\_\_\_\_\_\_\_\_\_1. 16 + 4 x (7 + 8) - 3 = \_\_\_\_\_\_\_\_?

1. 117
2. 145
3. 73
4. 65

\_\_\_\_\_\_\_\_\_2. (18 + 17) (12 + 9) - (7 x 16) (4 + 2) = \_\_\_\_\_\_\_\_?

1. 53
2. 63
3. 321
4. 323

\_\_\_\_\_\_\_\_\_3. The sum of 73, 2891, 406 and 98 is \_\_\_\_\_\_\_?

1. 3468
2. 3486
3. 3648
4. 4648

\_\_\_\_\_\_\_\_\_4. Which of the following numbers is divisible by 24 ?

1. 192
2. 268
3. 248
4. 596

\_\_\_\_\_\_\_\_\_5. Which of the following numbers is prime?

1. 57
2. 87
3. 89
4. 91

6. The product of 18 and 73 is \_\_\_\_\_\_?

1. 1304
2. 1324
3. 1314
4. 1342

7. The difference of 476 and 182 is \_\_\_\_\_\_\_?

1. 654
2. 86632
3. 314
4. 294

8. Evaluate    1    +    2    +  3  = \_\_\_\_\_\_?  
                  100      1000    10

1. 0.213
2. 0.312
3. 0.123
4. 0.231

9. Evaluate ½ + ¼ + ⅛ \_\_\_\_\_\_\_\_\_.

1. 3/14
2. 3/16
3. 3/12
4. 7/8

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

1. 71.2100
2. 71.0021
3. 71.210000
4. 71,2100

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

1. 1042.7000
2. 10,427,000
3. 1042.007
4. 1042.0007

12.  1  +  5  +  1  = \_\_\_\_\_\_\_?  
       3      6      2

1. 1 and 2/3
2. 7/11
3. 1 and 1/3
4. 3/5

13. 3 ½ - 1 ⅔ = \_\_\_\_\_\_\_\_?

1. 1 and 1/6
2. 5 and 1/6
3. 6 and 1/5
4. 1 and 5/6

14. 900 x 0.09 = \_\_\_\_\_\_\_\_\_?

1. 0.81
2. 8.1
3. 81
4. 810

15.  7  ÷  21  = \_\_\_\_\_\_\_\_\_\_\_?  
       8      4

1. 1/6
2. 1/3
3. 1 and 1/2
4. 2/3

16.  3  x  10  = \_\_\_\_\_\_?  
      5       3

1. 13/15
2. 2
3. 1/2
4. 3/25

17. 3.156 x 0.12 = \_\_\_\_\_\_\_\_?

1. 0.37872
2. 3.7872
3. 37.872
4. 378.72

18. 5 ½ ÷ 2 ⅓ = \_\_\_\_\_\_?

1. 2 and 5/14
2. 12 and 5/6
3. 6/77
4. 2 and 2/3

19.  2    +    4  = \_\_\_\_\_\_\_\_\_.  
        1        1    
        2        3

1. 1 and 1/5
2. 7 and 1/5
3. 15
4. 30

20. 3% of 24 = \_\_\_\_\_?

1. 0.72
2. 7.2
3. 72
4. 720

21. 1402 + 142 + 14.2 + 1.42 = \_\_\_\_\_\_\_\_\_?

1. 15596.2
2. 1559.62
3. 155.962
4. 155962

22. 2010 x 0.0001 = \_\_\_\_\_\_\_\_\_?

1. 0.0201
2. 0.201
3. 2.01
4. 20.1

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

1. 6.0
2. 6.6
3. 66
4. 660

\_\_\_\_\_\_\_24. 47 x 0.05 = \_\_\_\_\_\_\_\_?

1. 23.5
2. 2.35
3. 0.235
4. 0.0235

\_\_\_\_\_\_\_\_\_\_\_25. 87 / 0.01 = \_\_\_\_\_\_\_\_\_\_?

1. 8700
2. 870
3. 87
4. 8.7

\_\_\_\_\_\_\_\_\_\_\_26. (0.5) (5) (0.5) = \_\_\_\_\_\_\_\_.

1. 0.0125
2. 0.125
3. 1.25
4. 12.5

\_\_\_\_\_\_\_\_\_\_\_27. Dividing by 0.2 is the same as multiplying by \_\_\_\_\_\_\_\_?

1. 1/2
2. 0.5
3. 2
4. 5

\_\_\_\_\_\_\_\_\_\_\_28. 0.012 ÷ 3 = \_\_\_\_\_\_\_\_?

1. 0.0004
2. 0.004
3. 0.04
4. 0.4

\_\_\_\_\_\_\_\_\_\_\_29. 2.944 ÷ 0.23 = \_\_\_\_\_\_\_?

1. 0.128
2. 12.8
3. 1.28
4. 128

30.  0.25 + 0.25 + 0.25 + 0.25  = \_\_\_\_\_\_\_\_\_?  
                         0.25

1. 0.75
2. 7.5
3. 4
4. 0.04

31. 0.0088 ÷ 0.22 = \_\_\_\_\_\_\_\_?

1. 4
2. 0.4
3. 40
4. 0.04

32. (0.15 x 0.37) + (0.85 + 0.63) + (0.15 + 0.63) + (0.85 + 0.37) = \_\_\_\_\_\_\_?

1. 0.0555
2. 0.5355
3. 1
4. 0.9

33. Which of the following best approximate 68 / 0.17 = \_\_\_\_?

1. 0.4
2. 4
3. 40
4. 400

34. The decimal from of 11/6 is \_\_\_\_\_\_?

1. 1.83
2. 1.86
3. 0.83
4. 0.67

35. 5/9 of what number is 435 ?

1. 288
2. 87
3. 783
4. 29

36. Which of the following fractions is the greatest?

1. 1/10
2. 0.1/0.10A
3. 1/0.01
4. 1/0.001

37. 4.7 - 3.12 = \_\_\_\_\_\_\_?

1. 1.58
2. 1.62
3. 2.65
4. 1.52

38. 19.4 - 12.72 + 5 \_\_\_\_\_\_?

1. 1.471
2. 14.71
3. 12.68
4. 11.68

39. 27  ÷ -3  = \_\_\_\_\_\_\_?  
      32      8

1. 2 and 1/4
2. -2 and 1/4
3. 4 and 1/2
4. -4 and 1/2

40. 2 ¾ x 4 = \_\_\_\_\_\_\_\_?

1. 8 and 3/4
2. 5
3. 11
4. 12

\_\_\_\_\_\_41.  -1  +  5  = \_\_\_\_\_\_\_.  
                       4      6

1. 7/12
2. 1 and 1/12
3. 5/12
4. 1 and 1/4

\_\_\_\_\_\_\_\_\_42. (-11.1) + (12.32) = \_\_\_\_\_\_\_\_\_.

1. -1.22
2. 12.2
3. 1.22
4. -12.2

\_\_\_\_\_\_\_\_\_43. What % of 50 is 15?

1. 15%
2. 25%
3. 30%
4. 35%

\_\_\_\_\_\_\_\_\_44. What % of 12 is 6 ?

1. 50%
2. 200%
3. 6%
4. 2%

\_\_\_\_\_\_\_\_\_45. 36 / 720 = \_\_\_\_\_\_\_\_\_\_?

1. 20
2. 200
3. 5
4. 0.05

\_\_\_\_\_\_\_\_46. What is 1/4 % of 880?

1. 0.22
2. 2.2
3. 22
4. 220

\_\_\_\_\_\_\_\_\_\_47. What % of 2 and 1/2 is 1/2 ?

1. 1/2 %
2. 5%
3. 20 %
4. 25 %

\_\_\_\_\_\_\_\_\_\_48. 180 is 66 ⅔ % of what number?

1. 120
2. 150
3. 210
4. 270

\_\_\_\_\_\_\_\_\_\_49. ⅓ of what number is 42 ?

