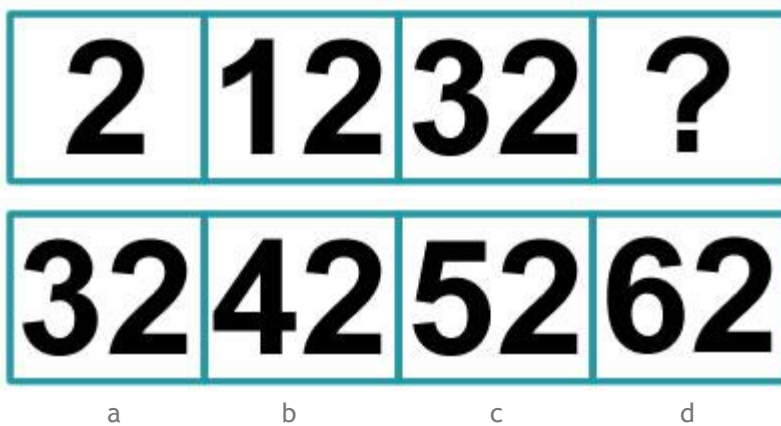
____5.



____6.



____7.



8.

1	4	9	?
7	14	25	16
a	b	c	d

9.

			?
a	b	c	d

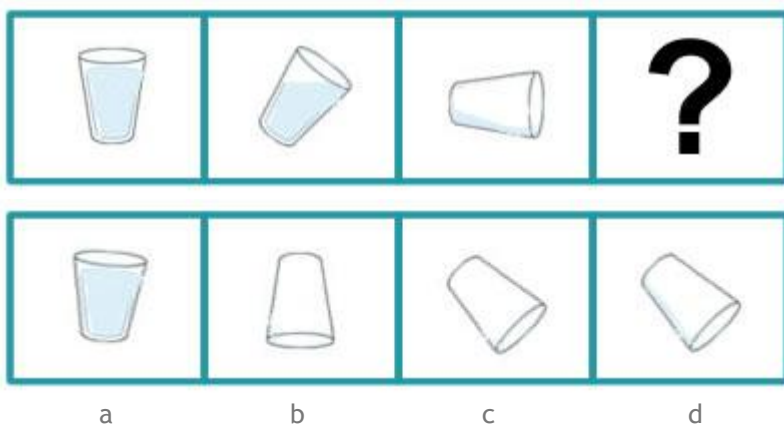
10.

7 5 6 1 1	8 4 6 2 2	9 3 6 3 3	?
7 5 6 2 2	7 7 5 2 2	11 4 6 5 5	10 2 6 4 4
a	b	c	d

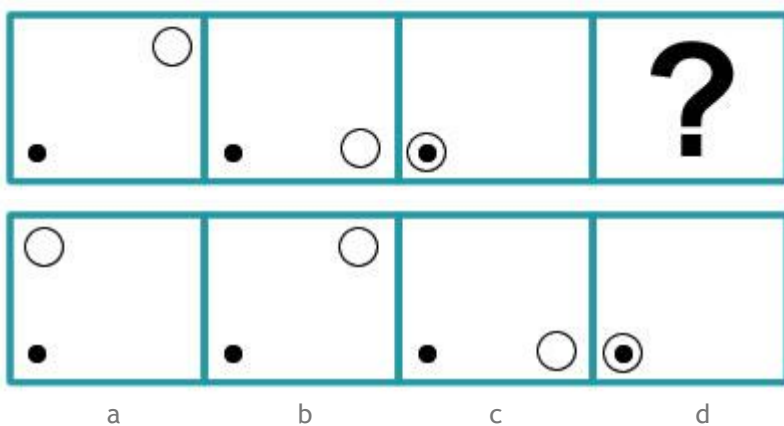
11.

			?
a	b	c	d

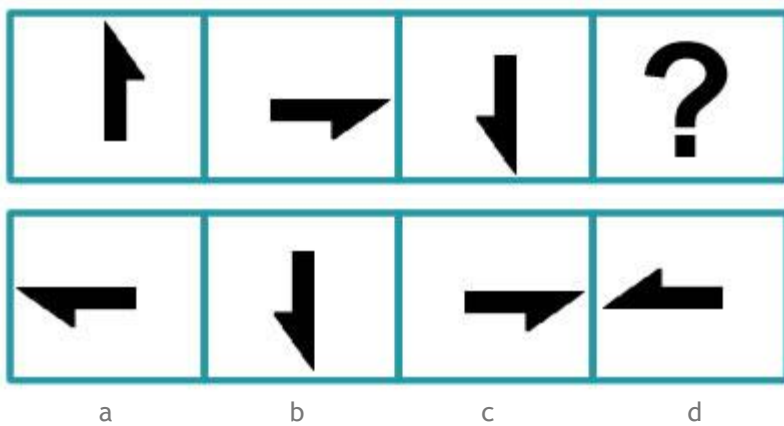
____12.



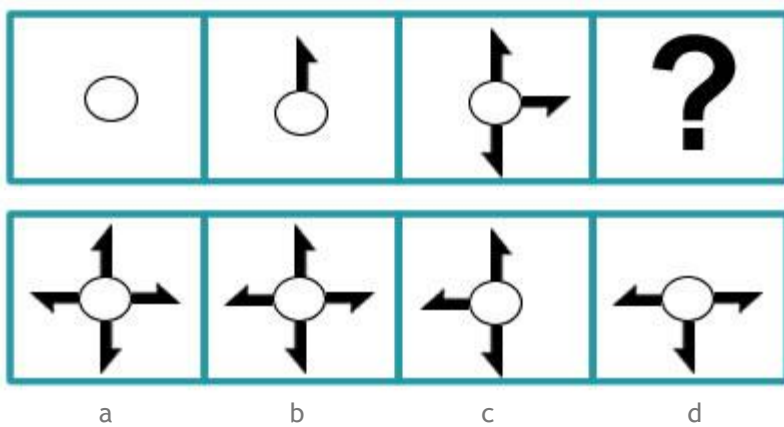
____13.



____14.



____15.



____16.

0.5	3	8	?
14.5	15.5	16.5	17.5
a	b	c	d

____17.

—	┐	┌	?
	└	┐	□
a	b	c	d

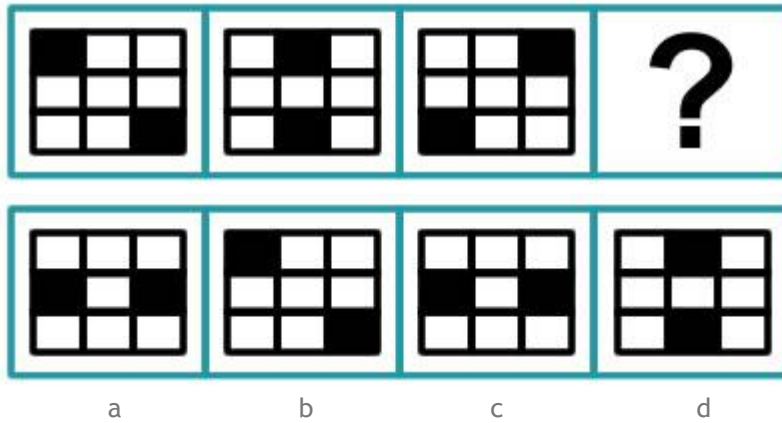
____18.

			?
a	b	c	d

____19.

			?
a	b	c	d

____20.



CURRENT EVENTS & GENERAL INFORMATION

Select the best the best answer for each and write the appropriate letter in the blank.

____1. The only Filipino Silver Medalist winner in the 1996 Atlanta Olympics is ____.

- a. Ramonito Velasco
- b. Manuel Velasco Jr.
- c. Mansueto Velasco Jr.
- d. ONYOK

____2. The volcano that erupted in 1991 which caused vast damage in Central Luzon is ____.

- a. Mt. Mayon
- b. Kanlaon
- c. Taal Volcano
- d. Mt. Pinatubo

____3. The first woman president in the Philippines.

- a. Amelita Ramos
- b. Corazon C. Aquino
- c. Imelda R. Marcos
- d. Miriam D. Santiago

____4. Peace Pact between the Philippine Government and the Moro National Liberation Front was signed on ____.

- a. September 1, 1996
- b. September 2, 1996
- c. September 3, 1996
- d. September 4, 1996

____5. The chairman of the MNLF is ____.

- a. Jose Maria Sison
- b. Nur Misuari
- c. Fr. Luis Jalandoni
- d. Fr. Balweg

6. In September 1996, Nur Misuari became the _____ of ARMM through an election.
- Governor
 - Mayor
 - Congressman
 - Chairman
7. EVAT is an acronym for
- Expanded Value Added Tax
 - Extended Value Added Tax
 - Exempted Value Added Tax
 - Evaluated Value Added Tax
8. The VAT was implemented by the BIR under the term of
- Luis Sison
 - Imelda Marcos
 - Liwayway Vinson Chato
 - Corazon Aquino
9. Philippine national bird is
- maya
 - parrot
 - eagle
 - lovebirds
10. SPCPD is an acronym for
- Southern Philippines Coalition for Peace and Development
 - Southern Philippines Council for Peace and Development
 - Southern Philippines Committee for Peace and Development
 - Southern Philippines Christian Peace and Development
11. C-5 was completed under the term of
- President Corazon Aquino
 - President Ferdinand Marcos
 - President Fidel V. Ramos
 - President Diosdado Macapagal
12. One of the biggest achievements of President Corazon Aquino in her term of office was
- infrastructure
 - aborting of *coup de tat*
 - the restoration of democracy
 - economic boom
13. APEC is the acronym for
- Asia - Pacific Economic Council
 - Asia - Pacific Economic Corporation
 - Association of Philippine Economic Cooperation
 - Association of Philippine Economic Council
14. The host country in the 1996 APEC meeting.
- Philippines
 - China
 - Singapore
 - Canada

15. The nun from Calcutta, who is regarded by many as the *Living Saint* for her devotion to the world's destitute is
- Mother Cecilia
 - Mother Teresa
 - Mother Mary
 - Mother Ignacia
16. The **Iraqi** President who ordered the attack of Kuwait.
- Saddam Hussein
 - King Fahad
 - King Hussein
 - Minister Syed Hamid Albar
17. The centennial year for the Philippine Independence will be celebrated in the year
- 1996
 - 1997
 - 1998
 - 2000
18. EDSA Revolution happened on
- February 22-25, 1986
 - February 22-25, 1985
 - February 22-25, 1987
 - February 22-25, 1988
19. The elected Russian president in 1996.
- Lebed
 - Lenin
 - Gorbachev
 - Yeltsin
20. The groups of islands being claimed by China, Philippines, Vietnam, Brunei, Taiwan, Singapore and Malaysia is
- Celebes Island
 - Babuyan Islands
 - Spratly Islands
 - Batanes Islands
21. The Philippine archipelago is composed of
- 8000 islands
 - 7, 107 islands
 - 24, 000 islands
 - 5, 000 islands
22. The Philippines is composed of three main groups of islands, namely
- Luzon - Visayas - Mindanao
 - Luzon - Batanes - Sulu
 - Mindanao - Batanes - Mindoro
 - Visayas - Mindanao - Pulilio
23. The provinces under ARMM are
- Bukidnon - Tawi-tawi - Zamboanga - Misamis Oriental
 - Lanao del Sur - Maguindanao - Sulu - Tawi-tawi
 - Zamboanga del Sur - Lanao del Sur - Cotabato
 - Basilan - Sarangani - Sulu - Tawi-tawi

24. Our national hero is

- a. Andres Bonifacio
- b. Gen. Emilio Aguinaldo
- c. Dr. Jose P. Rizal
- d. Pres. Manuel L. Quezon

25. The Philippines proclaimed its independence on

- a. July 4, 1946
- b. June 19, 1946
- c. June 12, 1896
- d. July 1, 1950

26. Jose Rizal was executed by firing **squad** on

- a. December 25, 1896
- b. December 30, 1896
- c. November 30, 1900
- d. January 1, 1900

27. Before the execution, Jose Rizal was imprisoned at

- a. Fort Bonifacio
- b. Fort del Pilar
- c. Fort Santiago
- d. Fort Magsaysay

28. On August 23, 1896, the Philippine revolution started at Pugad Lawin and was led by

- a. Gen. Aguinaldo
- b. Gen. Luna
- c. Gen. Bonifacio
- d. Joze Rizal

29. The Philippine flag was first made by

- a. Bonifacio
- b. Rizal
- c. Aguinaldo
- d. Agoncillo

30. The three stars in our flag represent

- a. Visayas - Mindanao - Sulu
- b. Luzon - Visayas - Mindanao
- c. Palawan - Cavite - Bulacan
- d. Mindoro - Palawan - Sulu

Mathematics Test I

Solutions

1. $16 + 4 \times (7 + 8) - 3 = \underline{\hspace{2cm}}?$
 $= 16 + 4 \times (15) - 3$
 $= 16 + 60 - 3$
 $= 16 + 57$
 $= 73$ *Ans.

2. $(18 + 17) (12 + 9) - (7 \times 16) (4 + 2) = \underline{\hspace{2cm}}?$
 $= (35) (21) - (112) (6)$
 $= 735 - 672$
 $= 63$ *Ans.

3. The sum of 73, 2891, 406 and 98 is $\underline{\hspace{2cm}}?$
 $= 73 + 2891 + 406 + 98$
 $= 3468$ *Ans.

4. Which of the following numbers is divisible by 24 ?

$192 \div 24 = 8$ *Ans.
 $286 \div 24 = 11$ remainder 4, 268 not divisible by 24 because it has a remainder when divided by 24.

5. Which of the following numbers is prime?

- a. $57 = 3 \times 19$
b. $87 = 3 \times 29$
c. $89 = 89 \times 1$ *Ans.
d. $91 = 13 \times 7$.

6. The product of 18 and 73 is $\underline{\hspace{2cm}}?$
 $18 \times 73 = 1,314$
 1314 *Ans.

7. The difference of 476 and 182 is $\underline{\hspace{2cm}}?$

$476 - 182 = 294$
 294 *Ans.

8. Evaluate $\frac{1}{100} + \frac{2}{1000} + \frac{3}{10} = \underline{\hspace{2cm}}?$

$1 / 100 = 0.01$
 $2 / 1000 = 0.002$
 $3 / 10 = 0.3$
 $0.01 + 0.002 + 0.3 = 0.312$ *Ans

9. Evaluate $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} \underline{\hspace{2cm}}.$

Find first the LCD which is 8.

$\frac{1}{2} = \frac{4}{8}$
 $\frac{1}{4} = \frac{2}{8}$
 $\frac{1}{8} = \frac{1}{8}$

$= \frac{4}{8} + \frac{2}{8} + \frac{1}{8}$

$= \frac{7}{8}$ *Ans.

10. Seventy-one and **twenty-one** ten thousandths is written in standard form as :

71.0021 *Ans.

11. One thousand forty two and seven thousandths written form is _____?

= 1, 042.007 *Ans.