1. 7
2. 14
3. 126
4. 84

\_\_\_\_\_\_\_\_\_\_50. 8 ⅓ - 2  5  = \_\_\_\_\_\_\_\_?

1. 6 and 7/24
2. 6 and 17/24
3. 5 and 17/24
4. 6 and 4/5

[Mathematics Test II - Page 11](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-11-of-159.html)  
  
Select the best answer for each and write the appropriate letter in the blank.  
  
\_\_\_\_\_\_\_\_\_1. 27, 499 round to the nearest hundred is \_\_\_\_\_\_\_?

1. 27, 400
2. 27, 500
3. 27, 000
4. 28, 000

\_\_\_\_\_\_\_\_\_2. Twenty-four weeks is how many days?

1. 140
2. 168
3. 176
4. 196

\_\_\_\_\_\_\_\_\_3. Five hundred ninety-five days is how many weeks?

1. 119
2. 95
3. 85
4. 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?

1. 160
2. 1282
3. 180
4. 1182

\_\_\_\_\_\_\_\_\_5. Richard bowled 3 games and got scores of 139, 153, and 128. What was his average score for the three games?

1. 130
2. 140
3. 150
4. 160

\_\_\_\_\_\_6. What time will it be 3 and 1/2 hours after 7:15 PM?

1. 3:45 AM
2. 10:45 AM
3. 3:45 PM
4. 10:45 PM

\_\_\_\_\_\_\_\_7. What time was it 3 and 1/2 hours before 7:15 AM?

1. 3:45 AM
2. 10:45 AM
3. 3:45 PM
4. 10:45 PM

\_\_\_\_\_\_\_\_8. The fraction 52 / 91 expressed in lowest term is \_\_\_\_\_?

1. 4/7
2. 2/3
3. 3/7
4. 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?

1. $ 250
2. $ 500
3. $ 600
4. $ 750

\_\_\_\_\_\_10. Change 31/17 to a mixed number.

1. 14 and 1/17
2. 4 and 1/17
3. 2 and 3/7
4. 1 and 14/17

\_\_\_\_\_\_\_\_\_11. 40 is what part of 64?

1. 7/8
2. 3/8
3. 5/8
4. 1 and 3/5

\_\_\_\_\_\_\_\_\_12. Change 13  3  to an improper fraction.  
                                       7

1. 91/7
2. 39/7
3. 273/7
4. 94/7

\_\_\_\_\_\_\_\_\_13. What is the average speed in kph of a car travelling 160 kilometers in 5 hours?

1. 32
2. 40
3. 80
4. 90

14.  3  +  1  +  1  = \_\_\_\_\_\_\_\_\_\_\_?  
       4      6      8

1. 5/8
2. 1 and 1/24
3. 1/16
4. 3/8

15. 15  1  - 8  3   = \_\_\_\_\_\_\_\_\_\_\_?  
            3        4

1. 6  and 7/12
2. 7  and 2/3
3. 8 and 2/7
4. 7 and 2/7

16. 8 inches is what part of a foot?

1. 2/3
2. 7/12
3. 4/5
4. 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?

1. 3 days
2. 4 days
3. 5 days
4. 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?

1. The HSETR will yield a greater profit by $ 925.
2. The CATR will yield a greater profit by $ 925.
3. Both books will yield exactly the same profit
4. The CATR will yield a greater profit by $ 1150.

\_\_\_\_\_\_\_\_\_\_\_\_19. Mr. Jose Suobiron inherited 5/8 of his father's estate. He sold 2/5 of his share. What part of the entire estate did he sell?

1. 1/2
2. 1/4
3. 2/5
4. 3/8

\_\_\_\_\_\_\_\_\_\_\_\_20. 13 and 1/3 ounces is what part of a pound?  
  
(16 ounces = 1 pound)

1. 2/3
2. 5/6
3. 3/4
4. 7/8

\_\_\_\_\_\_\_21. 126 is 3/7 of what number?

1. 54
2. 84
3. 119
4. 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?

1. 3.5
2. 4.5
3. 5.5
4. 6.5

\_\_\_\_\_\_\_\_\_\_23. A water tank is 7/8 full. When 21 liters of water is drawn out, the tank is 5/8 full. What is the total capacity of the tank in liters?

1. 63
2. 84
3. 87
4. 93

\_\_\_\_\_\_\_\_\_\_24. A painter completes 2/9 of a job in 3 days. At this rate, how many more days will it take him to finish the job?

1. 7.5 days
2. 9.5 days
3. 10.5 days
4. 13.5 days

\_\_\_25. A boy spent $320, which was 5/7 of what he had originally. How much did he have originally?

1. $ 438
2. $ 448
3. $ 476
4. $ 576

\_\_\_\_\_\_\_\_\_26. 0.0075 x 1000 = \_\_\_\_\_\_\_\_\_\_\_?

1. 0.075
2. 0.75
3. 7.5
4. 75

\_\_\_\_\_\_\_\_\_27. Express 0.572 as a common fraction in lowest term?

1. 71.5 / 125
2. 35.75 / 62.5
3. 14 / 25
4. 143 / 250

\_\_\_\_\_\_\_\_\_28. Of the following which is the closest approximation to the product 0.33 x 0.41 x 0.625 x 0.83 = \_\_\_\_\_?

1. 3/8
2. 3/4
3. 6/41
4. 5/72

\_\_\_\_\_29. Dividing by 0.125 is the same as multiplying by \_\_\_\_\_\_\_\_\_?

1. 3/8
2. 1/4
3. 1/8
4. 8

\_\_\_\_\_\_\_\_\_\_30. If a copper wire is 3.7 feet long, its length in inches is \_\_\_\_\_\_\_\_?

1. less than 40
2. between 40 and 44
3. between 44 and 45
4. more than 45

\_\_\_\_\_\_\_\_\_\_31.         9       = \_\_\_\_\_\_\_\_\_?  
                        0.09 x 0.9

1. 9/1000
2. 9/100
3. 100/9
4. 1000/9

\_\_\_\_\_\_\_\_\_\_32. How much money can be saved by buying 72 pens at $90 per  dozen than buying them for $7.75 each?

1. $ 0.25
2. $ 3.00
3. $ 12.00
4. $ 18.00

33. Two countries produce 1/8 and 3/10 respectively of the world production of aluminum. What fraction of the world production do the two nations produce together?

1. 7/40
2. 3/40
3. 17/40
4. 21/40

\_\_\_\_\_\_\_\_\_\_34. Of 20 is 25 % of x + 7, then x = \_\_\_\_\_\_\_\_?

1. 73
2. 80
3. 87
4. 93

\_\_\_\_\_\_\_\_\_\_35. If 5 x 5 x Z = 15 x 15 x 15, then Z = \_\_\_\_\_\_\_\_\_?

1. 45
2. 30
3. 105
4. 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?

1. 2
2. 2.5
3. 3
4. 4.5
5. 3
6. 5
7. 7
8. 10

\_\_\_\_\_\_\_\_\_\_\_38. A boy scored 134, 145, and 150 in his first 3 games. What score must he make on his next gameso that his average for the four games will be 149?

1. 163
2. 165
3. 167
4. 170

\_\_\_\_\_\_\_\_\_\_\_39. Angelo can type 9 pages in 12 minutes. How many pages can he type in 8 hours at the same rate?

1. 180
2. 360
3. 390
4. 540

\_\_\_\_\_\_\_\_\_\_\_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?

1. 11 : 10 AM
2. 12 : 20 AM
3. 11 : 40 AM
4. 11 : 52 AM

\_41. If 3/8 of a certain number is 2/5, what is 3/4 of that same number?

1. 1/5
2. 2/5
3. 3/5
4. 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?

1. 48
2. 49
3. 50
4. 52

\_\_\_\_\_\_\_\_\_\_\_\_43. Mr. Albelda drives his car at the rate of 60 miles per hour. What is his rate in feet per second?

1. 66
2. 76
3. 86
4. 88

\_\_\_\_\_\_\_\_\_\_\_\_44. What is 0.05 percent of 6.5 ?

1. 0.00325
2. 0.0325
3. 0.325
4. 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?

1. 2 : 27
2. 2 : 13
3. 1 : 13
4. 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?

1. 10 hours
2. 12 hours
3. 13 hours
4. 15 hours

\_\_\_\_\_\_\_\_\_\_47. Mr. Cruz borrows $360,000. If he pays back $378,000 after one year, what is his interest rate?

1. 1.5%
2. 4.5%
3. 5%
4. 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?

1. $ 3, 600
2. $ 4, 800
3. $ 5, 400
4. $ 6, 000

\_\_\_\_\_\_\_\_\_\_49. What is 6% of 2.5 ?

1. 5/3 %
2. 15
3. 3/20
4. 3/5

\_\_\_\_\_\_\_\_\_\_50. What is the value of 60 x 31 x 36 x 7 ?

1. 468, 720
2. 468, 721
3. 468, 722
4. 468, 723

[Mathematics Test III - Page 23](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-23-of-159.html)  
  
Select the best answer for each and write the appropriate letter in the blank.  
  
\_\_\_\_\_\_\_\_\_1. If 9x - 7 = 18y then  9x - 7  = \_\_\_\_\_\_\_\_?  
                                                        6

1. 2y
2. 3y
3. 6y
4. y + 6

\_\_\_\_\_\_\_\_\_2. A student buys an MSA Reviewer Book for $175 after receiving a discount of 12.5%. What was the marked price?

1. $ 187.50
2. $ 200
3. $ 225
4. $ 250

\_\_\_\_\_\_\_\_\_3. A town house unit was sold fir $2.50 M, yielding a 25% profit. For how much would it be sold to yield only a 10% profit on the cost?

1. $ 2M
2. $ 2.25M
3. $ 2.2M
4. $2.45M

\_\_\_\_\_\_\_\_\_4. What single discount is equivalent to successive discounts if 5% and 10%?

1. 10.5%
2. 12.5%
3. 14.5%
4. 15%

\_\_\_\_\_\_\_\_\_5. How many miles are there in 40 kilometers?

1. 25
2. 64
3. 32
4. 60

\_6. If water tank can be filled 1 and 3/4 hours. What part of the tank can be filled in exactly 1 hour?

1. 1/2
2. 3/4
3. 4/7
4. 1

\_\_\_\_\_\_\_\_\_7. If 5 items cost d dollars how much would x items cost at the same rate?

1. p / 5x
2. 5 / px
3. x / 5p
4. 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?

1. 20%
2. 30%
3. 40%
4. 80%

\_\_\_\_\_\_\_\_\_9. If the ratio a : b is 11 : 9, then a + b is \_\_\_\_\_\_\_\_?

1. 9
2. 11
3. 20
4. can't be determined from the given information

\_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?

1. 1/4
2. 1/2
3. 3/4
4. whole job

\_\_\_\_\_\_\_\_\_\_\_11. Of John's salary, 1/10 is spent for clothing, and 1/4 for board and lodging. What part of thesalary is left for other expenditures and savings?

1. 3/5
2. 13/20
3. 7/10
4. 2/5

\_\_\_\_\_\_\_\_\_\_\_12. Which of the following fractions is closest to 1/3 ?

1. 1/5
2. 2/5
3. 2/3
4. 3/5

\_\_\_\_\_\_\_\_\_\_\_13. Write 0.5 % as decimal.

1. 5
2. 0.5
3. 0.05
4. 0.005

\_\_\_\_\_\_\_\_\_\_\_14. If 10 parts of alcohol is mixed with 15 parts of water, what part of the mixture is alcohol?

1. 2/3
2. 2/5
3. 1/3
4. 3/5

\_\_\_\_\_\_\_\_\_\_\_15. If 2/5 of the workers in a factory go on vacation is September and 1/3 of the remainder take their vacation in October, what fraction of the workers take their vacation in some other time?

1. 2/5
2. 1/3
3. 1/15
4. 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?

1. 5/7
2. 7/12
3. 5/12
4. 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?

1. 80 kph
2. 90 kph
3. 100 kph
4. 120 kph

\_18. What part of an hour elapses between 9:52 AM and 10:16 AM ?

1. 2/5
2. 1/3
3. 1/6
4. 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 ?

1. 11
2. 33
3. 44
4. 50

\_\_\_\_\_\_\_\_\_20. If 45 feet of uniform wire weigh 5 kilograms, what is the weight of 30 yards o the same wire?

1. 5 kg
2. 10 kg
3. 15 kg
4. 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 ?

1. 3
2. 12
3. 1 ⅓
4. 5 ⅓

\_\_\_\_\_\_\_\_22. If a car can travel 60 km on 12 liters of gasoline, how many liters will be needed in a 210 km trip ?

1. 30
2. 42
3. 45
4. 50

\_\_\_\_\_\_\_\_\_\_\_23. Write 7.5% as a fraction.

1. 3/4
2. 3/40
3. 3/400
4. 3/4000

\_\_\_\_\_\_\_\_\_\_\_24. Write 3/8 % as decimal.

1. 0.00375
2. 0.0375
3. 0.375
4. 3.75

\_\_\_\_\_\_\_\_\_\_\_25. Find 40% of 60.

1. 0.24
2. 2.4
3. 24
4. 240

\_26. Find 70% of 60.

1. 420
2. 4.2
3. 4200
4. 42

\_\_\_\_\_\_\_\_\_27. What is 175% of 24 ?

1. 0.42
2. 4.2
3. 42
4. 420

\_\_\_\_\_\_\_\_\_28. What percent of 60 is 42 ?

1. 0.7
2. 7
3. 70
4. 1.428

\_\_\_\_\_\_\_\_\_29. 54 is 20% of what number ?

1. 2.7
2. 270
3. 10.8
4. 108

\_\_\_\_\_\_\_\_\_30. 24 is 150% of what number ?

1. 8
2. 12
3. 16
4. 18

\_\_\_31. How many thirty- seconds are there in 62 ½ % ?

1. 5
2. 8
3. 12
4. 20

\_\_\_\_\_\_\_\_\_\_\_32. A shirt marked $560 is sold for $392. What was the rate of discount ?

1. $ 168
2. $ 123
3. $ 30%
4. 70%

\_\_\_\_\_\_\_\_\_\_\_33. A kinder class has g number of girls and b number of boys. The ratio of boys to girls is \_\_\_\_\_ ?

1. bg
2. b / (b+g)
3. g/b
4. b/g

                           \_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_34.  / 1  +   1      =  \_\_\_\_\_\_\_\_\_ ?  
                       √ 25    144

1. 1/17
2. 17/60
3. 13/60
4. 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 ?

1. 12
2. 18
3. 18
4. 24

\_\_\_\_\_\_\_\_\_\_\_36. If prices are reduced by 25% sales increased by 33 ⅓  % what is the net effect on gross revenue ?

1. they increase by 8 and 1/3
2. they decrease by 8 and 1/3
3. they remain the same
4. 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 shortersegment ?

1. 2
2. 3
3. 4
4. 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?

1. 48
2. 50
3. 56
4. 60

\_\_39. What part of gallon is 7 pints, given that 1 quart = 2 pints, 4 quarts = 1 gal. ?

1. 7/8
2. 7/16
3. 7/4
4. 3/4

\_\_\_\_\_\_\_\_\_\_\_40. If 7 is added to four times a number, the result is 91. What is the number ?

1. 21
2. 42
3. 32
4. 56

\_\_\_\_\_\_\_\_\_\_\_41. The area of a square is 36 sq. cm. What is the perimeter of the square ?