12. $\frac{1}{3} + \frac{5}{6} + \frac{1}{2} = \underline{\hspace{2cm}}?$

Find first the LCD which is = 6

$\frac{1}{3}$ is now $\frac{2}{6}$

$\frac{5}{6}$ is still $\frac{5}{6}$

$\frac{1}{2}$ is now $\frac{3}{6}$

$$= \frac{2 + 5 + 3}{6}$$

$$= 10/6 \text{ or } 5/3$$

$1 \frac{2}{3}$ *Ans.

13. $3 \frac{1}{2} - 1 \frac{2}{3} = \underline{\hspace{2cm}}?$

Change $3 \frac{1}{2}$ to improper fraction which is $\frac{7}{2}$

Change $1 \frac{2}{3}$ to improper fraction which is $\frac{5}{3}$

$$= \frac{7}{2} - \frac{5}{3}$$

$$= \frac{3(7) - 2(5)}{2(3)}$$

$$= \frac{21 - 10}{6}$$

$$= 11/6$$

$= 1 \frac{5}{6}$ *Ans.

14. $900 \times 0.09 = \underline{\hspace{2cm}}?$

$$\begin{array}{r} 900 \\ \times .09 \\ \hline \end{array}$$

81.00 *Ans.

15. $\frac{7}{8} \div \frac{21}{4} = \underline{\hspace{2cm}}?$

$$= \frac{7}{8} \times \frac{4}{21}$$

$$= \frac{28}{168}$$

$$= \frac{28 \div 28}{168 \div 28}$$

= $\frac{1}{6}$ *Ans.

$$16. \frac{3}{5} \times \frac{10}{3} = \underline{\hspace{2cm}}?$$

$$= 30 / 15$$

= 2 *Ans.

$$17. 3.156 \times 0.12 = \underline{\hspace{2cm}}?$$

3.156	-----> 3-decimal places
<u> x .12 </u>	-----> 2-decimal places
6312	
<u>3156</u>	
0.37872	*Ans. -----> 5-decimal places

$$18. 5 \frac{1}{2} \div 2 \frac{1}{3} = \underline{\hspace{2cm}}?$$

$$= \frac{11}{2} \div \frac{7}{3}$$

$$= \frac{11}{2} \times \frac{3}{7}$$

$$= \frac{33}{14}$$

change 33/14 to improper fraction by dividing 33 by 14 which is :

2 $\frac{5}{14}$ *Ans.

$$19. \frac{2}{1} + \frac{4}{3} = \underline{\hspace{2cm}}.$$

$$= \frac{6}{3} + \frac{4}{3}$$

$$= \frac{10}{3}$$

$$= 6 \times \frac{6}{5}$$

$$= 36/5$$

= 7 $\frac{1}{5}$ Ans.

$$20. 3\% \text{ of } 24 = \underline{\hspace{2cm}}?$$

$$= 0.03 \times 24$$

= 0.72 *Ans.

$$21. 1402 + 142 + 14.2 + 1.42 = \underline{\hspace{2cm}}?$$

$$\begin{array}{r} 1402.00 \\ 142.00 \\ \hline \end{array}$$

$$\begin{array}{r}
 + \quad 14.20 \\
 \quad 1.42 \\
 \hline
 1559.62 \text{ *Ans.}
 \end{array}$$

22. $2010 \times 0.00001 = \underline{\hspace{2cm}}?$

$$2010 \times .00001 = 0.2010$$

$$= 0.210 \text{ *Ans.}$$

23. Find the **average** of 6.8, 3.5, 9.2, 7.45, and 6.05.

$$= \frac{6.8 + 3.5 + 9.2 + 7.45 + 6.05}{5}$$

$$= 33/5$$

$$= 6.6 \text{ *Ans.}$$

24. $47 \times 0.05 = \underline{\hspace{2cm}}?$

$$= 47 \times 0.05$$

$$= 2.35 \text{ *Ans.}$$

25. $87 \div 0.01 = \underline{\hspace{2cm}}?$

move the **decimal point** 2 places to the right in both **dividend** & **divisor** because there are 2 decimal places in the divisor.

$$0.01 \text{ is now } 1 \text{ and } 87 \text{ is now } 8700$$

$$= 8700 \div 1$$

$$= 8700 \text{ *Ans.}$$

26. $(0.5) (5) (0.5) = \underline{\hspace{2cm}}.$

$$= (2.5) (0.5)$$

$$= 1.25 \text{ *Ans.}$$

27. Dividing by 0.2 is the same as multiplying by $\underline{\hspace{2cm}}?$

$$= 1 \div 0.2$$

$$= 1 \div \frac{2}{10}$$

$$= 1 \div \frac{1}{5}$$

$$= 1 \times 5$$

$$= 5 \text{ *Ans.}$$

28. $0.012 \div 3 = \underline{\hspace{2cm}}?$

$$\begin{array}{r}
 .004 \\
 3 \overline{) .012} \\
 \underline{0} \\
 1
 \end{array}$$

$$\begin{array}{r} 0 \\ 12 \\ \underline{12} \\ 0 \end{array}$$

0.004 *Ans.

29. $2.944 \div 0.23 = \underline{\hspace{2cm}}?$

move the decimal point 2 places to the right in both dividend & divisor because there are 2 decimal places in the divisor.

0.23 is now 23 and 2.944 is now 294.4

$$= 294.4 / 23$$

= 12.8 *Ans.

30. $\frac{0.25 + 0.25 + 0.25 + 0.25}{0.25} = \underline{\hspace{2cm}}?$

$$= \frac{4(0.25)}{0.25}$$

= 4 *Ans.

31. $0.0088 \div 0.22 = \underline{\hspace{2cm}}?$

To start dividing, you have to make the **divisor** 0.22 a whole number by moving the **decimal point** 2 places to the right. Doing this will also move two decimal point for the **dividend** 00.0088.

0.22 is now 22 and 0.0088 is now 0.88

$$\begin{array}{r} 0.04 \\ 22 \overline{) 0.88} \\ \underline{0} \\ 88 \\ \underline{88} \\ 0 \end{array}$$

therefore, 0.04 *Ans.

32. $(0.15 \times 0.37) + (0.85 + 0.63) + (0.15 + 0.63) + (0.85 + 0.37) = \underline{\hspace{2cm}}?$

$$= [(0.15 + 0.63) + (0.85 + 0.63)] + [(0.15 \times 0.37) + (0.85 + 0.37)]$$

$$= [0.63(0.15 + 0.85)] + [0.37(0.15 + 0.85)]$$

$$= [0.63(1)] + [0.37(1)]$$

= 1 *Ans.

33. Which of the following best **approximate** $68 / 0.17 = \underline{\hspace{2cm}}?$

To start dividing, you have to make the divisor 0.17 a whole number by moving the decimal point 2 places to the right. Doing this will also move two decimal point for the dividend 68.

0.17 is now 17 and 68 is now 6800

$$= 6800 / 17$$

= 400 *Ans.

34. The decimal from of $11/6$ is _____?

$$= \frac{11}{6}$$

= 1.83 *Ans.

35. $5/9$ of what number is 435 ?

$$\frac{5}{9} \times N = 435$$

$$N = 435 \left(\frac{9}{5} \right)$$

N = 783 *Ans.

36. Which of the following fractions is the greatest?

a. $1 / 10 = 1 / 10$

b. $\frac{0.1}{0.10} = \frac{1}{1.0} = 1$

c. $\frac{1}{0.01} = \frac{100}{1} \rightarrow 100$

d. $\frac{1}{0.001} = \frac{1000}{1} \rightarrow$ **1000 *Ans**

37. $4.7 - 3.12 =$ _____?

4.70 - 3.12 = 1.58 *Ans.

38. $19.4 - 12.72 + 5$ _____?

$19.4 + 5 = 24.40 - 12.72 =$ **11.68 *Ans.**

39. $\frac{27}{32} \div \frac{-3}{8} =$ _____?

$$= \frac{27}{32} \times \left(\frac{8}{-3} \right)$$

$$= \frac{216 \div 24}{-96 \div 24}$$

$$= \frac{9}{-4}$$

= -2 1/4 *Ans.

40. $2 \frac{3}{4} \times 4 =$ _____?

$$= \frac{11}{4} \times 4$$

= 11 *Ans.

41. $\frac{-1}{4} + \frac{5}{6} =$ _____.

$$= \frac{-3}{12} + \frac{10}{12}$$

$$= 7/12 \text{ *Ans.}$$

42. $(-11.1) + (12.32) = \underline{\hspace{2cm}}$.

$$\begin{array}{r} 12.32 \\ - 11.1 \\ \hline \end{array}$$

$$1.22 \text{ *Ans.}$$

43. What % of 50 is 15?

$$B = 50; P = 15$$

$$\text{Rate} = \frac{P}{B} \times 100\%$$

$$= \frac{15}{50} \times 100\%$$

$$= \frac{3}{10} \times 100\%$$

$$= 30\% \text{ *Ans.}$$

44. What % of 12 is 6 ?

$$\text{Rate} = \frac{P}{B} \times 100\%$$

$$= \frac{6}{12} \times 100\%$$

$$= \frac{1}{2} \times 100\%$$

$$= 50\% \text{ *Ans.}$$

45. $36 / 720 = \underline{\hspace{2cm}}?$

$$\begin{array}{r} .05 \\ 720 \overline{) 36.00} \\ \underline{36.00} \\ 0 \end{array}$$

$$\text{therefore } 0.05 \text{ *Ans.}$$

46. What is $1/4$ % of 880?

$$= 1/4 \% \times 880$$

$$= 1/400 \times 880$$

$$= 880/400$$

$$= 2.2 \text{ *Ans.}$$

47. What % of 2 and $1/2$ is $1/2$?

$$\text{Rate} = \frac{1/2}{2 \frac{1}{2}} \times 100\%$$

$$= \frac{1/2}{5/2} \times 100\%$$

$$= \frac{1}{2} \times \frac{2}{5} \times 100\%$$

$$= \frac{1}{5} \times 100\%$$

$$= 20\% \text{ *Ans.}$$

48. 180 is $66\frac{2}{3}\%$ of what number?

$$\frac{2}{3} N = 180$$

$$N = 180 \left(\frac{3}{2} \right)$$

$$N = 270 \text{ *Ans.}$$

49. $\frac{1}{3}$ of what number is 42 ?

$$\frac{1}{3} \times N = 42$$

$$N = 42 \div \frac{1}{3}$$

$$N = 42 \times 3$$

$$N = 126 \text{ *Ans.}$$

50. $8\frac{1}{3} - 2\frac{5}{8} = \underline{\hspace{2cm}}?$

$$8\frac{1}{3} = \frac{25}{3}$$

$$2\frac{5}{8} = \frac{21}{8}$$

$$= \frac{25}{3} - \frac{21}{8}$$

$$= \frac{8(25) - 3(21)}{3(8)}$$

$$= \frac{200 - 63}{24}$$

$$= \frac{137}{24}$$

$$= 5\frac{17}{24} \text{ *Ans.}$$

Mathematics Test II

Solutions

1. 27, 499 round to the nearest hundred is _____?

= 27, 499 ---> drop 99 and change it to 00 and add 1 to the next digit which is 4 since 99 is more than 50.

Therefore **27,500 is the answer. *Ans.**

2. Twenty-four weeks is **how many** days?

$$= 24 \text{ weeks} \times \frac{7 \text{ days}}{\text{week}}$$

$$= 24 \times 7 \text{ days}$$

$$= \mathbf{168 \text{ days *Ans.}}$$

3. Five hundred ninety-five days is how many weeks?

$$= 595 \text{ days} \times \frac{1 \text{ week}}{7 \text{ days}}$$

$$= \frac{595}{7} \text{ week}$$

$$= \mathbf{85 \text{ weeks *Ans.}}$$

4. Eighteen bus loads of 56 students each went to join the Independence Day Celebration. One hundred seventy-four did not go. How many students are there in all?

Number of students :

$$N = (18 \times 56) + 174$$

$$= 1008 + 174$$

$$= \mathbf{1182 \text{ students *Ans.}}$$

5. Richard **bowled** 3 games and got scores of 139, 153, and 128. What was his **average score** for the three games?

$$\text{Average} = \frac{139 + 153 + 128}{3}$$

$$= \frac{420}{3}$$

$$= \mathbf{140 *Ans.}$$

6. What time will it be 3 and 1/2 hours after 7:15 PM?

$$= 7:15 + 3:30$$

$$= \mathbf{10: 45 \text{ PM *Ans.}}$$

7. What time was it 3 and 1/2 hours before 7:15 AM?

$$7:15 - 3:30$$

Since :15 minutes (7:15) is less than :30 minutes (3:30) you **need to borrow** an hour to 7 and convert that to minutes. 1 hour = 60 minutes. Now :15 + :60 = 75 minutes.

$$7:15 \text{ is now } 6:75$$

$$6:75 - 3:30 = \mathbf{3:45 \text{ AM *Ans.}}$$

8. The fraction $52 / 91$ expressed in lowest term is _____?

$$\frac{52}{91} = \frac{52 \div 13}{91 \div 13}$$

$$= \frac{4}{7} \text{ *Ans.}$$

9. Car A averages 8 km per liter of fuel. Car B averages 12 km per liter of fuel. If the price of fuel is \$10 per liter. How much less would a 600 - km. trip cost for Car A than for Car B?

CAR A :

$$\frac{600 \text{ km}}{8 \text{ km}} \times \$10 = \$750$$

CAR B :

$$\frac{600 \text{ km}}{12 \text{ km}} \times \$10 = \$500$$

$$\$750 - \$500 = \$250 \text{ *Ans.}$$

10. Change $31/17$ to a mixed number.

$$\begin{array}{r} 1 \\ 17 \overline{) 31} \\ \underline{17} \\ 14 \end{array}$$

therefore, the mixed number is $1 \frac{14}{17}$ *Ans.

17

11. 40 is what part of 64?

$$\text{Part} = \frac{40}{64}$$

$$= \frac{40 \div 8}{64 \div 8}$$

$$= \frac{5}{8} \text{ *Ans.}$$

12. Change $13 \frac{3}{7}$ to an improper fraction.

Just multiply 7 to 13 then add 3 and over it by 7.

$$7 \times 13 = 91 + 3 = 94 / 7 \text{ *Ans.}$$

13. What is the average speed in kph of a car travelling 160 kilometers in 5 hours?

$$\text{Ave. Speed} = \frac{\text{distance}}{\text{time}}$$

$$= \frac{160 \text{ km}}{5 \text{ hrs.}}$$

$$= 32 \text{ kph *Ans.}$$

$$14. \frac{3}{4} + \frac{1}{6} + \frac{1}{8} = \underline{\hspace{2cm}}?$$

$$= \frac{18}{24} + \frac{4}{24} + \frac{3}{24}$$

$$= \frac{25}{24}$$

$$= 1 \frac{1}{24} \text{ *Ans.}$$

15. $15 \frac{1}{3} - 8 \frac{3}{4} = \underline{\hspace{2cm}}?$

15 and $\frac{1}{3}$ is also = $\frac{46}{3}$

8 and $\frac{3}{4}$ is also = $\frac{35}{4}$

$$= \frac{46}{3} - \frac{35}{4}$$

$$= \frac{4(46) - 3(35)}{3(4)}$$

$$= \frac{184 - 105}{12}$$

$$= \frac{79}{12}$$

$$= 6 \frac{7}{12} \text{ *Ans.}$$

16. 8 inches is what part of a foot?

1 FOOT = 12 INCHES

$$8 \text{ inches} = 8 \text{ inches} \times \frac{1 \text{ foot}}{12 \text{ inches}}$$

$$= \frac{8}{12} \text{ ft.}$$

$$= \frac{2}{3} \text{ ft. *Ans.}$$

17. If 4 workers can complete 8 identical jobs in 4 days, how long will it take 6 workers to complete 12 such jobs?

$$k = \frac{(4 \text{ workers}) 4 \text{ days}}{8 \text{ jobs}}$$

$$k = \frac{2 \text{ workers days}}{\text{job}}$$

No. of days for 12 jobs for 6 workers

$$N = \frac{2 \text{ worker days}}{\text{job}} \times \frac{12 \text{ jobs}}{6 \text{ workers}}$$

$$N = 4 \text{ days *Ans.}$$

18. A bookstore sells two kind of MSA Reviewer Books. "College Admission Test Reviewer (CATR)" and High School Entrance Test Reviewer (HSETR)". If it sells the CATR which yield a profit of \$62.00 per book, and it can sell 300 books in a month. It sells the HSETR at a profit of \$50.50 per book and it can sell 350 books in one month. Which type of book will yield more profit per month, and by how much?

CATR

$$\begin{aligned}\text{Profit} &= \frac{\$62}{\text{book}} \times 300 \text{ books} \\ &= \$18,600\end{aligned}$$

HSETR

$$\begin{aligned}\text{Profit} &= \frac{\$50.50}{\text{book}} \times 300 \text{ books} \\ &= \$17,675\end{aligned}$$

$$\begin{aligned}\text{Difference in Profit} &= \$18,600 - \$17,675 \\ &= \$925 \text{ *Ans.}\end{aligned}$$

therefore the CATR yield \$925 more profit than the HSETR

19. Mr. Jose Suobiron inherited $\frac{5}{8}$ of his father's estate. He sold $\frac{2}{5}$ of his share. What part of the entire estate did he sell?

Let x - represents the whole state.

$\frac{5}{8}x$ - is the share of Mr. Suobiron

N = part of **the estate** that he sold

$$\begin{aligned}N &= \frac{5}{8} \times \frac{2}{5} \\ &= 10 / 40 \\ &= \frac{1}{4} \text{ of the estate was sold by Mr. Suobiron *Ans.}\end{aligned}$$

20. 13 and $\frac{1}{3}$ ounces is what part of a pound?

16 OUNCES = 1 POUND

$$= 13 \frac{1}{3} \text{ ounces} \times \frac{1 \text{ pound}}{16 \text{ ounces}}$$

$$= \frac{40}{3} \times \frac{1}{16} \text{ pounds}$$

$$= \frac{5}{6} \text{ pounds *Ans.}$$

21. 126 is $\frac{3}{7}$ of what number?

$$\frac{3}{7}N = 126$$

$$N = 126 \left(\frac{7}{3} \right)$$

$$N = 882 / 3$$

$$N = 294 \text{ *Ans.}$$

22. A roll of ribbon 51 yards long is to be divided into 408 equal parts. How many inches is the length of each part?

1 YARD = 36 INCHES

$$N = 51 \text{ yards} \times \frac{36 \text{ inches}}{\text{yards}} \div 408 \text{ parts}$$

$$= 51 \times 36 \times \frac{1}{408} \text{ inches/part}$$

$$= 4.5 \text{ inches / part *Ans.}$$

23. A water tank is $\frac{7}{8}$ full. When 21 liters of water is drawn out, the tank is $\frac{5}{8}$ full. What is the total capacity of the tank in liters?

Let x - be the total capacity of the tank.

$$\frac{7x}{8} - 21 = \frac{5x}{8}$$

$$\frac{7x}{8} - \frac{5x}{8} = 21$$

$$\frac{2x}{8} = 21$$

$$\frac{1x}{4} = 21$$

$$x = 21 \left(\frac{4}{1} \right)$$

$$x = 21(4)$$

$$x = 84 \text{ *Ans.}$$

24. A painter completes $\frac{2}{9}$ of a job in 3 days. At this rate, how many more days will it take him to finish the job?

Let x - be the remaining of days to finish the job.

$$\frac{2}{9} : 3 = \frac{7}{9} : x \quad \frac{7}{9} \text{ is part of the job that is unfinished. } 1 - \frac{2}{9} = \frac{7}{9}$$

$$\frac{2x}{9} = 3 \left(\frac{7}{9} \right)$$

$$\frac{2x}{9} = \frac{21}{9}$$

$$x = \frac{21}{9} \left(\frac{9}{2} \right)$$

$$x = \frac{21}{2}$$

$$x = 10.5 \text{ days *Ans.}$$

25. A boy spent \$320, which was $\frac{5}{7}$ of what he had **originally**. How much did he have originally?

Let x - be the original amount of money that **the boy** had first.

$$\frac{5}{7}x = \$320$$

$$x = 320 \left(\frac{7}{5} \right)$$

$$x = \$448 \text{ *Ans.}$$

26. $0.0075 \times 1000 = \underline{\hspace{2cm}}?$

To multiply numbers by 10^n , move the decimal **point** of the number to n places to the right.

$$0.0075 \times 1000 = 0.0075 \times 10^3 \quad n = 3 \text{ this represents the no. of zero **decimals** : move the decimal point 3 places to the right.}$$
$$= 7.5 \text{ *Ans}$$

27. Express 0.572 as a **common fraction** in lowest term?

$$0.572 = \frac{572}{1000} \quad 0.572 - \text{this has 3 decimal places remove the decimal point and replace it by the denominator of } 10^3 = 1000.$$

$$= \frac{572 \div 4}{1000 \div 4}$$

$$= \frac{143}{250} \text{ *Ans.}$$

28. Of the following which is the closest approximation to the product $0.33 \times 0.41 \times 0.625 \times 0.83 = \underline{\hspace{2cm}}?$

$$\begin{aligned} 0.33 &= 1/3 \\ 0.41 &= 2/5 \\ 0.625 &= 5/8 \\ 0.83 &= 5/6 \end{aligned}$$

$$= \frac{1 \times 2 \times 5 \times 5}{3 \times 5 \times 8 \times 6}$$

$$= \frac{50}{720}$$

$$= 5/72 \text{ *Ans.}$$

29. Dividing by 0.125 is the same as multiplying by $\underline{\hspace{2cm}}?$

$$= \frac{1}{0.125}$$

$$= \frac{1}{\frac{1}{8}}$$

$$= 1 \times \frac{8}{1}$$

$$= 8 \text{ *Ans.}$$

30. If a **copper wire** is 3.7 feet long, its **length** in inches is $\underline{\hspace{2cm}}?$

$$3.7 \text{ feet} = 3.7 \text{ feet} \times \frac{12 \text{ inches}}{\text{foot}}$$

44.4 inches *Ans.

44.4 inches is between 44 and 45

$$31. \frac{9}{0.09 \times 0.9} = \underline{\hspace{2cm}}?$$

$$= \frac{9}{\frac{9}{100} \times \frac{9}{10}}$$

$$= \frac{9}{\frac{81}{1000}}$$

$$= 9 \times \frac{1000}{81}$$

$$= \frac{1000}{9} \text{ *Ans.}$$

32. How much money can be saved by buying 72 pens at \$90 per dozen than buying them for \$7.75 each?

Cost in buying by dozen :

$$= 72 \text{ pens} \times \frac{1 \text{ dozen}}{12 \text{ pens}} \times \frac{\$90}{\text{doz.}}$$

$$= 6 \times \$90$$

$$= \$540$$

Cost in buying per piece :

$$= 72 \times \$7.75$$

$$= 558$$

$$\text{Amount Saved} = \$558 - \$540$$

$$= \$18 \text{ *Ans.}$$

33. Two countries produce $\frac{1}{8}$ and $\frac{3}{10}$ respectively of the world production of aluminum. What fraction of the world production do the two nations produce together?

$$N = \frac{1}{8} + \frac{3}{10}$$

$$= \frac{5}{40} + \frac{12}{40}$$

$$= \frac{17}{40} \text{ *Ans}$$

34. Of 20 is 25 % of $x + 7$, then $x = \underline{\hspace{2cm}}?$

$$25 \% (x + 7) = 20$$

$$\frac{1}{4} (x + 7) = 20$$

$$x + 7 = 20 \times 4$$

$$x + 7 = 80$$

$$x = 80 - 7$$

$$x = 73 \text{ *Ans.}$$

35. If $5 \times 5 \times Z = 15 \times 15 \times 15$, then $Z =$ _____?

$$5 \times 5 \times Z = 15 \times 15 \times 15$$

$$Z = \frac{15 \times 15 \times 15}{5 \times 5}$$

$$Z = 3 \times 3 \times 15$$

$$Z = 135 \text{ *Ans.}$$

36. The morning class in school begin at 8:05 AM and end at 12:00 noon. There are five class periods of 45 minutes each with equal intervals between classes. How many minutes are there in each interval?

Let x - be the length of time of each interval

$$\begin{array}{ccccccccccc} 8:05 \text{ AM} & + & :45 \text{ min-class} & + & x & + & :45 \text{ min-class} & + & x & + & :45 \text{ min-class} & + & x \\ + & :45 \text{ min-class} & + & x & + & :45 \text{ min-class} & = & 12:00 \end{array}$$

$$8:05 + 5(45 \text{ minutes}) + 4x = 12:00$$

$$8:05 + 225 \text{ minutes} + 4x = 12:00$$

$$8:05 + 3 \text{ hrs \& 45 min} + 4x = 12:00$$

$$11:50 + 4x = 12:00$$

$$4x = 10 \text{ minutes}$$

$$x = 10 / 4$$

$$x = 2.5 \text{ minutes *Ans.}$$

37. Every seat in a bus was taken and 7 people were standing. At the next stop 15 people got off and 3 got on. How many seats were empty after this stop if everyone was seated?

Let x - be the number of seats

$$\begin{array}{l} \text{No. of people} = x + 7 - 15 + 3 \\ \text{No. of people} = x - 5 \end{array}$$

$$\begin{array}{l} \text{No. of empty seats} = x - (x - 5) \\ \text{No. of empty seats} = x - x + 5 \\ \text{No. of seats} = 5 \text{ *Ans.} \end{array}$$

38. A boy scored 134, 145, and 150 in his first 3 games. What score must he make on his next game so that his average for the four games will be 149?

x - must be score in the fourth game

$$\frac{x + 134 + 150 + 145}{4} = 149$$

$$x + 429 = 4(149)$$

$$x + 429 = 596$$

$$x = 596 - 429$$

$$x = 167 \text{ *Ans.}$$

39. Angelo can type 9 pages in 12 minutes. How many pages can he type in 8 hours at the same rate?

P - no. of pages :

$$\frac{P}{8 \text{ hrs}} \times \frac{1 \text{ hr}}{60 \text{ mins}} = \frac{9 \text{ pages}}{12 \text{ mins}}$$

$$\frac{P}{480} = \frac{9}{12}$$

$$P = \frac{9}{12} (480)$$

$$= 9 (40)$$

360 *Ans.

40. Girlie **starts** cleaning **the yard** at 10 AM and by 11:20, she has finished 4/5 of it. If she continues working at the same rate, at what time will she finish cleaning the yard?

Time elapse from 10 AM to 11:20 AM is 1 hour and **20 minutes** which is = 80 minutes.

$$\frac{4}{5} : 80 \text{ minutes} = \frac{1}{5} : x$$

$$\frac{4x}{5} = 80 \left(\frac{1}{5} \right)$$

$$x = 80 \left(\frac{1}{5} \right) \frac{5}{4}$$

$$= 20 \text{ minutes}$$

therefore, 20 minutes after 11:20 AM is 11:40 AM *Ans.

41. If 3/8 of a certain number is 2/5, what is 3/4 of that same number?

$$\frac{3x}{8} = \frac{2}{5}$$

$$x = \frac{2}{5} \left(\frac{8}{3} \right)$$

$$x = \frac{16}{15}$$

$$\frac{3}{4} x = \frac{3}{4} \left(\frac{16}{15} \right)$$

$$\frac{3}{4} x = \frac{4}{5} \text{ *Ans.}$$

42. A bus travels 240 kilometers at 60 kph and then returns at 40 kph. What is the average speed in kilometers per hour for the round **trip**?

$$\begin{aligned} t_1 &= \text{distance} / \text{rate} \\ &= 240 \text{ km} / 60 \text{ kph} \\ &= 4 \text{ hrs.} \end{aligned}$$

$$\begin{aligned} t_2 &= \text{distance} / \text{rate} \\ &= 240 \text{ km} / 40 \text{ kph} \\ &= 6 \text{ hrs.} \end{aligned}$$

$$\begin{aligned}\text{rate} &= \frac{\text{total distance}}{\text{total time}} \\ &= \frac{240 + 240}{4 + 6} \\ &= \frac{480}{10}\end{aligned}$$

= 48 km/hr *Ans.

43. Mr. Albelda drives his car at **the rate** of 60 miles per hour. What is his rate in feet per second?

5280 ft. = **1 mile**

$$\begin{aligned}\text{rate} &= 60 \frac{\text{mi}}{\text{hr}} \times \frac{1 \text{ hr}}{3600 \text{ sec}} \times \frac{5280 \text{ ft}}{1 \text{ mile}} \\ &= \frac{60 (5280)}{3600} \frac{\text{ft}}{\text{sec}} \\ &= \underline{88 \frac{\text{ft}}{\text{sec}}} \text{ *Ans.}\end{aligned}$$

44. What is 0.05 percent of 6.5 ?

$$= 0.05\% \times 6.5$$

$$= 0.0005 \times 6.5$$

= 0.00325 * Ans.

45. At Rosa Alvero Street, in Loyola Heights there are 8 **towns** houses and 52 **private individual** homes. What is the **ratio** of **town houses** to private individual homes?

$$\frac{8}{52} = \frac{8 \div 4}{52 \div 4}$$

= 2 / 13 or 2 : 13 * Ans.