1. 6 cm
2. 24 cm
3. 30 cm
4. 36 cm

\_\_\_\_\_\_\_\_\_\_\_42. A truck can carry a load of 8 / 9 tons. How many trips must the truck make to deliver 10 and 2 / 3 tons of sand?

1. 8
2. 9
3. 10
4. 12

\_43. What is the value of  
 6a2b3  
\_\_\_\_\_\_ if a = 2 and b = 3 ?  
    9

1. 18
2. 24
3. 36
4. 72

\_\_\_\_\_\_\_\_\_44.  Z +  4  = 4, then Z = \_\_\_\_\_\_\_?  
                             Z

1. 1
2. 2
3. -1
4. -2

\_\_\_\_\_\_\_\_\_45.  1 ÷  1  = \_\_\_\_\_\_\_\_\_ ?  
                      x     1   
                             x

1. 1
2. 1/ x2
3. x2
4. 2x

                          \_\_\_\_\_\_  
\_\_\_\_\_\_\_\_\_46. x √0.0004  =  4 : x  =  \_\_\_\_\_\_\_ ?

1. 80
2. 100
3. 200
4. 400

7. 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?

1. 1/9
2. 1/10
3. 1/13
4. 1/15

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

1. 9
2. 9.5
3. 10
4. 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 ?

1. $ 3, 600
2. $ 4, 600
3. $ 5, 600
4. $ 6, 400

        \_\_\_\_\_\_\_\_\_  
50.  /  12  +  12   
    √    27      9

1. 16/9
2. 4/3
3. 3/4
4. 9/16

\_1. A car that cost $ 1.2 M can be sold for $ 600, 000 after 5 years of use. What will be the yearlydepreciation cost ?

1. $ 100, 000
2. $ 12, 000
3. $ 120, 000
4. $ 600, 000

\_\_\_\_\_\_\_\_\_2. How many times does the digit 7 appear in the numbers from 1 to 100 ?

1. 9
2. 10
3. 19
4. 20

\_\_\_\_\_\_\_\_\_3. At the rate of $ 44 per hundred sheets of colored bond paper, how much is the cost of 500 sheets ?

1. $ 121
2. $ 242
3. $ 440
4. $ 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)

1. $ 18, 000
2. $ 15, 000
3. $ 1, 250
4. $ 1, 500

\_\_\_\_\_\_\_\_\_5. The decimal form of 0.56 % is \_\_\_\_\_\_\_\_\_\_ ?

1. 0.0056
2. 0.056
3. 0.56
4. 56

\_\_\_\_\_\_6. If 3 feet = 1 yard, how many yards are there in 27 feet ?

1. 9
2. 81
3. 24
4. 12

\_\_\_\_\_\_\_\_\_7. How many feet are there in 9 and 1/3 yards ?

1. 9
2. 10
3. 12
4. 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 ?

1. $ 53, 960
2. $ 54, 960
3. $ 55, 960
4. $ 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 ?

1. $ 89.82
2. $ 109.78
3. $ 109.80
4. $ 110.78

\_\_\_\_\_\_\_\_\_10. Find the cost of 6 and 1/2 dozen eggs at $ 30.00 per dozen.

1. $ 186
2. $ 190
3. $ 194
4. $ 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 ?

1. $ 151.20
2. $ 153
3. $ 160
4. $ 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 ?

1. $ 308, 000
2. $ 105, 014
3. $ 735, 000
4. $ 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 ?

1. $ 12, 000
2. $ 60, 000
3. $ 240, 000
4. $ 24, 000

\_\_\_\_\_\_\_\_\_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 ?

1. $ 7, 400
2. $ 7, 500
3. $ 7, 850
4. $ 7, 950

[Civil Service Reviewer Post 37/159](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-37-of-159.html)

\_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?

1. 2/5
2. 3/5
3. 2/3
4. 3/4

\_\_\_\_\_\_\_\_\_\_16. MS. Cecille Garcia saves 18% of her monthly salary of $ 16, 500. How much does she saved in a year?

1. $ 34, 460
2. $ 35, 460
3. $ 110, 000
4. $ 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 1/3 down and the balance in 10 monthly installments of 11, 000 each. What is the total price of the car ?

1. $ 160, 000
2. $ 170, 000
3. $ 110, 000
4. $ 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 3/20 more than the buying price ?

1. $ 12, 750
2. $ 13, 375
3. $ 13, 350
4. $ 14, 375

[Civil Service Reviewer Post 38/159](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-38-of-159.html)

\_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 ?

1. $ 1, 220, 000
2. $ 2, 000, 000
3. $ 1, 880, 000
4. $ 1, 900, 000

\_\_\_\_\_\_\_\_\_20. Mrs. Ramos pays $ 1, 530 for a dress at 15 % discount. How much is the marked price ?

1. $ 1, 545
2. $ 1, 600
3. $ 1, 800
4. $ 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 ?

1. $ 50
2. $ 60
3. $ 65
4. $ 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 ?

1. 390 km
2. 420 km
3. 450 km
4. 270 km

23. The sum of √ 81    +  √ 100    is \_\_\_\_\_\_\_\_ ?

1. √ 181
2. 10
3. 9
4. 19

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

1. 16
2. 17
3. 18
4. 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?

1. 109
2. 112
3. 113
4. 119

26. Elmer can deliver newspaper in his route for 1 ½ hours. Wowie who takes his place one day finds that it takes him 1 ½ longer to deliver these. How long will it take to deliver the papers if they work together ?

1. 1 hour
2. 1 hour 15 minutes
3. 1 hour 20 minutes
4. 3 hours

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

1. h
2. 1/h
3. hx
4. x/h

[Mathematics Test IV - Page 41](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-41-of-159.html)  
  
28. A sock of corn will feed 18 ducks for 54 days. How long will it feed 12 ducks ?

1. 36
2. 60
3. 72
4. 81

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

1. 20
2. 25
3. 26
4. 30

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

1. 12%
2. 15%
3. 20%
4. 25%

31. Six hundred examinees passed the Licensure Examination last year. This represents the 8 ⅓ percent of the total examinees. How many examinees failed the exam?

1. 6,000
2. 6,200
3. 6,600
4. 7,200

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

1. 7
2. 8
3. 9
4. 10

\_\_33.  (a2 - 4b2) c  is equivalent to ac + \_\_\_\_\_\_\_\_\_ ?

1. 2bc
2. -2bc
3. 2b
4. -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 ?

1. 24
2. 30
3. 12
4. 27

\_\_\_\_\_\_\_\_\_35. Solve for x : ax = bx + cx - d,       a ≠ b ≠ c.  
  
a.        d         
     a - b - c  
  
  
b.        d         
     b - a - c  
  
  
c.        d         
     b + c - a  
  
  
d.        d         
     b - c - a

\_\_\_\_\_\_\_\_33.  (a2 - 4b2) c  is equivalent to ac + \_\_\_\_\_\_\_\_\_ ?

1. 2bc
2. -2bc
3. 2b
4. -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 ?

1. 24
2. 30
3. 12
4. 27

\_\_\_\_\_\_\_\_\_35. Solve for x : ax = bx + cx - d,       a ≠ b ≠ c.  
  
a.        d         
     a - b - c  
  
  
b.        d         
     b - a - c  
  
  
c.        d         
     b + c - a  
  
  
d.        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 ?

1. 6
2. 400
3. 600
4. 1, 200

\_\_\_\_\_\_\_\_\_\_\_37. If prices are reduced by 20 %, quantity sold increase by 25 %. What is the net effect on the gross revenue?

1. it increases by 5%
2. it decreases by 5%
3. it remains the same
4. 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?

1. 3xyz - (x+y)
2. xyz - (x+y)
3. z
4. can't be determined from the given information

\_\_\_\_\_\_\_\_\_\_\_39. When + 13 is added to - 15, the sum is \_\_\_\_\_\_\_ ?