46. If it takes 16 **pipes** 10 hours to fill 8 **tanks**, how long will it take 12 pipes to fill 9 tanks?

Let H be the number of hours

$$\begin{aligned}H &= \frac{(16)(10) \cancel{\text{pipe}} \cdot \text{hours}}{8 \cancel{\text{tanks}}} \times \frac{9 \cancel{\text{tanks}}}{12 \cancel{\text{pipes}}} \\ &= \frac{16 \times 10 \times 9}{8 \times 12} \\ &= \frac{1440}{96} \\ &= \underline{15 \text{ hours}} \text{ *Ans.}\end{aligned}$$

47. Mr. Cruz **borrow**s \$360,000. If he **pay**s back \$378,000 after one year, what is his interest rate?

$$I = F - P$$

$$I = \$378,000 - \$360,000 = 18,000$$

$$\text{rate} = \frac{I}{P_t} \times 100\%$$

$$= \frac{\$18,000}{\$360,000} \times 100\%$$

= 5% *Ans.

48. If 6 men need \$3,600 worth of food for a three-day **camping trip**, how much will **2 men** need for a 15-day trip?

Let x - be the worth if food needed by 2 men for a 15-day trip

$$x = \frac{\$3,600}{6 \times 3} \times (2 \times 15 \text{ man-days})$$

$$= \frac{\$3,600 \times 30}{18}$$

$$= 200 \times 30$$

= \$6,000 *Ans.

49. What is 6% of 2.5 ?

6% of 2.5

$$= \frac{6}{100} \times \frac{25}{10}$$

$$= \frac{150}{1000}$$

= 3 / 20 * Ans.

50. What is the value of $60 \times 31 \times 36 \times 7$?

In this kind of problem we don't need to multiply in order to get the answer. Notice in the choices that the **first five** digits are all the same so we just have to **check** what the last digit be This can be done by multiplying the last digit :

$$0 \times 1 \times 6 \times 7 = 0$$

Therefore, the answer is : **468, 720 *Ans.**

Mathematics Test III

Solutions

$$1. \text{ If } 9x - 7 = 18y \text{ then } \frac{9x - 7}{6} = \underline{\hspace{2cm}} ?$$

$$9x - 7 = 18y$$

$$\frac{9x - 7}{6} = \frac{18y}{6}$$

= 3y *Ans.

2. A student buys an MSA Reviewer Book for \$175 after receiving a discount of 12.5%. What was the **marked** price?

$$1 \text{ MP} - 0.125 \text{ MP} = \$175$$

$$0.875 \text{ MP} = \$175$$

$$\frac{7}{8} \text{ MP} = \$175 \text{ (note : } \frac{7}{8} \text{ is the fraction form of 0.875)}$$

$$MP = \$175 \times (8/7)$$

$$MP = \$200 \text{ *Ans.}$$

3. A town house unit was sold for \$2.50 M, yielding a 25% profit. For how much would it be sold to yield only a 10% profit on the cost?

Let C be the original cost of the house
Let 0.25C be the profit

$$C + 0.25C = \$2.5 \text{ M}$$

$$1.25C = \$2.5\text{M}$$

$$\frac{1.25C}{1.25} = \frac{\$2.5\text{M}}{1.25}$$

$$C = \$2\text{M}$$

The new selling price that would yield at 10% profit on the cost would be :

$$= \$2\text{M} + 0.10 (\$2\text{M})$$

$$= \$2\text{M} + 0.20\text{M}$$

$$= \$2.2\text{M} \text{ *Ans.}$$

4. What single discount is equivalent to successive discounts if 5% and 10%?

The formula for a single rate of discount equivalent to the series of discounts is :

$$R = 1 - [(1 - r_1) (1 - r_2) \dots (1 - r_n)]$$

$$\text{for } r_1 = 5\% \text{ and } r_2 = 10\%$$

$$R = 1 - [(1 - 0.05) (1 - 0.10)]$$

$$= 1 - [(0.95) (0.90)]$$

$$= 1 - 0.855$$

$$= 0.145 \text{ or } 14.5\% \text{ *Ans.}$$

5. How many miles are there in 40 kilometers?

$$1 \text{ mile} = 1.6 \text{ kilometers}$$

$$40 \text{ kilometers} = 40 \text{ km} \times \frac{1 \text{ mile}}{1.6 \text{ km}}$$

$$= 25 \text{ miles} \text{ *Ans.}$$

6. If water tank can be filled in 1 and 3/4 hours. What part of the tank can be filled in exactly 1 hour?

The part of the tank that can be filled in 1 hour is 1 ÷ 1 and 3/4

$$= 1 \div \frac{7}{4}$$

$$= 1 \times \frac{4}{7}$$

$$= \frac{4}{7} \text{ *Ans.}$$

7. If 5 items cost d dollars how much would x items cost at the same rate?

The cost of x items = $\frac{d \times}{5}$

$$= \frac{dx}{5} \text{ *Ans.}$$

8. In a group of 8, 000 applicants for a civil service examination, 1600 failed to take the first part of the test. What percent of the total applicants took the first part of the test?

$$\text{Rate} = \frac{8000 - 1600}{8000} \times 100\%$$

$$= \frac{6400}{8000} \times 100\%$$

$$= 0.8 \times 100\%$$

$$= 80\% \text{ *Ans.}$$

9. If the ratio a : b is 11 : 9, then a + b is _____?

The sum of a and b can't be determined from the given information because there are infinite possibilities for this like;

$$\begin{aligned} a + b &= 11 + 9 \\ &= 22 + 18 \\ &= 33 + 27 \text{ and so on...} \end{aligned}$$

d. can't be determined from the given information. *Ans.

10. If 4 men can paint a fence in 2 days, what part of the job can be completed by one man in 8 days?

$$\frac{1 \text{ whole job}}{4 \text{ men} \times 2 \text{ days}} \times 1 \text{ man} \times 8 \text{ days}$$

$$\frac{8 \text{ whole jobs}}{8}$$

1 whole job *Ans.

11. Of John's salary, 1/10 is spent for clothing, and 1/4 for board and lodging. What part of the salary is left for other expenditures and savings?

Let x - be the part left.

$$x = 1 - \left(\frac{1}{10} + \frac{1}{4} \right)$$

$$= 1 - \frac{(2 + 5)}{20}$$

$$= \frac{20}{20} - \frac{7}{20}$$

$$= 13 / 20 \text{ *Ans.}$$

12. Which of the following fractions is closest to 1/3 ?

We can solve the problem by getting the LCM of the given fraction and all the choices.

The LCM = 15 then compare the differences of each choice to 1/3.

$$1/3 - 1/5 = 5/15 - 3/15 = 2/15$$

$$2/5 - 1/3 = 6/15 - 5/15 = 1/5 \text{ *Ans.}$$

$$2/3 - 1/3 = 10/15 - 5/15 = 10/15$$

$$3/5 - 1/3 = 9/15 - 5/15 = 4/15$$

13. Write 0.5 % as decimal.

To change % to decimal, we drop the % sign and move the decimal **point** two places to the left.

$$0.05 \% = 0.005 \text{ *Ans.}$$

14. If 10 parts of alcohol is **mixed** with 15 parts of water, what part of the mixture is alcohol ?

$$\text{The part of the mixture is alcohol} = \frac{10}{10 + 15}$$

$$= \frac{10}{25}$$

$$= 2/5 \text{ *Ans.}$$

15. If $2/5$ of the workers in a factory **go on vacation** in September and $1/3$ of the **remainder** take their vacation in October, what **fraction** of the workers take their vacation in some other time?

The fraction of the workers that take their vacation in some other time

$$= 1 - \left[\frac{2}{5} + \frac{1}{3} \left(1 - \frac{2}{5} \right) \right]$$

$$= 1 - \left[\frac{2}{5} + \frac{1}{3} \left(\frac{3}{5} \right) \right]$$

$$= 1 - \left[\frac{2}{5} + \frac{1}{5} \right]$$

$$= 1 - \frac{3}{5}$$

$$= \frac{2}{5} \text{ *Ans.}$$

16. A **bill** was **passed** by a vote of 7 : 5 . What part of the vote counts were in favor of the bill?

$$\text{The part of the vote in favor of the bill} : \frac{7}{7 + 5}$$

$$= 7 / 12 \text{ *Ans.}$$

17. If a man travels for half of an hour at 60 km/hr, and for quarter of an hour for 120 km/hr, what is his average speed?

$$d_{1/2} = \frac{1}{2} \text{ hr.} \times \frac{60 \text{ km}}{\text{hr}} = 30 \text{ km}$$

$$d_{1/4} = \frac{1}{4} \text{ hr.} \times \frac{120 \text{ km}}{\text{hr}} = 30 \text{ km}$$

$$\text{Average speed} = \frac{\text{total distance}}{\text{total time}}$$

$$\frac{(30 + 30)}{(\frac{1}{2} + \frac{1}{4})}$$

$$\frac{(30 + 30)}{\frac{3}{4}} \text{ km.}$$

$$60 (\frac{4}{3}) \text{ kph}$$

Ave. Speed = 80 kph. *Ans.

18. What part of an hour elapses between 9:52 AM and 10:16 AM ?

$$= 10:16 - 9:52$$

10:16 is also equal to 9:76 since 76 is equal to 1 hour and 16 minutes. 9 hours + 1 hour and 16 minutes = 10:16.

$$= 9:76 - 9:52 = 24 \text{ minutes}$$

$$= 24 \text{ minutes} \times \frac{1 \text{ hr}}{60 \text{ min}}$$

$$= 24 / 60 \text{ hrs.}$$

= 2 / 5 hours *Ans.

19. If the ratio of boys to girls is 3 : 7 . If the class has 40 students, how many additional boys are needed to enroll to make the ratio 2 : 1 ?

$$3x + 7x = 40 \quad \text{The number of boys : } 3x = 3(4) = 12$$

$$10x = 40 \quad \text{The number of girls : } 7x = 7(4) = 28$$

$$x = \frac{40}{10} \quad \text{since the desired ratio of boys to girls is 2 : 1 .}$$

$$x = 4 \quad \text{the required number of boys is } 2 \times 28 = 56 \\ \text{so } 56 - 12 = \mathbf{44 \text{ more boys are needed. *Ans.}}$$

20. If 45 feet of uniform wire weigh 5 kilograms, what is the weight of 30 yards of the same wire ?

Let x - be the length of 30 yards of the same wire.

$$30 \text{ yards} \times \frac{3 \text{ feet}}{\text{yard}} = 90 \text{ feet}$$

$$\frac{x}{90} = \frac{5}{45}$$

$$\frac{x}{90} = \frac{1}{9}$$

x = 10 kgs. *Ans.

21. A school has enough oatmeal to feed 15 children in 4 days. If 5 more children are added, how many days will the oatmeal last ?

This problem is an example of an inverse proportion.

$$4 : 1/5 = x : 1 / (15 + 5)$$

$$4 : 1/15 = x : 1/20$$

$$\frac{1}{15}x = 4 \left(\frac{1}{20} \right)$$

$$\frac{x}{15} = \frac{1}{5}$$

$$x = \frac{1}{5} (15)$$

x = 3 days *Ans.

22. If a car can travel 60 km on 12 liters of gasoline, how many liters will be needed in a 210 km trip ?

This is a direct proportion problem, Let x - be the number of liters needed.

$$x : 210 = 12 : 60$$

$$60x = 210 (12)$$

$$60x = 2520$$

$$x = 2520 / 60$$

x = 42 liters *Ans.

23. Write 7.5% as a fraction.

$$7.5\% = \frac{7.5}{100}$$

$$= \frac{75}{1000}$$

$$= \frac{3}{40} \text{ *Ans.}$$

24. Write 3/8 % as decimal.

$$3/8 \% = 0.375 \%$$

$$= 0.00375 \text{ *Ans.}$$

25. Find 40% of 60.

$$= 0.40 \times 60$$

$$= 24 \text{ *Ans.}$$

26. Find 70% of 60.

$$= 0.70 \times 60$$

$$= 42 \text{ *Ans.}$$

27. What is 175% of 24 ?

$$P = \text{Rate} \times \text{Base}$$

$$= 1.75 \times 24$$

$$= 42 \text{ *Ans.}$$

28. What percent of 60 is 42 ?

$$R = \frac{P}{B} \times 100\%$$

R = 70% *Ans.

29. 54 is 20% of what number ?

$$N = 54 \div 0.20$$

$$= 540 / 2$$

= 270 *Ans.

30. 24 is 150% of what number ?

$$24 = 1.5 \times N$$

$$N = 24 / 1.5$$

$$N = 240 / 15$$

N = 16 *Ans.

31. How many **thirty-** seconds are there in $62 \frac{1}{2} \%$?

$$\frac{N}{32} = 62 \frac{1}{2} \%$$

$$\frac{N}{32} = \frac{5}{8}$$

$$N = \frac{5}{8} (32)$$

N = 20 *Ans.

32. A shirt **marked** \$560 is sold for \$392. What was **the rate** of discount ?

$$\text{Rate} = \frac{\text{discount}}{\text{original price}} \times 100\%$$

$$= \frac{\$560 - \$392}{\$560} \times 100 \%$$

$$= \frac{\$168}{\$560} \times 100\%$$

= 30% *Ans.

33. A **kinder** class has g number of girls and b number of boys. **The ratio** of boys to girls is _____ ?

The ratio of boys to girls is b / g *Ans.

$$34. \sqrt{\frac{1}{25} + \frac{1}{144}} = \underline{\hspace{2cm}} ?$$

$$= \sqrt{\frac{144}{25} + \frac{25}{144}}$$

$$= \frac{169}{\sqrt{(25)(144)}}$$

$$= \frac{13}{(5)(12)}$$

$$= 13 / 60 \text{ *Ans.}$$

35. A basketball team has won 24 games out of 36 games played. It has 24 more games to play. How many of these must the team win to make its record 80% for the season ?

$$\begin{aligned} \text{The total number of wins} &= 80\% \times (\text{total no. of games played}) \\ &= 0.80 \times (36 + 24) \\ &= 0.80 (60) \\ &= 48 \end{aligned}$$

Since they already won 24 games, they need to win **24 more games. * Ans.**

36. If prices are reduced by 25% sales increased by $33\frac{1}{3}\%$ what is the net effect on gross revenue ?

$$\begin{aligned} \text{Revenue} &= \text{price} \times \text{no. items sold} \\ R &= P \times N \end{aligned}$$

$$R_{\text{orig}} = PN$$

If prices are reduced by 25%

$$\begin{aligned} R_{\text{new}} &= (P - 25\% P) (N + 33\frac{1}{3}\% N) \\ &= (P - \frac{1}{4} P) (N + \frac{1}{3} N) \\ &= (\frac{3}{4} P) (\frac{4}{3} N) \end{aligned}$$

$$\begin{aligned} R_{\text{new}} &= PN \\ R_{\text{new}} &= R_{\text{orig}} \end{aligned}$$

The revenues remain the same * Ans.

37. An 8-meter rope is cut so that one part is $\frac{3}{5}$ of the other. How long in meters, is the shorter segment ?

Let x - be the length of the shorter rope.
Let 8 - x be the length of the larger rope

$$x = \frac{3}{5} (8 - x)$$

$$\begin{aligned} 5x &= 3 (8 - x) \\ 5x &= 24 - 3x \\ 5x + 3x &= 24 \\ 8x &= 24 \end{aligned}$$

$$x = 3 \text{ meters * Ans.}$$

38. When the gasoline guage of an automobile shows $\frac{1}{8}$ full, 52.5 liters is needed to completely fill the gasoline tank. What is the capacity, in liters of the gasoline tank?

Let x - be the capacity in liters

$$x - \frac{1}{8}x = 52.5$$

$$\frac{7}{8}x = 52.5$$

$$x = 52.5 \left(\frac{8}{7} \right)$$

x = 60 * Ans.

39. What part of gallon is 7 pints, given that 1 quart = 2 pints, 4 quarts = 1 gal. ?

therefore, 8 pints = 1 gal.

$$7 \text{ pints} = 7 \text{ pints} \times \frac{1 \text{ gal}}{8 \text{ pints}}$$

= 7 / 8 gallon * Ans.

40. If 7 is added to four times a number, the result is 91. What is the number ?

Let x - be the number.

$$4x + 7 = 91$$

$$4x = 91 - 7$$

$$4x = 84$$

$$x = 84 / 4$$

x = 21 * Ans.

41. The area of a square is 36 sq. cm. What is the perimeter of the square ?

$$A = s^2$$

$$36 = s^2$$

$$s = \sqrt{36}$$

$$s = 6 \text{ cm.}$$

$$P = 4s$$

$$= 4 (6 \text{ cm.})$$

= 24 cm. * Ans.

42. A truck can carry a load of $8 \frac{2}{3}$ tons. How many trips must the truck make to deliver 10 and $2 \frac{2}{3}$ tons of sand?

Let N - be the number of trips.

$$N = 10 \frac{2}{3} \div 8 \frac{2}{3}$$

$$= \frac{32}{3} \div \frac{8}{3}$$

$$= \frac{32}{3} \times \frac{3}{8}$$

= 12 trips * Ans.

43. What is the value of

$$\frac{6a^2b^3}{9}$$

$$\text{if } a = 2 \text{ and } b = 3 ?$$

$$= \frac{6a^2b^3}{9}$$

$$9$$

$$= \frac{6(2)^2(3)^3}{9}$$

$$= \frac{6(4)(27)}{9}$$

= 72 * Ans.

44. $Z + \frac{4}{Z} = 4$

This problem can be solved the easiest way by substituting each choice to Z.

$Z = 1$

$$1 + \frac{4}{1} = 4$$

$$1 + 4 = 4$$

$$5 \neq 4$$

$Z = 2$

$$2 + \frac{4}{2} = 4$$

$$2 + 2 = 4$$

4 = 4 * Ans.

45. $\frac{1}{x} \div \frac{1}{x} = \underline{\hspace{2cm}} ?$

$$= \frac{1 \cdot x}{x \cdot 1}$$

= 1 * Ans.

46. $x \sqrt{0.0004} = 4 : x = \underline{\hspace{2cm}} ?$

$$x (0.02) = 4$$

$$x = \frac{4}{0.02}$$

$$x = \frac{400}{2}$$

x = 200 * Ans.

47. A piece of wire is cut into three, so that the first is three times as long as the second and the second is three times as long as the third. What part of the entire piece is the shortest?

First part = 9x

Second part = 3x

Third part = x

$$9x + 3x + x = 13x$$

$$\text{part} = \frac{\text{length of the shortest part}}{\text{length of entire wire}}$$

$$= \frac{x}{13x}$$

$$= 1 / 13 * \text{Ans.}$$

48. What is the average of the first 20 positive integers ?

Average = $\frac{\text{sum of the numbers}}{\text{numbers of items added}}$

$$= \frac{1 + 2 + 3 + 4 + 5 + 6 + 7 + \dots + 20}{20}$$

$$= 10.5 * \text{Ans.}$$

49. A sales representative earns 5% commission on all sales between \$ 20, 000 and \$ 60, 000, and 8% on all sales over \$ 60,000. What is the commission in a week in which her total sales was \$ 80, 000 ?

$$\text{Commission} = 5\% (6000) + 8\% (80,000 - 60,000)$$

$$= 0.05 (60,000) + 0.08 (20,000)$$

$$= 3,000 + 1,600$$

$$= \$ 4, 600 * \text{Ans.}$$

$$50. \int \frac{12}{27} + \frac{12}{9}$$

$$\int \frac{4}{9} + \frac{4}{3}$$

$$\int \frac{4 + 12}{9}$$

$$\int \frac{16}{9}$$

$$= 4 / 3 * \text{Ans.}$$

Mathematics Test IV

Solutions

1. A car that cost \$ 1.2 M can be sold for \$ 600, 000 after 5 years of use. What will be the yearly depreciation cost ?

Yearly depreciation cost = $\frac{\text{depreciation}}{\text{no. of years}}$

$$= \frac{\$ 1,200,000 - \$ 600,000}{5}$$

$$= \frac{\$ 600,000}{5}$$

$$= \$ 120, 000 \text{ per year} * \text{Ans.}$$

2. How many times does the digit 7 appear in the numbers from 1 to 100 ?

7, 17, 27, 37, 47, 57, 67, 77, 87, 97,

71, 72, 73, 74, 75, 76, 77, 78, 79

19 times * Ans.

3. At the rate of \$ 44 per hundred sheets of colored bond paper, how much is the cost of 500 sheets ?

$$\text{Cost of the 550 sheets} = \frac{\$ 44}{100 \text{ sheets}} \times 550 \text{ sheets}$$

$$= \$ 44 \times 5.5$$

$$= \$ 242 * \text{Ans.}$$

4. At \$ 25 per board foot of wood, what is the cost of 15 pieces of 2" x 2" x 12' ?

(1 board foot = 1 ft. x 1 ft. x 1 inch)

$$\text{Cost} = \frac{\$ 25 \times \frac{2'' \times 2'' \times 12'' \text{ bd. ft.}}{12''}}{\text{bd. ft.}}$$

$$= \$ 1, 500 * \text{Ans.}$$

5. The decimal form of 0.56 % is _____ ?

Move 2 decimal places to the left (100%).

$$0.56 \% = 0.0056 * \text{Ans.}$$

6. If 3 feet = 1 yard, how many yards are there in 27 feet ?

$$3 \text{ feet} : 1 \text{ yard} = 27 \text{ feet} : x \text{ yard}$$

$$3 : 1 = 27 : x$$

$$3x = 1(27)$$

$$3x = 27$$

$$x = 27 / 3$$

$$x = 9 \text{ yards} * \text{Ans.}$$

7. How many feet are there in 9 and 1/3 yards ?

Given that 1 yard = 3 feet :

$$1 \text{ yard} : 3 \text{ feet} = 9 \frac{1}{3} \text{ yards} : x \text{ feet}$$

$$1 : 3 = 9 \frac{1}{3} : x$$

$$1(x) = 3(9 \frac{1}{3})$$

$$x = 3 (28/3)$$

$$x = 28 \text{ feet} * \text{Ans.}$$

8. A hand-carved wooden dining set is priced at \$69, 950. If 20% discount is given to the customer, how much would he have to pay for the set ?

$$\text{Net Price} = \$ 69, 950 - 20 (\$69,950)$$

$$= \$ 69, 950 - \$13,390$$

$$= \$ 55, 960 * \text{Ans.}$$

9. If an article priced at \$99.80 is subjected to a 10% VAT, what would be the total amount to be paid for the article ?

$$\text{Total Amount to be paid} = \$ 99.80 + 0.10 (\$99.80)$$

$$= \$ 99.80 + \$ 9.98$$

$$= \$ 109.78 * \text{Ans.}$$

10. Find the **cost** of 6 and 1/2 dozen eggs at \$ 30.00 per dozen.

1 dozen : \$ 30.00 = 6 and 1/2 dozens : x dollars

$$1 : 30 = 6.5 : x$$

$$1(x) = 30 (6.5)$$

$$x = \$ 195.00 * \text{Ans.}$$

11. A lady employee purchased an umbrella for \$ 180 less 20%. How much should she pay if its is subject to a 5 % sales tax ?

Total Amount = (\$180 - 0.20 x \$ 180) x (1.05)
to be paid

$$= (\$180 - 36) (1.05)$$

$$= \$144 \times 1.05$$

$$= \$ 151.20 * \text{Ans}$$

12. Mr. Mansueto Velasco Jr. is buying a piece of lot at Filinvest Homes East. The dimension of the **rectangular** lot is 14 meters by 30 meters at \$ 3, 500 per square meters, what would be the total **cost** of the lot ?

Total Cost = area x price per unit area
of the lot

$$= (14 \times 30) \text{ sq. meters} \times \frac{\$ 3, 500}{\text{sq. meters}}$$

$$= 14 \times 30 \times \$3,500$$

$$= \$ 1, 470, 000 * \text{Ans.}$$

13. How much must a salesman sell in a month to yield him a commission of \$ 12, 000, if his rate of commission is 5% on goods sold ?

Sales = Commission / Rate

$$= \$ 12, 000 / 0.05$$

$$= \$ 240, 000 * \text{Ans.}$$

14. How much would Charlie receive from his **monthly salary** of \$ 8,000 after deducting 2 and 1/2 % for **SSS contribution** and 5% withholding tax ?

Total Rate of **deductions** = 2 ½ % + 5 % = 7 ½ %

Net Pay = Regular pay (1 - rate of deductions)

$$= \$ 8, 000 (1 - 0.075)$$

$$= \$ 8, 000 (0.925)$$

$$= \$ 7, 400 * \text{Ans.}$$

15. A student had \$ 1, 050 in his wallet. He spent \$ 640 for books and school supplies. What part of his money did he spend?

$$\text{Part of the money spent} = \frac{\$ 640 / \$ 210}{\$ 1050 / \$ 210}$$

$$= 3 / 5 * \text{Ans.}$$

16. MS. Cecille Garcia saves 18% of her **monthly salary** of \$ 16, 500. How much does she saved in a year?

$$\begin{aligned}\text{Amount of money saved} &= 0.18 \times \frac{\$ 16,500}{\text{month}} \times 12 \frac{\text{month}}{\text{year}} \\ &= 0.18 \times \$ 16,500 \times 12 \\ &= \$ 35,640 * \text{Ans.}\end{aligned}$$

17. Mrs. Leny Ngo wishes to buy a **second hand** car, the cash price of which is \$ 150, 000. Not having ready cash she agrees to pay 1/3 down and the balance in 10 monthly **installments** of 11, 000 each. What is the total price of the car ?

$$\begin{aligned}\text{Total price of the car} &= \frac{1}{3} \times \$ 150,000 + 10 \times \$ 11,000 \\ &= \$ 50,000 + \$ 110,000 \\ &= \$ 160,000 * \text{Ans.}\end{aligned}$$

18. A **cross-stitch** store owner buys cross-stitch frame at \$ 12, 500 each. **How much should** he sell each in order to realize a **profit** of 3/20 more than the buying price ?

$$\begin{aligned}\text{Selling price} &= \$ 12,500 \times \left(1 + \frac{3}{20}\right) \\ &= \$ 12,500 \left(\frac{23}{20}\right) \\ &= \$ 14,375 * \text{Ans.}\end{aligned}$$

19. This year XYZ company's **profit** was \$ 2, 440, 000, which is 22% more than last year's profit. How much was the profit last year ?

Let x - be the year's profit

$$x + 0.22x = \$ 2,440,000$$

$$1.22x = \$ 2,440,000$$

$$x = \frac{\$ 2,440,000}{1.22}$$

$$x = \$ 2,000,000 * \text{Ans}$$

20. Mrs. Ramos **pays** \$ 1, 530 for a dress at 15 % discount. How much is the **marked** price ?

Let x - be the marked price

Marked price - Discount = Selling price

$$x - 0.15x = \$ 1530$$

$$0.85x = \$ 1530$$

$$x = \frac{\$ 1540}{0.85}$$

$$x = \$ 1,800 * \text{Ans.}$$

21. A customer buys 4 pairs of **socks** **originally** priced at \$ 60.00 each. If the **reduced** price is \$ 47.50, how much does he save on this purchase ?

$$\begin{aligned}\text{Amount saved} &= 4 \times (\$ 60.00 - \$ 47.50) \\ &= 4 \times \$ 12.50 \\ &= \$ 50.00 * \text{Ans.}\end{aligned}$$

22. Gerard left City A to drive to City B at 6:15 A.M. and arrived at 1:45 P.M. If he averaged 60 km per hour and stopped one hour for lunch, how far is City A to City B ?

No. of hours :

6 : 15 to 11:45

1:45 PM - 6:15 PM

13:45 PM - 6:15 PM = 7:30 or 7 and 1/2 hours total time

total time **traveled** = 7 ½ hours - 1 hour (time spent for lunch) = 6 ½ hours.

distance = rate x time

$$60 = \frac{\text{km}}{\text{hr}} \times 6 \frac{1}{2} \text{ hours}$$

$$= (60 \times 6 \frac{1}{2}) \text{ km}$$

$$= [60 \times 6 + 60 \frac{1}{2}] \text{ km}$$

$$= 360 + 30$$

$$= 390 \text{ km} * \text{Ans.}$$

23. The sum of $\sqrt{81}$ + $\sqrt{100}$ is _____ ?

square root of 81 is 9 and

square root of 100 is 10

$$\text{therefore, } 9 + 10 = 19 * \text{Ans.}$$

24. The sum of three consecutive **integers** is 54. Find the **smallest integer**.

Let x - be the first consecutive integer

Let x + 1 be the second consecutive integer

Let x + 2 be the third consecutive integer

$$x + (x + 1) + (x + 2) = 54$$

$$3x + 3 = 54$$

$$3x = 54 - 3$$

$$3x = 51$$

$$x = 51 / 3$$

$$x = 17 * \text{Ans.}$$

25. How many miles does a car **travel** if it averages at a rate of 35 miles per hour for 3 hours and 24 minutes?

time = 3 hrs and 24 min

$$= 3 \text{ hrs} + 24 / 60 \text{ hr.}$$

$$= 3 \text{ and } \frac{2}{5} \text{ hrs.}$$

distance = rate x time

$$= \frac{35 \text{ miles}}{\text{hr}} \times 3 \frac{2}{5} \text{ hrs}$$

$$= (35 \times 3 \frac{2}{5}) \text{ miles}$$

$$= (35 \times 3) + (35 \times \frac{2}{5}) \text{ miles}$$

$$= [105 + 14] \text{ miles}$$

= 119 miles * Ans.

26. Elmer can deliver newspaper in his **route** for $1\frac{1}{2}$ hours. Wowie who takes his place one day finds that it takes him $1\frac{1}{2}$ longer to deliver these. How long will it take to deliver **the papers** if they work together ?

In one hour,

Elmer can do $\frac{1}{1} = \frac{1}{3} = \frac{2}{3}$ of the job

Wowie can do $\frac{1}{1\frac{1}{2} + 1\frac{1}{2}} = \frac{1}{3}$ of the job

(Part of the job finished in 1 hr.) x
(no. of hours) = 1 whole job

$$\left(\frac{2}{3} + \frac{1}{3}\right) \times N = 1$$

$$\frac{3}{3} \times N = 1$$

$$1 \times N = 1$$

N = 1 hour * Ans.