1. -2
2. 2
3. -18
4. 18

\_\_\_\_\_\_\_\_\_\_\_40. When -15 is subtracted from -18, the difference is \_\_\_\_\_\_\_?

1. -3
2. 3
3. 33
4. -33

\_\_\_\_\_\_\_\_\_\_\_41. When the product of (-4) and (-17) is divided by 2, the quotient is \_\_\_\_\_ ?

1. -34
2. 34
3. 68
4. -66

\_\_\_\_\_\_\_\_\_42. If 5x + 17 = 32, then x = \_\_\_\_\_\_\_\_\_ ?

1. 9.8
2. -9.8
3. 3
4. -3

\_\_\_\_\_\_\_\_\_\_\_\_\_43. Solve for M :

 M  -  M  = 4  
 7       3

1. 21
2. -21
3. -1
4. 1

\_\_\_\_\_\_\_\_\_\_\_\_\_44. If x + y = 4a and x - y = 2b then y = \_\_\_\_\_\_ ?

1. b - 2a
2. 2a - b
3. 2a + b
4. a - 2b

\_\_\_\_\_\_\_\_\_\_\_\_\_45. If 0.37 m = 0.0111 then m = \_\_\_\_\_ ?

1. 0.03
2. 0.3
3. 3
4. 30

\_\_\_\_\_\_\_\_\_\_\_\_\_46. If 1 / M = 4 and S = 2, what is S in terms of M ?

1. 1 / 2M
2. -2M
3. -(1/2M)
4. 2M

[Mathematics Test IV - Page 45](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-45-of-159.html)  
  
\_\_\_\_\_\_\_\_\_\_\_47. A horse is tied to a pole with a rope of 7 meters long. How much grazing area does it have?

1. 154 sq. m.
2. 164 sq. m.
3. 314 sq. m.
4. 174 sq. m.

\_\_\_\_\_\_\_\_\_\_\_48. What number is missing in this sequence : 5, 7, 11, 17, \_\_\_\_\_\_\_\_ ?

1. 22
2. 23
3. 25
4. 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?

1. 10
2. 15
3. 20
4. 25

\_\_\_\_\_\_\_\_\_\_\_50. What is the value of x in 5 : x = x : 125 ?

1. 5
2. 15
3. 20
4. 25

\_\_\_\_\_\_\_\_\_\_\_51. If one bilao of pansit guisado serves 7 people, how many bilaos are needed to serve a banquet of 126 people?

1. 15
2. 16
3. 17
4. 18

\_\_\_\_52. If x = 8, which of the following has the least value?

1. x -3
2. 3/x
3. x/3
4. 3 - x

\_\_\_\_\_\_\_\_\_\_\_\_53. If rain is pouring at the rate of 3 inches per hour, how many inches will it pour in 15 minutes?

1. 1/36
2. 3/4
3. 45
4. 5

\_\_\_\_\_\_\_\_\_\_\_\_54. If (18 x 3) ÷ a = 6 then a - 9 = \_\_\_\_\_?

1. 0
2. 1
3. 9
4. 10

\_\_\_\_\_\_\_\_\_\_\_\_55. If a = 3, b = 2, and c =4, then the value of (ac - bc) ÷ (a+b+c) = \_\_\_\_\_\_\_?

1. 4/9
2. 2/3
3. 3/8
4. 1/2

[Mathematics Test V - Page 47](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-47-of-159.html)  
  
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 ?

1. 20
2. 40
3. 60
4. 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?

1. 20
2. 25
3. 30
4. 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.

1. 4 cm
2. 6 cm
3. 9 cm
4. 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?

1. 18
2. 27
3. 39
4. 42

                                                                                                 \_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_5. What would be the closest approximation to√ 66    ?

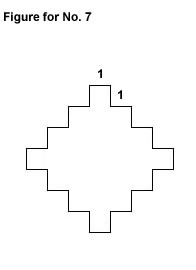
1. 7.9
2. 8
3. 8.1
4. 8.9

[Civil Service Review](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-47-of-159.html)

\_\_\_\_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?

1. 1/6
2. 1/3
3. 6/11
4. 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?

[](http://2.bp.blogspot.com/-0fafYtJt7rA/UTeyTHxLuCI/AAAAAAAANnk/n31UCTSNB88/s1600/figure-for-number7.jpg)

1. 9
2. 12
3. 16
4. 25

\_\_\_\_\_\_\_\_\_\_\_8. If x - 3 = y, then (y - x )3 = \_\_\_\_\_ ?

1. 9
2. -27
3. 27
4. 81

\_\_\_\_\_\_\_\_\_\_\_9. A speed of 90 km per hour is equivalent to how many meters per second?

1. 20
2. 25
3. 30
4. 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?

1. 18
2. 20
3. 9
4. 16

dollar bill?

1. $ 163.25
2. $ 193.75
3. $ 173.75
4. $ 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 1/3 their average. What is the ratio of the smaller to the larger amount?

1. 5 : 7
2. 5 : 9
3. 5 : 12
4. 2 : 3

\_\_\_\_\_\_\_\_\_\_\_13. When the first and the last digits of 2, 836 are interchanged, the new number is \_\_\_\_\_.

1. 3996 more than 2, 836
2. 3996 less than 2, 836
3. 1404 more than 2, 836
4. 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?

1. 8
2. 16
3. 24
4. 32

\_\_\_\_\_\_\_\_\_\_\_15. In a group of 120 persons, there are 32 more women than men. How many women are there in the group?

1. 44
2. 76
3. 88
4. 92

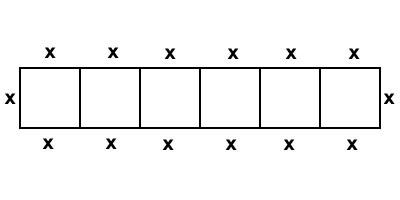
\_\_16. If the dimensions of a square change in such a manner that the area remains constant, what must happen to the other side if one side will be increased by 1/4 of itself?

1. it decreases by 1/5
2. it decreases by 1/4
3. it decreases by 1/3
4. it decreases by 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?

1. 1/3 hour
2. 1/2 hour
3. 2/3 hour
4. 1 hour

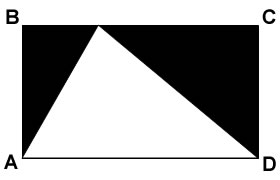
\_\_\_\_\_\_\_\_\_\_\_18. The rectangle shown in the figure is divided into 6 equal squares. If the perimeter of the rectangle is 42 cm, what is the area of each square in cm2 ?

[](http://2.bp.blogspot.com/-DOn6sgWe72w/UTVJmExA6MI/AAAAAAAANmU/rd50W9Emgg8/s1600/figure-5.jpg)

1. 6
2. 9
3. 12
4. 15

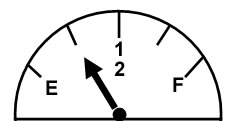
[Civil Service Reviewer Post 50/159](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-50-of-159.html)

\_\_\_\_19. If the area of the rectangle ABCD shown below is 36 units, how many square units is the area of the shaded region?

[](http://1.bp.blogspot.com/-h_LvT1VmPq8/UTU47wjH6qI/AAAAAAAANlU/VXRW6qUqM6w/s1600/figure-1.jpg)

1. 12
2. 16
3. 18
4. 24

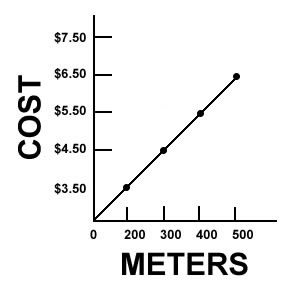
\_\_\_\_\_\_\_\_\_\_\_20. This tank holds 48 liters of gasoline and the car averages 5 kilometers per liter. Approximately how many kilometers can a car travel this given guage?

[](http://3.bp.blogspot.com/-DXXbaYuX3r0/UTU8K4-4daI/AAAAAAAANlk/boU7qnAxn2k/s1600/figure-2.jpg)

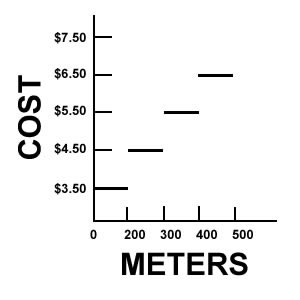
1. 12
2. 24
3. 30
4. 60

\_\_\_\_\_\_\_\_\_\_\_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?

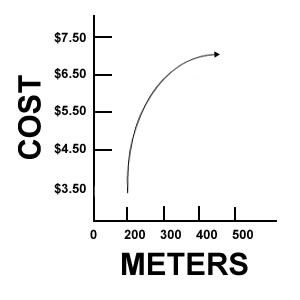
a.

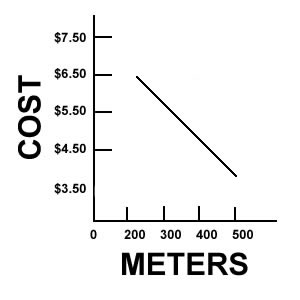
[](http://2.bp.blogspot.com/-EX28fY4wxFw/UTeq7ZzC8kI/AAAAAAAANnE/q7gZBi66L4A/s1600/figure-3-a.jpg)

b.

[](http://2.bp.blogspot.com/-4VZ_JVo3_RY/UTeq7lF3CDI/AAAAAAAANnQ/FJRzJXPNhDw/s1600/figure-3-b.jpg)

c.

[](http://2.bp.blogspot.com/-jVSPVIhhkkA/UTeq7snobqI/AAAAAAAANnM/8Bo5xRn6oi8/s1600/figure-3-c.jpg)

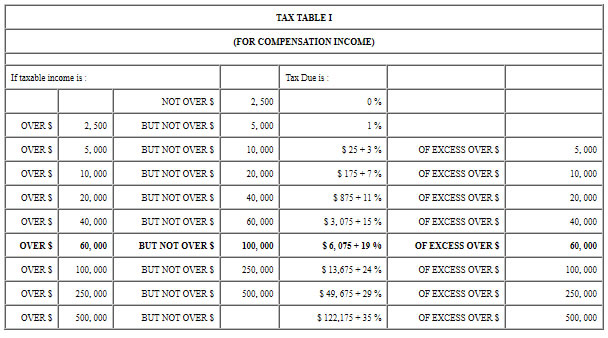
[](http://4.bp.blogspot.com/-6x68ZEeA79k/UTeq8D2XBnI/AAAAAAAANnU/L1bZls30uXU/s1600/figure-3-d.jpg)d.  
  
  
  
  
\_\_\_\_\_\_\_\_\_\_\_\_22. A laboratory assistant was preparing a solution that should have included 40 milligrams of chemical. If he actually used 41.30 milligrams, what was his percentage error (to the nearest 0.01 %)?

1. 0.0325%
2. 0.325%
3. 3.25%
4. 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?

1. 6 packs of Menthol drops and no Butterballs
2. 3 packs of Menthol drops and 4 packs of Butterballs
3. 8 packs of Butterballs and no Menthol drops
4. Choices A, B, and C are possibilities

Use the following table for questions 24 and 25.



\_\_\_\_\_\_\_\_\_\_\_24. How much tax is due on a taxable income of $65, 000?

1. $ 6, 075
2. $ 6, 050
3. $ 6, 094
4. $ 7, 025

\_\_\_\_\_\_\_\_\_\_\_25. How much tax is due on a taxable income of $55, 000?

1. $ 4, 575
2. $ 5, 325
3. $ 6, 825
4. $ 18, 075

\_26. Anabelle paid $ 19, 675 tax. If x was her income, which of the following statements is TRUE?

1. $ 60, 000 < x < $ 100, 000
2. $ 100, 000 < x < $ 250, 000
3. $ 40, 000 < x < $ 60, 000
4. $ 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).

1. $ 9, 990
2. $ 19, 980
3. $ 39, 960
4. $ 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?

1. 16 packs
2. 17 packs
3. 18 packs
4. 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?

1. 3 : 1
2. 3 : 2
3. 3 : 4
4. 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?

1. $ 400
2. $ 480
3. $ 520
4. $ 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 fueland 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?

1. $ 2, 330
2. $ 5, 535
3. $ 2, 720
4. $ 2, 767.50

\_\_\_\_\_\_\_\_\_\_32. If 5 buses, 9 cars, 4 motorcycles make a 100-km trip. What is the average fuel cost per vehicle?

1. $ 521.94
2. $ 526.67
3. $ 531.94
4. $ 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?

1. a loss of $ 48
2. a gain of $ 48
3. no gain or loss
4. 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 if Salad C will be \_\_\_\_\_\_\_\_.

1. (25x + 30y + 35z) pesos
2. 90 xyz pesos
3. (25x + 30y + 35z) cents
4. (5x + 6y + 7z) dollars

\_\_\_\_\_\_\_\_\_\_\_35. Which of the following diets would supply the most grams of vitamins?

1. 500 grams of Salad A
2. 400 grams of Salad B
3. 200 grams of Salad A, 100 grams of Salad B and 200 grams of Salad C
4. 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 dietscosts the least?

1. 100 grams of Salad A, 200 grams of Salad B and 300 grams of Salad C.
2. 300 grams of Salad A, 100 grams of Salad B and 200 grams of Salad C.
3. 200 grams of Salad A, 100 grams of Salad B and 300 grams of Salad C.
4. 100 grams of Salad A, 300 grams of Salad B and 200 grams of Salad C.

[Civil Service Reviewer Post 55/159](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-55-of-159.html)

[**Mathematics Test V - Page 56**](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-56-of-159.html)  
  
\_\_\_\_\_\_\_\_\_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?

1. 3 : 2
2. 2 : 3
3. 6 : 1
4. 1 : 6

\_\_\_\_\_\_\_\_\_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 and 2/3 %. What was his profit in this item?

1. $ 153
2. $ 102
3. $ 26.50
4. $ 51.00

\_\_\_\_\_\_\_\_\_39. Forrest Gamp 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?

1. 3 mph
2. 4.5 mph
3. 7.5 mph
4. 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?

1. $ 900,000
2. $ 1,250,000
3. $ 1,500,000
4. $ 1,600,000

\_\_41. Which of the following is NOT a possible remainder if a positive integer is divided 5

1. 0
2. 1
3. 3
4. 5

\_\_\_\_\_\_\_\_42. In a building plan, 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?

1. 1 cm
2. 1/2
3. 2 cm
4. 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?

1. $ 6.63 M
2. $ 7.26 M
3. $ 7.8 M
4. $ 99.12 M

\_\_\_\_\_\_\_\_44. If 2/3 the perimeter of a square is 16, then what is the length of one of its sides?

1. 6
2. 8
3. 9
4. 12

\_\_\_\_\_\_\_\_45. What values of x can satisfy the equation (3x + 6) (2x - 8) = 0?

1. -4 and 2 only
2. 4 only
3. -2 only
4. -2 and 4 only

12 men plant in 5 days?

1. 432
2. 960
3. 1,800
4. 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?

1. increase by 5%
2. decrease by 5%
3. increase by 45%
4. no change

\_\_\_\_\_\_\_\_48. The formula for the volume of a sphere is V = 4/3 π3. If the radius (r) is tripled, what will be the ratio of the new volume to the original volume?

1. 1 : 3
2. 3 : 1
3. 9 : 1
4. 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?

1. 4%
2. 8%
3. 64%
4. 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?

1. 275 grams
2. 300 grams
3. 337.5 grams
4. 400 grams
5. **Solutions**  
     
   1. 16 + 4 x (7 + 8) - 3 = \_\_\_\_\_\_\_\_?  
     