27. If it takes h hours to paint the wall, what part of the wall is **painted** in one hour ?

part of the wall painted in 1 hour = $1/h$ * Ans.

28. A sack of corn will feed 18 **ducks** for 54 days. How long will it feed 12 ducks ?

* This is an example of an **inverse** proportion problem. As the number of ducks decreases the number of days **increases**.

$$N : \frac{1}{12} = 54 : \frac{1}{18}$$

$$N\left(\frac{1}{18}\right) = \frac{1}{12} (54)$$

$$N = \frac{1}{12} \times 54 \times \frac{18}{1} \text{ days}$$

N = 81 days * Ans.

29. Find the next number in the series 1, 4, 9, 16, _____ ?

$$1^2 = 1$$

$$2^2 = 4$$

$$3^2 = 9$$

$$4^2 = 16$$

$$5^2 = 25 \text{ * Ans.}$$

30. A bag is sold for \$680 while **marked** at \$800. What was the rate of the discount ?

$$\text{rate of discount} = \frac{\text{discount}}{\text{marked price}} \times 100 \%$$

$$= \frac{800 - 680}{800} \times 100\%$$

$$= \frac{120}{800} \times 100\%$$

$$= 15 \% * \text{Ans.}$$

31. Six hundred examinees passed the **Licensure** Examination last year. This represents the $8 \frac{1}{3}$ percent of the total examinees. How many examinees failed the **exam**?

let F - be the number of examinees who failed

$$8 \frac{1}{3} \% : 600 = (100 - 8 \frac{1}{3}) \% : F$$

$$\frac{1}{12} : 600 = \frac{11}{12} : F$$

$$\frac{1}{12} F = \frac{11}{12} (600)$$

$$F = 6,600 * \text{Ans.}$$

32. If 4 miles = 6.44 km, then 14.49 km equals how many miles ?

$$4 \text{ miles} : 6.44 \text{ km} = x \text{ miles} : 14.49 \text{ km}$$

$$4 : 6.44 = x : 14.49$$

$$6.44x = 4 (14.49)$$

$$6.44x = 57.96$$

$$x = 57.96 / 6.44$$

$$x = 9 \text{ miles} * \text{Ans.}$$

33. $\frac{(a^2 - 4b^2)c}{(a + 2b)}$ is equivalent to $ac + \underline{\hspace{2cm}}$?

$$= \frac{(a + 2b)(a - 2b)}{(a + 2b)} \times c$$

$$= (a - 2b) \times c$$

$$= ac - 2bc$$

$$= ac + (-2bc) * \text{Ans.}$$

34. In a certain class the ratio of boys to girls is 4 : 5. If the class has 54 students, how many are girls ?

$$\text{Girls} = 5 / 9 (\text{total number of students})$$

$$= (5 / 9) 54$$

$$= 30 \text{ girls} * \text{Ans.}$$

35. Solve for x :

$$ax = bx + cx - d, \quad a \neq b \neq c.$$

$$d = bx + cx - ax$$

$$d = x (b + c - a)$$

$$x = \frac{d}{(b + c - a)}$$

$$x = \frac{d}{b + c - a} * \text{Ans}$$

36. The ratio of men athlete to women in an athletic meet is 5 : 3 and the total number of athlete is 2,400, how many additional women athlete would have to join to make the ratio of men to women 1 : 1 ?

Original number of men;

$$(5/8) \times 2,400 = 1,500$$

Original number of women;

$$(3/8) \times 2,400 = 900$$

To make the number of women equal to the number of men we must add (1500 - 900).

therefore, 600 women is needed. * Ans.

37. If prices are reduced by 20 %, quantity sold increase by 25 %. What is **the net** effect on the gross revenue?

Revenue = (price) x (Quantity sold)

$$R_{old} = pq$$

$$\begin{aligned} R_{new} &= (p - 0.20p) \times (q \times 0.25q) \\ &= (0.80p)(1.25) pq \\ &= (0.80)(1.25) pq \\ &= 1 pq \end{aligned}$$

$$R_{new} = R_{old}$$

therefore, the revenue remains the same * Ans.

38. The **average** of three numbers is xyz. If the sum of two numbers is x + y, what is the other number?

$$\frac{\text{Sum of the items added}}{\text{no. of items added}} = \text{average}$$

$$\frac{x + y + (\text{other number})}{3} = xyz$$

$$3 \left[\frac{x + y + (\text{other number})}{3} \right] = xyz \quad \rightarrow$$

$$x + y + \text{other number} = 3 xyz$$

$$\text{other number} = 3 xyz - (x + y) \quad \text{* Ans.}$$

39. When + 13 is added to - 15, the sum is _____ ?

$$\text{Sum} = +13 + (-15)$$

$$\text{Sum} = -2 \quad \text{* Ans.}$$

40. When -15 is subtracted from -18, the difference is _____?

$$\text{Difference} = -18 - (-15)$$

$$\text{Difference} = -18 + 15$$

$$\text{Difference} = -3 \quad \text{* Ans.}$$

41. When **the product** of (-4) and (-17) is divided by 2, the **quotient** is _____ ?

$$\begin{aligned} \text{Product} &= \frac{(-4)(-17)}{2} \\ &= 68 / 2 \\ &= 34 \quad \text{* Ans.} \end{aligned}$$

42. If $5x + 17 = 32$, then $x =$ _____ ?

$$5x + 17 = 32$$

$$5x = 32 - 17$$

$$5x = 15$$

$$x = 15 / 5$$

$$x = 3 \text{ * Ans.}$$

43. Solve for M :

$$\frac{M}{7} - \frac{M}{3} = 4$$

$$\frac{3M}{21} - \frac{7M}{21} = 4$$

$$\frac{-4M}{21} = 4$$

$$M = 4 \left(\frac{-21}{4} \right)$$

$$M = -21 \text{ * Ans.}$$

44. If $x + y = 4a$ and $x - y = 2b$ then $y =$ _____ ?

$$x + y = 4a \quad \text{----->} \quad x = 4a - y$$

$$x - y = 2b \quad \text{----->} \quad x = 2b + y$$

$$x = x$$

$$2b + y = 4a - y$$

$$y + y = 4a - 2b$$

$$2y = 4a - 2b$$

$$\frac{2y}{2} = \frac{4a - 2b}{2}$$

$$y = \frac{4a - 2b}{2}$$

$$y = 2a - b \text{ * Ans.}$$

45. If $0.37 \text{ m} = 0.0111$ then $m =$ _____ ?

$$m = \frac{0.0111}{0.37}$$

$$= \frac{11.1}{37}$$

$$= 0.3 \text{ * Ans}$$

46. If $1 / M = 4$ and $S = 2$, what is S in terms of M ?

Since $S = 2$

$$4 = \frac{1}{M}$$

$$2(2) = \frac{1}{M}$$

$$2S = \frac{1}{M}$$

$$S = \frac{1}{2M} \text{ * Ans.}$$

47. A horse is tied to a pole with a rope of 7 meters long. How much grazing area does it have? (use $\pi = 22 / 7$).

$$\begin{aligned} \text{Area} &= \pi r^2 \\ &= \pi (7\text{m})^2 \\ &= \frac{22}{7} (49\text{m}^2) \\ &= 22 (7\text{m}^2) \\ &= 154\text{m}^2 \text{ * Ans.} \end{aligned}$$

48. What number is missing in this sequence : 5, 7, 11, 17, _____ ?

$$\begin{aligned} 5 + 2 &= 7 \\ 7 + 4 &= 11 \\ 11 + 6 &= 17 \\ 17 + 8 &= 25 \end{aligned}$$

therefore, 25 is the * Ans.

49. How many two-digit numbers can be formed from the digits 1, 2, 3, 4, and 5 if a digit cannot be used more than once?

- 5 - the five numbers can be used
- 4 - only four of the numbers can be used since repetition of the digits is not allowed

$$5 \times 4 = 20$$

therefore, 20 numbers * Ans.

50. What is the value of x in $5 : x = x : 125$?

$$\begin{aligned} 5 : x &= x : 125 \\ x(x) &= 5(125) \\ x^2 &= 625 \end{aligned}$$

$$\begin{aligned} x &= \sqrt{625} \\ x &= 25 \text{ * Ans.} \end{aligned}$$

51. If one bilao of pansit guisado serves 7 people, how many bilaos are needed to serve a banquet of 126 people?

N = no. of bilaos needed to serve 126 people

$$\begin{aligned} N : 126 &= 1 : 7 \\ N(7) &= 126(1) \\ 7N &= 126 \\ N &= 126 / 7 \\ N &= 18 \text{ * Ans.} \end{aligned}$$

Mathematics Text V

Solutions

1. What number is as much more than 8 as it is less than 32 ?

Let x - be the number

$$\begin{aligned} x - 8 &= 32 - x \\ x + x &= 32 + 8 \\ 2x &= 40 \end{aligned}$$

$$x = 40 / 2$$

$$x = 20 \text{ * Ans.}$$

2. A container van that is 3 meters wide, 5 meters long and 4 meters high will **transport** 200 crates whose volume is 6 cubic meters. How many trips will it take to transport all the crates?

Let N - be the number of trips

$$\text{No. of trips} = (\text{No. of crates}) \times \frac{\text{volume}}{\text{crate}} \times \frac{1 \text{ trip}}{\text{volume of the van}}$$

$$N = 200 \text{ crates} \times \frac{6 \text{ m}^3}{\text{crate}} \times \frac{1 \text{ trip}}{(3 \times 5 \times 4) \text{ m}^3}$$

$$N = \frac{(200)(6)}{3 \times 4 \times 5}$$

$$N = \frac{1200}{60}$$

$$N = 20 \text{ trips * Ans.}$$

3. A **rectangular block** of copper, with dimensions 4m x 6m x 9m, is melted and **recast** into a cubical block. Find the **length** of the side of the cubical block.

$$V_{\text{cubical block}} = V_{\text{rectangular block}}$$

$$S^3 = (4 \times 6 \times 9) \text{ m}^3$$

$$S^3 = 216 \text{ m}^3$$

$$S = \sqrt[3]{216 \text{ m}^3}$$

$$S = 6 \text{ m * Ans.}$$

4. There are 9 male **teachers** for every 14 female teachers. If there are 69 teachers in all, how many teachers are female?

$$\frac{9}{23} = \frac{\text{Male}}{69} = \frac{\text{Female}}{69}$$

$$\begin{aligned} \text{No. of Female teachers} &= (69 / 23) \times 14 \\ &= 3 \times 14 \\ &= 42 \text{ * Ans.} \end{aligned}$$

5. What would be the **closest** approximation to $\sqrt{66}$?

$$\sqrt{64} = 8$$

$$\sqrt{66} \cong 8.1 \text{ * Ans.}$$

6. Manny can do a certain job in 1 day, Anna can do the same job in 2 days, and **Josie** can do the job in 3 days. How many days will it take them to do the job if they work together?

One 1 day Manny can finish the whole job

Anna can finish 1/2 of the same job

Josie can finish 1/3 of the same job

Let N - be the **days** that it takes to finish the job if they work together.

$$\left(\frac{1}{1} + \frac{1}{2} + \frac{1}{3} \right) N = 1$$

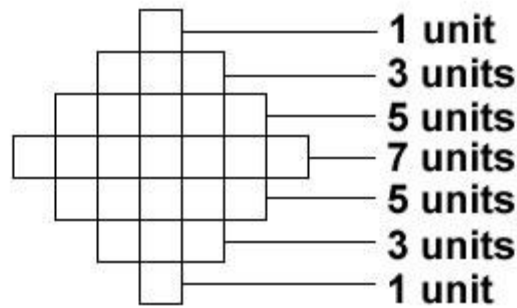
$$\frac{(6 + 3 + 2)}{6} N = 1$$

$$\frac{11}{6} N = 1$$

$$N = 1 \times \frac{6}{11} \text{ (reciprocal of } 11 / 6)$$

$$N = 6 / 11 \text{ day * Ans.}$$

7. In the figure, all the line segments meet at right angles and each segment has a length of 1 unit. What is the area of the figure in square units?



$$25 \text{ units}^2 \text{ * Ans.}$$

8. If $x - 3 = y$, then $(y - x)^3 = \underline{\hspace{2cm}} ?$

$$\text{If } x - 3 = y;$$

$$-3 = y - x$$

$$(-3)^3 = (y - x)^3$$

$$-27 = (y - 3)^3 \text{ * Ans.}$$

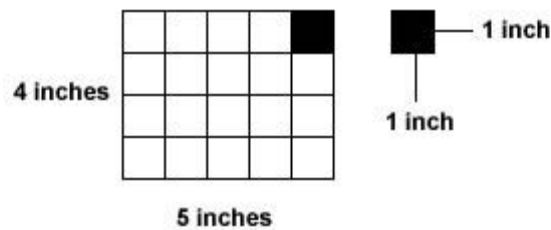
9. A speed of 90 km per hour is equivalent to how many meters per second?

$$= \frac{90 \text{ km}}{\text{hr}} \times \frac{1 \text{ hr}}{3600 \text{ sec}} \times \frac{1000 \text{ m}}{\text{km}}$$

$$= \frac{90 \times 1000}{3600} \frac{\text{m}}{\text{hr}}$$

$$= 25 \frac{\text{m}}{\text{sec}} \text{ * Ans.}$$

10. A rectangular sheet of cardboard 5 inches long and 4 inches wide is cut into squares one inch on a side. What is the maximum number of such squares that can be formed?



There are 20 squares * Ans

11. A housewife bought 3 kilograms of beef priced at \$ 108.75 per kilogram. **How much** change did she receive from a five-hundred dollar **bill**?

$$\begin{aligned}\text{Change} &= \$ 500 - (3 \times \$ 108.75) \\ &= \$ 500 - \$ 326.25 \\ &= \text{\$ 173.75 * Ans.}\end{aligned}$$

12. A delivery of 480 baskets of mangoes is divided into two fruit stands so that **the difference** between the two orders is $\frac{1}{3}$ their average. What is **the ratio** of the smaller to the **larger** amount?

Let x - be the no. of baskets in **the fruit** stand.
Let $480 - x$ be the number in the second fruit stand.

$$\begin{aligned}(480 - x) - x &= \frac{1}{3} \left(\frac{x + y}{2} \right) & \text{-----> } 480 - 2x &= 80 \\ & & \text{-----> } 2x &= 480 - 80 \\ & & \text{-----> } 2x &= 400 \\ \text{but } x + y &= 480 & \text{-----> } x &= 200 & 480 - x &= 280 \\ \text{since the total} & & & & & \\ \text{delivery} &= 480 & & & & \end{aligned}$$

The ratio is $\frac{200}{40} : \frac{280}{40} = 5 : 7$ * Ans.

13. When the first and the last digits of 2, 836 are interchanged, the new number is _____.

$$\begin{aligned}6,832 &\text{ ----> the new number} \\ 6,832 - 2836 &= 3996\end{aligned}$$

therefore, the new number is 3,996 more than 2,836 * Ans.

14. If twice the value of a certain number is **increased** by 8 the result is 40. What is the number?

Let x - be the number

$$\begin{aligned}2x + 8 &= 40 \\ 2x &= 40 - 8 \\ 2x &= 32 \\ x &= 32 / 2 \\ \mathbf{x} &= \mathbf{16 * Ans}\end{aligned}$$

15. In a **group** of 120 persons, there are 32 more women than men. **How many** women are there in the group?

Let x - be the number of women

Let $x - 32$ be the number of men

$$x + (x - 32) = 120$$

$$2x - 32 = 120$$

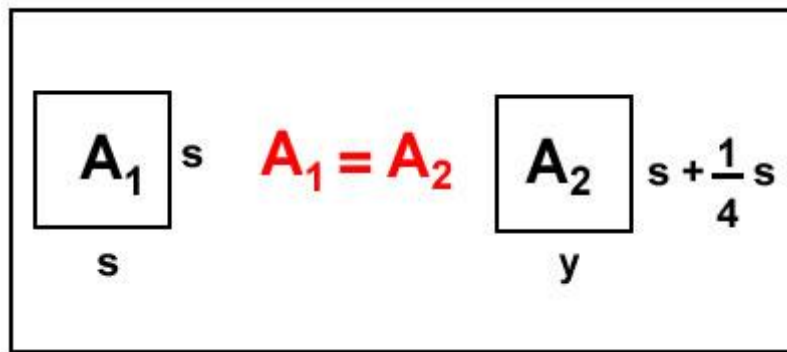
$$2x = 120 + 32$$

$$2x = 152$$

$$x = 152 / 2$$

$$x = 76 \text{ women * Ans.}$$

16. If the dimensions of a square change in such a manner that the area remains constant, what must happen to the other side if one side will be increased by $1/4$ of itself?



$$(s + \frac{1}{4}s)y = s(s)$$

$$\frac{5}{4}(s)(y) = s^2$$

$$y = s^2 \left(\frac{4}{5s} \right)$$

$$y = \frac{4}{5}s$$

$$s = -\frac{4}{5}s = -\frac{1}{5}s$$

therefore, it decreased by $1/5$ of itself * Ans.

17. A man rowed 4 miles upstream for 2 hours. If the river flowed with a current of 2 miles per hour, how long did the man's return trip take?

Let x - be the rate of the boat in still water

Let $2x$ - be the rate of the boat upstream

Let 2 mph - be the rate of the current

Let $(x + 2)$ - speed of the boat downstream

$$\text{rate}_{\text{up}} \times \text{time} = \text{distance}$$

$$(x - 2)(2) = 4$$

$$2x - 4 = 4$$

$$2x = 4 + 4$$

$$2x = 8$$

$$x = 4 \text{ miles / hr}$$

$$\text{rate}_{\text{down}} \times \text{time} = \text{distance}$$

$$(x+2)(\text{time}) = 4$$

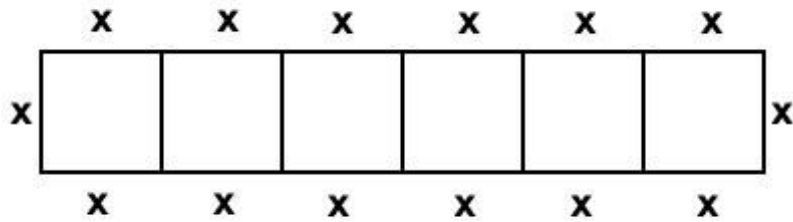
$$(4+2)(\text{time}) = 4$$

$$6(\text{time}) = 4$$

$$\text{time} = 4 / 6$$

time = 2 / 3 hrs. * Ans.

18. The rectangle shown in the figure is divided into 6 equal squares. If the perimeter of the rectangle is 42 cm, what is the area of each square in cm^2 ?



$$14x = 42$$

$$x = 42 / 14$$

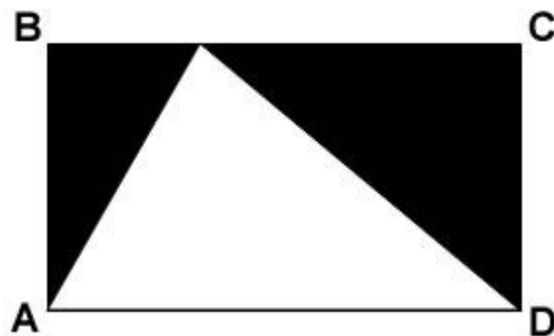
$$x = 3 \text{ cm.}$$

$$\text{Area of the squares} = x^2$$

$$= (3 \text{ cm})^2$$

$$= 9 \text{ cm}^2 \text{ * Ans.}$$

19. If the area of the rectangle ABCD shown below is 36 square units, how many square units is the area of the shaded region?



$$A_{\text{rectangle}} = bh$$

$$A_{\text{rectangle}} = 36$$

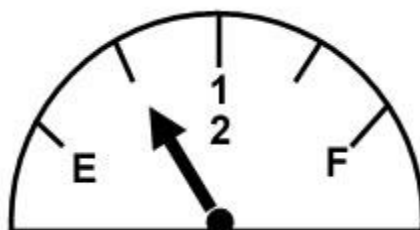
$$bh = 36$$

$$A_{\text{triangle}} = 1/2 bh$$

$$= 1/2 (36)$$

$$= 18 \text{ sq. units * Ans.}$$

20. This tank holds 48 liters of gasoline and the car averages 5 kilometers per liter. Approximately how many kilometers can a car travel this given guage?



The guage indicates that the tank is $\frac{1}{4}$ full.

Let N - be the number of kilometers that can be traveled.

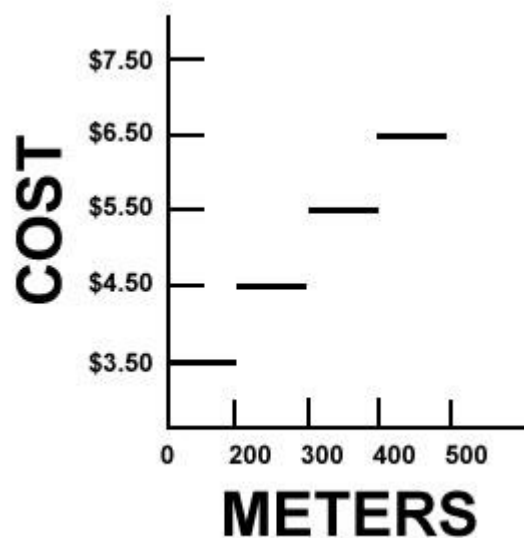
$$N = \left(\frac{1}{4} \text{ tank} \right) \times \frac{48 \text{ liters}}{\text{tank}} \times \frac{5 \text{ km}}{\text{liter}}$$

$$= \frac{1}{4} \times 48 \times 5 \text{ km}$$

$$= 60 \text{ km. * Ans}$$

21. Which of the following graphs represents the taxi **rates** for a company that charges \$ 3.50 for the first 200 meters and \$ 1.00 for each additional 100 meters?

This is the approximate graph for the taxi rate, there is an abrupt change in the fare for every 100 meters change in the distance.



*** Ans.**

22. A **laboratory assistant** was preparing a **solution** that should have included 40 **milligrams** of **chemical**. If he actually used 41.30 milligrams, what was his percentage error (to the nearest 0.01 %)?

$$\% \text{ error} = \frac{\text{error}}{\text{correct value}} \times 100\%$$

$$= \frac{41.30 - 40}{40} \times 100\%$$

$$= \frac{1.3}{40} \%$$

$$= \frac{130}{40} \%$$

$$= 3.25 \% \text{ * Ans}$$

23. Menthol drops come in packs of 8 for \$ 3.60. Butterballs come in packs of 6 for \$ 2.25. Aida bought 48 **pieces** of candy. **How many** of each kind of candy did she buy, if she spent \$ 19.80?

b. 3 packs of Menthol drops and 4 packs of Butterballs.

$$= (3 \times \$ 3.60) + (4 \times \$ 2.25)$$

$$= \$ 10.80 + \$ 9.00$$

$$= \$ 19.80 \text{ * Ans.}$$

Use the following **table** for **questions** 23 and 24.

TAX TABLE I						
(FOR COMPENSATION INCOME)						
If taxable income is :			Tax Due is :			
		NOT OVER \$	2,500	0 %		
OVER \$	2,500	BUT NOT OVER \$	5,000	1 %		
OVER \$	5,000	BUT NOT OVER \$	10,000	\$ 25 + 3 %	OF EXCESS OVER \$	5,000
OVER \$	10,000	BUT NOT OVER \$	20,000	\$ 175 + 7 %	OF EXCESS OVER \$	10,000
OVER \$	20,000	BUT NOT OVER \$	40,000	\$ 875 + 11 %	OF EXCESS OVER \$	20,000
OVER \$	40,000	BUT NOT OVER \$	60,000	\$ 3,075 + 15 %	OF EXCESS OVER \$	40,000
OVER \$	60,000	BUT NOT OVER \$	100,000	\$ 6,075 + 19 %	OF EXCESS OVER \$	60,000
OVER \$	100,000	BUT NOT OVER \$	250,000	\$ 13,675 + 24 %	OF EXCESS OVER \$	100,000
OVER \$	250,000	BUT NOT OVER \$	500,000	\$ 49,675 + 29 %	OF EXCESS OVER \$	250,000
OVER \$	500,000	BUT NOT OVER \$		\$ 122,175 + 35 %	OF EXCESS OVER \$	500,000

24. How much tax is due on a **taxable** income of \$65,000?

$$\begin{aligned}
 \text{Tax due} &= \$6,075 + 0.19 (\$65,000 - \$60,000) \\
 &= \$6,075 + 0.19 (\$5,000) \\
 &= \$6,075 + \$950
 \end{aligned}$$

Tax due = \$7,025 * Ans.

25. How much tax is due on a taxable income of \$55,000?

$$\begin{aligned}
 \text{Tax due} &= \$3,075 + 0.15 (\$55,000 - \$40,000) \\
 &= \$3,075 + 0.15 (\$15,000) \\
 &= \$3,075 + \$2,250
 \end{aligned}$$

Tax due = \$5,325 * Ans.

26. Anabelle paid \$ 19,675 tax. If x was her income, which of the following statements is TRUE?

b. \$ 19,675 tax due belongs to this range * Ans.

Over \$ 100,000 but not over \$ 250,000
 \$ 13,675 + 24% of excess over \$ 100,000

therefore, Anabelle's income is between \$ 100,000 and \$ 250,000

27. Mang Pablo decided to keep a record of **the money** he collects from his newspaper **route**. Using the information given, **how much money** does Mang Pablo **collect** in the **month** of February? (Note : Assume that February has 28 days and the February 1 was on a Sunday).

DELIVERY	WEEKLY RATE		NUMBER OF CUSTOMERS	INCOME
Daily Except Sunday	\$ 42	x	75	\$ 3,150
Sunday Only	\$ 10	x	60	\$ 600
all week (daily and Sunday)	\$ 52	x	120	\$ 6,240

*** Ans - Total \$ 9,990**

28. If 10 soldiers can survive for 12 days in 15 packs of rations, how many packs will be needed for 8 men to survive for 18 days?

Let N - be the number of packs

$$\frac{N \text{ packs}}{8 \text{ men} \times 18 \text{ days}} \text{ -----} \rightarrow \frac{15 \text{ packs}}{10 \text{ men} \times 12 \text{ days}} \text{ ----} \rightarrow N = \frac{15}{10 \times 12} \times (8 \times 18) \text{ packs}$$

N = 18 packs * Ans.

29. If it takes Victor twice as long to earn \$ 600 as it takes Warnen to earn \$ 400, what is the ratio of Victor's per day to Warnen's pay per day?

Warnen earns 400 in x days
Victor earns 600 in 2x days
Therefore he earns 300 in 2x days

The ratio of Victor's pay to Warnen's pay in x days is **400 : 300 or 4 : 3 * Ans**
Use the following table for questions no. 30 - 32.

TYPE OF VEHICLE - COST OF FUEL FOR 100 - KM TRIP					
car	-	\$ 500	motorcycle	-	\$ 175
bus	-	\$ 875	truck	-	\$ 2,000
airplane	-	\$ 3, 000			

30. What is the cost of fuel for a 120-km trip by car?

$$\text{Cost of fuel} = 120 \text{ km} \times \frac{\$ 500}{100 \text{ km}} \text{ ----} \rightarrow 120 \times \$ 5 \text{ ----} \rightarrow \text{\$ 600 *Ans.}$$

31. If the total wages of a bus driver for 100-km trip is \$ 970, and the only cost for a bus are the fuel and the driver's wage. How much should a bus company charge to charter a bus with a driver for a 200-km trip in order to obtain 50% more than the cost?

$$\text{Cost for a 100-km trip} = C_{\text{fuel}} + C_{\text{drives}} \text{ ----} \rightarrow 875 + 970 \text{ ----} \rightarrow \$ 1,845$$

$$\text{Total Cost} = \left(\$ \frac{1,845}{100 \text{ km}} \times 200 \text{ km} \right) \times 1.50 \text{ ----} \rightarrow \text{\$ 5, 535 * Ans.}$$

32. If 5 buses, 9 cars, 4 motorcycles make a 100-km trip. What is the average fuel cost per vehicle?

$$\text{Average Cost} = \frac{\text{total cost of fuel}}{\text{total no. of vehicle}} \text{ ----} \rightarrow \frac{(5 \times \$ 875) + (9 \times \$ 500) + (4 \times \$ 175)}{5 + 9 + 4}$$

$$\frac{\$ 4375 + \$ 4500 + \$ 700}{5 + 9 + 4} \text{ ----} \rightarrow \frac{\$ 9575}{18} \text{ ----} \rightarrow \text{\$ 531.94 * Ans}$$

33. A store owner bought 2 dozen cans of corned beef at \$ 30 each. He sold two-thirds of them at 25% profit but was forced to take a 30% loss on the rest. What was his total profit (or loss) on the item?

Total Selling Price

$$= \left[\frac{2}{3} (24 \text{ cars}) \times \$ \frac{30}{\text{car}} \times (1 + 0.25) \right] + \left[\frac{1}{3} (24 \text{ cars} \times \$ \frac{30}{\text{car}}) (1 - 0.30) \right]$$

$$= \left[\frac{2}{3} (24) \times \$ 30 (1.25) \right] + \left[\frac{1}{3} (24) (\$ 30) (0.70) \right]$$

$$\text{Total Selling Price} = \$ 600 + \$ 168 \\ = \$ 768$$

$$\text{Total cost} = \frac{\$30}{\text{car}} \times 24 \text{ cars} = \$720$$

$$\begin{aligned}\text{Gain} &= \text{Total selling price} - \text{Total cost} \\ &= \$768 - \$720 \\ &= \$48 * \text{Ans.}\end{aligned}$$

Use the **table** below for questions no. 34 - 36.