   = 16 + 4 x (15) - 3  
     
   = 16 + 60 - 3  
     
   = 16 + 57  
     
   **= 73 \*Ans.**
6. 2. (18 + 17) (12 + 9) - (7 x 16) (4 + 2) = \_\_\_\_\_\_\_\_?  
     
   = (35) (21) - (112) (6)  
     
   = 735 - 672  
     
   **= 63 \*Ans.**
7. 3. The sum of 73, 2891, 406 and 98 is \_\_\_\_\_\_\_?  
     
   = 73 + 2891 + 406 + 98  
     
   **= 3468 \*Ans.**
8. 4. Which of the following numbers is divisible by 24 ?  
     
   192 **÷** 24 = **8 \*Ans.**  
     
   286 **÷** 24 = 11 remainder 4, 268 not divisible by 24 because it has a remainder when divided by 24.
9. 5. Which of the following numbers is prime?  
     
   a. 57 = 3 x 19  
     
   b. 87 = 3 x 29  
     
   **c. 89 = 89 x 1 \*Ans.**  
     
   d. 91 = 13 x 7
10. [**Mathematics Test I Solution - Page 60**](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-60-of-159.html)  
      
    6. The product of 18 and 73 is \_\_\_\_\_\_?  
      
    18 x 73 = 1,314  
      
    **1314 \*Ans.**
11. 7. The difference of 476 and 182 is \_\_\_\_\_\_\_?  
      
    476 - 182 = 294  
      
    **294 \*Ans.**
12. 8. Evaluate    1    +    2    +  3  = \_\_\_\_\_\_?  
                      100      1000    10  
      
    1 / 100   = 0.01  
      
    2 / 1000 = 0.02  
      
    3 / 10     = 0.3  
      
    0.01 + 0.02 + 0.3 = **0.312 \*Ans**
13. 9. Evaluate **½ + ¼ + ⅛** \_\_\_\_\_\_\_\_\_.  
      
    Find first the LCD which is 8.  
      
    **½** = 4/8  
      
    **¼** = 2/8  
      
    **⅛** = 1/8  
      
    =  4  +  2  +  1   
        8      8      8  
      
    **= 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.  1  +  5  +  1  = \_\_\_\_\_\_\_?  
       3      6      2  
  
Find first the LCD which is = 6

1/3 is now 2/6

5/6 is still 5/6

1/2 is now 3/6

=   2 + 5 + 3

           6

= 10/6 or 5/3

**1 ⅔ \*Ans.**

13. 3 **½** - 1 **⅔**= \_\_\_\_\_\_\_\_?  
  
Change 3 **½**to improper fraction which is 7/2  
Change 1 **⅔**to improper fraction which is 5/3  
  
=  7  -  5   
    2     3  
  
=  3(7) - 2(5)   
         2(3)  
  
=  21 - 10   
         6  
  
= 11/6  
  
**= 1  5  \*Ans.**  
**6**

14. 900 x 0.09 = \_\_\_\_\_\_\_\_\_?  
  
              900  
x             .09  
           **81.00 \*Ans.**   
15.  7  ÷  21  = \_\_\_\_\_\_\_\_\_\_\_?  
       8      4  
  
=  7  x  4   
    8     21  
  
=   28   
    168  
  
=    28 ÷ 28    
    168 ÷ 28  
  
**= 1/6 \*Ans.**

16.  3  x  10  = \_\_\_\_\_\_?  
      5       3  
  
= 30 / 15  
  
**= 2 \*Ans.**

17. 3.156 x 0.12 = \_\_\_\_\_\_\_\_?  
  
              3.156                    ------> 3-decimal places  
            x  .12                      ------> 2-decimal places  
               6312  
             3156    
          **0.37872 \*Ans.**         ------> 5-decimal places

1. 18. 5 **½ ÷**2 **⅓**= \_\_\_\_\_\_?  
     
   =  11    **÷**  7   
        2          3  
     
     
   =  11  **x**  3   
        2          7  
     
   =  33   
       14

change 33/14  to improper fraction by dividing 33 by 14 which is :  
  
**2  5  \*Ans.**  
**14**

19.  2    +    4  = \_\_\_\_\_\_\_\_\_.  
        1        1    
        2        3  
  
             6         
=     3        2    
       6       6  
  
     6   
=   5   
     6  
  
= 6 x  6   
          5  
  
= 36/5  
  
**= 7 ⅕ Ans.**

20. 3% of 24 = \_\_\_\_\_?  
  
= 0.03 x 24  
  
**= 0.72 \*Ans.**

21. 1402 + 142 + 14.2 + 1.42 = \_\_\_\_\_\_\_\_\_?  
  
             1402.00  
               142.00  
+               14.20  
                   1.42   
            **1559.62 \*Ans.**

22. 2010 x 0.00001 = \_\_\_\_\_\_\_\_\_?  
  
2010 x .00001 = 0.2010  
  
**=0.210 \*Ans.**

23. Find the average of 6.8, 3.5, 9.2, 7.45, and 6.05.  
  
=  6.8 + 3.5 + 9.2 + 7.45 + 6.05   
                         5  
  
= 33/5  
  
**= 6.6 \*Ans.**

24. 47 x 0.05 = \_\_\_\_\_\_\_\_?  
  
= 47 x 0.05  
  
**= 2.35 \*Ans.**

25. 87 / 0.01 = \_\_\_\_\_\_\_\_\_\_?  
  
move the decimal point 2 places to the right in both dividend & divisor because there are 2 decimal places in the divisor.  
  
0.01 is now 1 and 87 is now 8700  
  
= 8700 / 1  
  
**= 8700 \*Ans.**

26. (0.5) (5) (0.5) = \_\_\_\_\_\_\_\_.  
  
= (2.5) (0.5)  
  
**= 1.25 \*Ans.**

27. Dividing by 0.2 is the same as multiplying by \_\_\_\_\_\_\_\_?  
  
= 1 **÷** 0.2  
  
= 1 **÷**2   
10  
  
= 1 **÷** 1   
          5  
  
= 1 x 5  
  
**= 5 \*Ans.**

28. 0.012 **÷**3 = \_\_\_\_\_\_\_\_?  
  
        .004   
= 3 | .012  
         0      
           1  
           0    
           12  
           12  
             0  
  
**0.004 \*Ans.**

29. 2.944 **÷**0.23 = \_\_\_\_\_\_\_?  
  
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.  0.25 + 0.25 + 0.25 + 0.25  = \_\_\_\_\_\_\_\_\_?  
                         0.25  
  
=  4 (~~0.25~~)   
       ~~0.25~~  
  
**= 4 \*Ans.**

31. 0.0088 **÷** 0.22 = \_\_\_\_\_\_\_\_?  
  
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  
  
       0.04   
22 | 0.88  
       0       
          88  
          88  
            0  
  
**therefore, 0.04 \*Ans.**

32. (0.15 x 0.37) + (0.85 + 0.63) + (0.15 + 0.63) + (0.85 + 0.37) = \_\_\_\_\_\_\_?  
  
= [(0.15 + 0.63) + (0.85 + 0.63)] + [(0.15 x 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 = \_\_\_\_?  
  
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 \_\_\_\_\_\_?  
  
=  11   
     6  
  
**= 1.83 \*Ans.**

35. 5/9 of what number is 435 ?

 5  x N = 435  
 9  
  
N = 435 ( 9 )  
                5  
  
**N = 783 \*Ans.**

36. Which of the following fractions is the greatest?  
  
a. 1 / 10 = 1 / 10  
  
b.   0.1   =   1   = 1  
    0.10      1.0  
  
c.   1   =  100  ---> 100  
   0.01       1  
  
d.    1     = 1000  -----> **1000 \*Ans**  
    0.001        1

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. 27  **÷**-3  = \_\_\_\_\_\_\_?  
      32      8  
  
=  27  x ( 8 )  
    32      -3  
  
=  216 ÷ 24   
    -96 ÷ 24  
  
=  9   
   -4  
  
**= -2 ¼  \*Ans.**

40. 2 **¾** x 4 = \_\_\_\_\_\_\_\_?  
  