	% OF PROTEIN	% OF CARBOHYDRATES	% OF VITAMINS	COST PER 100 GRAM
Salad A	20	15	40	\$ 25.00
Salad B	10	25	30	\$ 30.00
Salad C	20	10	50	\$ 35.00

34. The **cost** of x purchasing **grams** of Salad A, y grams of Salad B and z grams of Salad C will be _____.

$$\text{Cost of Salad A} = \frac{\$200}{100 \text{ gm}} \times x \text{ gm} \times \frac{100\text{¢}}{\text{P } 1,000} = 25x \text{ ¢}$$

$$\text{Cost of Salad B} = \frac{\$30}{100 \text{ gm}} \times y \text{ gm} \times \frac{100\text{¢}}{\text{P } 1,000} = 30y \text{ ¢}$$

$$\text{Cost of Salad C} = \frac{\$35}{100 \text{ gm}} \times z \text{ gm} \times \frac{100\text{¢}}{\text{P } 1,000} = 35z \text{ ¢}$$

therefore, the total cost is (25x + 30y + 35z) cents * Ans.

35. Which of the following diets would **supply** the most grams of **vitamins**?

c. Salad A + 50g Salad B + (300 g) Salad C

$$= 0.40 (200) + 0.30 (100) + 0.50 (200) \text{ ----> } 80 + 30 + 100 \text{ ----> } \mathbf{210 \text{ gms} * \text{Ans.}}$$

36. All of the following diets would supply at least 85 grams of carbohydrates. Which of **the diets** costs **the least**?

$$\begin{aligned}\text{b. } &\$25 (3) + \$30 (1) + \$35 (2) \\ &\$75 + \$30 + \$70 = \mathbf{\$175 * \text{Ans.}}\end{aligned}$$

37. If jackfruits are twice as expensive as watermelons, and watermelon is one-third as expensive as durians. What is the ratio of the price of one **jackfruit** to one **durian**?

Let x - be the **cost** of watermelon
Let 2x - be the cost of the jackfruit
Let 3x - be the cost of the durian

$$\begin{aligned}&= \text{Jackfruit : Durian} \\ &= 2x : 3x \\ &= \mathbf{2 : 3 * \text{Ans.}}\end{aligned}$$

38. A retailer buys a pack of sugar from Uniwide Sales for \$ 459. He then **marks** up the price by 1/3 and sells it at a discount of 16 2/3 %. What was his **profit** in this item?

$$\text{Marked price} = \$459 + \frac{1}{3} (\$459) \text{ -----> } 459 + \$153 \text{ -----> } \$612$$

$$\text{Discounted Price} = \$612 - 16\% (\$612) \text{ -----> } \$612 - \frac{1}{6} (\$612) \text{ -----> } \$510$$

$$\text{Profit} = \text{Selling Price} - \text{Cost}$$

$$\begin{aligned}&= \$510 - \$459 \\ &= \mathbf{\$51 * \text{Ans.}}\end{aligned}$$

39. **Forrest** Gump walks down the road for 30 minutes at a rate of 3 MPH. He waits 10 minutes for a bus, which brings him back to his starting **point** at 4 : 25. If he begun his walk at 3 : 35 the same afternoon, what was the average speed on the bus?

$d_{\text{walked}} = \text{rate} \times \text{time}$

$$= 3 \frac{\text{mi.}}{\text{hr.}} \times \frac{1}{2} \text{ hr.} \quad \text{----->} d_{\text{walked}} = 1.5 \text{ miles}$$

$$\text{time}_{\text{travelled by the bus}} = 4:25 - 3:35 - :30 - :10 \quad \text{----->} 10 \text{ mins} \text{ ---->} 1/6 \text{ hr.}$$

$$\text{speed}_{\text{of the bus}} = \frac{\text{distance}}{\text{time}} \quad \text{----->} \frac{1.5 \text{ miles}}{1/6 \text{ hr}} \text{ --->} (1.5 \times 6) \text{ mi/hr} \text{ --->} \mathbf{9 \text{ mi/hr} * \text{Ans.}}$$

40. Miss Felisa Gascon had \$ 2 million to invest. She invested part of it at 4% a year and the **remainder** at 5% per year. After one year she earned \$ 95, 000 in interest. How much of the original investment was **placed** at 5% rate?

Let x - be the amount of invested at 5%

Let 2,000,000 - x be the amount invested at 4%

$$\begin{aligned} 0.05x + 0.04 (2,000,000 - x) &= 95000 \\ 0.05x + 80000 - 0.04x &= 95000 \\ 0.01x &= 95000 - 80000 \\ 0.01x &= 15000 \\ x &= 15000 / 0.01 \\ \mathbf{x = 1, 500, 000 * \text{Ans.}} \end{aligned}$$

41. Which of the following is NOT a possible **remainder** if a positive **integer** is divided 5?

The possible remainders are 0, 1, 2, 3, 4,

therefore, 5 is not a possible remainder * Ans.

42. In a buidling plan, $1/4$ cm represents 2 meters. If the main entrance is supposed to be 8 meters wide, how wide would its representation be on **the plan**?

Let N - be the representation of the plan

$$1/4 : 2 = N : 8$$

$$2N = (1/4) (8)$$

$$2N = 8/4$$

$$2N = 2$$

$$N = 2/2$$

$$\mathbf{N = 1 \text{ cm.} * \text{Ans.}}$$

43. A real state agent **marks** a certain property up 30% above the original **cost**. Then he gives a client a 15% discount. If the **final selling price of the property** was \$8.619 M, what was the original cost of the property?

Let x - be the original cost

$$\begin{aligned} (x + 0.30x) (1 - 0.15) &= \$8.619 \text{ M} \\ (1.30x) (0.85) &= \$8.619 \text{ M} \\ 1.105x &= \$8.619 \text{ M} \\ x &= \$8.619 \text{ M} / 1.105 \\ \mathbf{x = 7.8 \text{ M} * \text{Ans.}} \end{aligned}$$

44. If $2/3$ the perimeter of a square is 16, then what is the **length** of one of its sides?

$$2/3 P = 16$$

$$P = 16 (3/2)$$

$$P = 48/2$$

$$P = 24$$

Perimeter formula for SQUARE is $P = 4S$.

$$\begin{aligned} P &= 4S \\ 24 &= 4S \\ 24 &= 4S \\ 24/4 &= S \\ 6 &= S \end{aligned}$$

therefore, $S = 6$ * Ans.

45. What values of x can satisfy the equation $(3x + 6)(2x - 8) = 0$?

$$\begin{aligned} 3x + 6 &= 0 \\ 3x &= -6 \\ x &= -6 / 3 \\ x &= -2 \end{aligned}$$

$$\begin{aligned} 2x - 8 &= 0 \\ 2x &= 8 \\ x &= 8 / 2 \\ \mathbf{x = 4 * Ans.} \end{aligned}$$

46. If 8 men can plant 288 trees in one day, how many trees can 12 men plant in 5 days?

Let N - be the number of trees

$$N = \frac{288 \text{ trees}}{8 \text{ men} \cdot 1 \text{ day}} \times 12 \text{ men} \times 5 \text{ days} \rightarrow \frac{288 \times 12 \times 5}{8} \text{ trees}$$

$N = 2, 160$ trees * Ans.

47. If the length of a rectangle is increased by 25% and its width is decreased by 20%, what happens to the area of the triangle?

$$A_{\text{orig.}} = LW$$

$$\begin{aligned} A_{\text{new}} &= L(1+0.25) \times W(1-0.20) \\ &= L(1.25) \times W(0.8) \end{aligned} \rightarrow (1.25)(0.8) LW$$

$$A_{\text{new}} = 1 \times LW$$

$$A_{\text{new}} = A_{\text{orig.}}$$

therefore, no change in the area * Ans.

48. The formula for the volume of a sphere is $V = \frac{4}{3} \pi r^3$. If the radius (r) is tripled, what will be the ratio of the new volume to the original volume?

$$V_{\text{orig.}} = \frac{4}{3} \pi r^3$$

$$V_{\text{new}} = \frac{4}{3} \pi (3r)^3 \rightarrow \frac{4}{3} \pi (27r^3) \rightarrow 27 \left(\frac{4}{3} \pi r^3 \right)$$

$$V_{\text{new}} = 27 V_{\text{orig.}} \rightarrow \mathbf{V_{\text{new}} : V_{\text{orig.}} = 27 : 1 * Ans.}$$

49. The scale on a map is 1 : 8. If a surveyor reads a certain measurement on the map as 4.6 cm instead of 5.0 cm, what will be the resulting approximate percent error on the full size model?

$$\% \text{ error} = \frac{\text{error}}{\text{correct value}} \times 100\% \rightarrow \frac{5.0 - 4.6}{5.0} \times 100\% \rightarrow \frac{0.4}{5} \times 100\% \rightarrow \mathbf{8\% * Ans.}$$

50. In a certain recipe, 225 grams of beef are called for to make 6 servings. If Mrs. Alferez wants to use the recipe for 8 servings, how many grams of beef must she use?

Let N - be the number of grams required

$$225 : 6 = N : 8$$

$$6N = 8(225)$$

$$6N = 1800$$

$$N = 1800 / 6$$

$$N = 300 \text{ grams. * Ans.}$$

Mathematics Test 1

1. C	11. C	21. B	31. D	41. A
2. B	12. A	22. B	32. C	42. C
3. A	13. D	23. B	33. D	43. C
4. A	14. C	24. B	34. A	44. A
5. C	15. A	25. A	35. C	45. D
6. C	16. B	26. C	36. D	46. B
7. D	17. A	27. D	37. A	47. C
8. B	18. A	28. C	38. D	48. D
9. D	19. B	29. B	39. B	49. C
10. B	20. A	30. C	40. C	50. C

Mathematics Test 2

1. B	11. C	21. D	31. D	41. D
2. B	12. D	22. B	32. D	42. A
3. C	13. A	23. B	33. C	43. D
4. D	14. B	24. C	34. A	44. A
5. B	15. A	25. B	35. D	45. B
6. D	16. A	26. C	36. B	46. D
7. A	17. B	27. D	37. B	47. C
8. A	18. B	28. D	38. C	48. D
9. A	19. B	29. D	39. B	49. C
10. D	20. B	30. C	40. C	50. A

Mathematics Test 3

1. B	11. B	21. A	31. D	41. B
2. B	12. B	22. B	32. C	42. D
3. C	13. D	23. B	33. D	43. D
4. C	14. B	24. A	34. C	44. B
5. A	15. A	25. C	35. D	45. A
6. C	16. B	26. D	36. C	46. C
7. D	17. A	27. C	37. B	47. C
8. D	18. A	28. C	38. D	48. D
9. D	19. C	29. B	39. A	49. B
10. D	20. B	30. C	40. A	50. B

Mathematics Test 4

1. C	11. A	21. A	31. C	41. B
2. C	12. D	22. A	32. C	42. C
3. B	13. C	23. D	33. B	43. B
4. D	14. A	24. B	34. B	44. B
5. A	15. B	25. D	35. C	45. B
6. A	16. C	26. A	36. C	46. A
7. D	17. A	27. B	37. C	47. A
8. C	18. D	28. D	38. A	48. C
9. B	19. B	29. B	39. A	49. C
10. D	20. C	30. B	40. A	50. D
				51. D
				52. D
				53. B
				54. A
				55. A

Mathematics Test 5

1. A	11. C	21. B	31. B	41. D
2. A	12. A	22. C	32. C	42. A
3. B	13. A	23. B	33. B	43. C
4. D	14. B	24. D	34. C	44. A
5. C	15. B	25. B	35. C	45. B
6. C	16. A	26. B	36. B	46. D
7. D	17. C	27. A	37. B	47. D
8. B	18. B	28. C	38. D	48. D
9. B	19. C	29. D	39. D	49. B
10. B	20. D	30. D	40. C	50. B

**VERBAL
REASONING****IDENTIFYING
ERRORS****ANALOGY****READING
COMPREHENSION**

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

VOCABULARY**SYNONYMS****ANTONYMS**

1. A	1. C	1. A
2. C	2. D	2. C
3. A	3. B	3. B
4. B	4. A	4. D

5. A	5. B	5. A
6. B	6. B	6. C
7. C	7. A	7. B
8. A	8. B	8. C
9. D	9. D	9. D
10. A	10. D	10. A
11. C	11. C	11. C
12. C	12. A	12. A
13. B	13. C	13. C
14. C	14. B	14. B
15. B	15. A	15. A
16. B	16. A	16. A
17. C	17. C	17. C
18. A	18. A	18. A
19. D	19. D	19. D
20. B	20. A	20. A
21. C	21.	21.
22. A	22.	22.
23. A	23.	23.
24. B	24.	24.
25. C	25.	25.
26. A	26.	26.
27. C	27.	27.
28. D	28.	28.
29. C	29.	29.
30. A	30.	30.

WASTONG GAMIT	TALAHULUGAN	CLERICAL ABILITY	ABSTRACT REASONING
1. B	1. A	1. A	1. A
2. A	2. A	2. C	2. D
3. A	3. A	3. C	3. C
4. A	4. A	4. B	4. C
5. A	5. A	5. B	5. A
6. A	6. B	6. B	6. C
7. B	7. A	7. B	7. D
8. B	8. A	8. C	8. C
9. A	9. A	9. A	9. B
10. B	10. A	10. A	10. D
11. A	11. B	11. D	11. C
12. B	12. A	12. D	12. C
13. A	13. B	13. B	13. A
14. A	14. B	14. C	14. D
15. A	15. B	15. B	15. B
16. B	16. B	16. A	16. B
17. B	17. B	17. B	17. D
18. A	18. A	18. A	18. B
19. B	19. B	19. D	19. B
20. A	20. A	20. A	20. A

NUMBER	CURRENT EVENTS &	ANALYTICAL
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SEQUENCE	GENERAL INFORMATION	ABILITY
1. 59	1. C	
2. 256	2. D	
3. 21	3. B	1. B
4. 8	4. B	2. D
5. 3	5. B	3. C
6. 18	6. A	4. D
7. 22	7. A	5. B
8. 161	8. C	6. C
9. 33	9. C	7. D
10. 36	10. B	8. B
11. 33	11. C	9. B
12. 125	12. C	10. D
13. 35	13. B	11.
14. 46	14. A	12.
15. 3.2	15. B	13.
16. 10 $\frac{2}{3}$	16. A	14.
17. 100	17. C	15.
18. 21	18. A	16.
19. 33	19. D	17.
20. 37	20. C	18.
21. 12	21. B	19.
22. 13	22. A	20.
23. 16	23. B	21.
24. 3	24. C	22.
25. 14	25. C	23.
26. 7	26. B	24.
27. 32	27. C	25.
28. 6	28. A	26.
29. 216	29. D	27.
30. 42	30. B	28.
		29.