= 11  x ~~4~~  
    ~~4~~  
  
**= 11 \*Ans.**

41.  -1  +  5  = \_\_\_\_\_\_\_.  
        4      6  
  
=  -3  +  10   
    12      12  
  
**= 7/12 \*Ans.**

42. (-11.1) + (12.32) = \_\_\_\_\_\_\_\_\_.  
  
  12.32  
- 11.1    
**1.22 \*Ans.**

43. What % of 50 is 15?  
  
B = 50; P = 15  
  
Rate =  P  x 100%  
            B  
  
        =  15  x 100%  
            50  
  
        =   3   x 100%  
           100  
  
**= 30% \*Ans.**

44. What % of 12 is 6 ?  
  
  
Rate =  P  x 100%  
            B  
  
        =  6   x 100%  
            12  
  
        =   1   x 100%  
             2  
  
**= 50% \*Ans.**

45. 36 / 720 = \_\_\_\_\_\_\_\_\_\_?  
  
             .05  
720 | 36.00  
         36.00  
           0  
  
**therefore 0.05 \*Ans.**

46. What is 1/4 % of 880?  
  
= 1/4 % x 880  
  
= 1/400 x 880  
  
= 880/400  
  
**= 2.2 \*Ans.**

47. What % of 2 and 1/2 is 1/2 ?  
  
Rate =   1/2   x 100%  
            2 ½  
  
        =  ½  x 100%  
           5/2  
  
        =  1  x  2  x 100%  
            2      5  
  
        =  1  x 100%  
            5  
 **= 20% \*Ans.**

48. 180 is 66 **⅔** % of what number?  
  
 **⅔** N = 180  
  
N = 180 ( 3 )  
                2  
  
**N = 270 \*Ans.**

49. **⅓** of what number is 42 ?  
  
 **⅓** x N = 42  
  
N = 42 **÷ ⅓**  
N = 42 x 3  
  
**N = 126 \*Ans.**

50. 8 ⅓**-**2  5  = \_\_\_\_\_\_\_\_?  
                   8  
  
8 ⅓ = 25/3  
  
2  5  = 21/8  
    8  
  
=  25  -  21   
     3       8  
  
=  8(25) - 3(21)   
           3(8)  
  
=  200 - 63   
         24  
  
=  137   
     24  
  
**= 5  17  \*Ans.**  
**24**

[**Mathematics Test II Solution - Page 69**](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-69-of-159.html)  
  
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 ~~weeks~~ x  7 days   
                      ~~weeks~~  
  
  
= 24 x 7 days  
  
**= 168 days \*Ans.**

3. Five hundred ninety-five days is how many weeks?  
  
= 595 ~~days~~ x  1 week   
                      7 ~~days~~  
  
=  595  week  
       7  
  
**= 85 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 x 56) + 174  
  
    = 1008 (174)  
  
**= 1182 students \*Ans.**

5. Richard bowled 3 games and got scores of 139, 153, and 128. What was his average score for the three games?  
  
Average =  139 + 153 + 128   
                              3  
  
              =  420   
                    3  
 **= 140 \*Ans.**

6. What time will it be 3 and 1/2 hours after 7:15 PM?  
  
= 7:15 + 3:30  
  
**= 10: 45 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 is now 6:75  
  
6:75 - 3:30 =**3:45 AM \*Ans.**

8. The fraction 52 / 91 expressed in lowest term is \_\_\_\_\_?  
  
 52  =  52  /  13   
 91      91  /  13  
  
**=  4  \*Ans.**  
**7**

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 :  
  
 600 km  x $10          =     $750  
  8 km  
  
CAR B :  
  
  
 600 km  x $10          =     $500  
  12 km  
  
$750 - $500 = **$250 \*Ans.**

10. Change 31/17 to a mixed number.  
  
          1       
17 /  31  
        17     
        14  
  
**therefore, the mixed number is 1  14  \*Ans.**  
**17**

11. 40 is what part of 64?  
  
Part =  40   
           64  
  
       =  40 / 8   
           64 / 8  
  
**=  5  \*Ans.**  
**8**

12. Change 13  3  to an improper fraction.  
                        7  
  
Just multiply 7 to 13 then add 3 and over it by 7.  
  
7 x 13 = 91 + 3 = **94 / 7 \*Ans.**

13. What is the average speed in kph of a car travelling 160 kilometers in 5 hours?  
  
Ave. Speed =  distance   
                           time  
  
                   =  160 km   
                           5 hrs.  
  
**= 32 kph \*Ans.**

14.  3  +  1  +  1  = \_\_\_\_\_\_\_\_\_\_\_?  
       4      6      8  
  
  
=  18  +  4  +  3   
    24     24    24  
  
=  25   
    24  
  
**= 1  1  \*Ans.**  
**24**

15. 15  1  - 8  3   = \_\_\_\_\_\_\_\_\_\_\_?  
            3        4  
  
15 and 1/3 is also = 46/3  
8 and 3/4 is also = 35/4  
  
=  46  -  35   
     3        4  
  
=  4(46) - 3(35)   
         3(4)  
  
=  184 - 105   
          12  
  
=  79   
    12  
  
**= 6   7  \*Ans.**  
**12**

16. 8 inches is what part of a foot?  
  
1 FOOT = 12 INCHES  
  
8 inches = 8 ~~inches~~ x     1 foot     
                                12  ~~inches~~  
  
             =  8  ft.  
                12  
  
**= 2/3 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 =  (4 workers) 4 days   
                8 jobs  
  
k =  2 workers days   
                 job  
  
No. of days for 12 jobs for 6 workers  
  
N = 2 ~~worker~~ days  x    12~~jobs~~   
              ~~job~~              6 ~~workers~~  
  
**N = 4 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  
  
Profit =  $62  x 300 books  
            book  
  
         = $18,600  
  
HSETR  
  
  
Profit =  $50.50  x 300 books  
               book  
  
  
         = $17,675  
  
Difference in Profit = $18,600 - $17,675  
                             **= $925 \*Ans.**  
  
therefore the CATR yield $925 more profit than the HSETR

19. Mr. Jose Suobiron inherited 5/8 of his father's estate. He sold 2/5 of his share. What part of the entire estate did he sell?  
  
Let x - represents the whole state.  
  
 5 x - is the share of Mr. Suobiron  
 8  
  
N = part of the estate that he sold  
  
N =  5  x  2   
        8      5  
  
    = 10 / 40  
  
 **= 1/4 of the estate was sold by Mr. Suobiron \*Ans.**

20. 13 and 1/3 ounces is what part of a pound?  
  
16 OUNCES = 1 POUND  
  
= 13  1  ounces x  1 pound   
         3                  ounces  
  
=  40  x  1  pounds  
     3      16  
  
**= 5 / 6 pounds \*Ans.**

21. 126 is 3/7 of what number?  
  
 3 N = 126  
 7  
  
    N = 126 ( 7 )  
                    3  
    N = 882 / 3  
  
**N = 294 \*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 ~~yards~~ x  36 inches **÷** 408 parts  
                            ~~yards~~  
  
    = 51 x 36 x   1   inches/part  
                      408  
  
**= 4.5 inches / part \*Ans.**

23. A water tank is 7/8 full. When 21 liters of water is drawn out, the tank is 5/8 full. What is the total capacity of the tank in liters?  
  
Let x - be the total capacity of the tank.  
  
 7 x - 21 =  5 x  
 8               8  
  
  
 7 x -  5 x = 21  
 8       8  
  
 2 x = 21  
 8  
  
 1 x = 21  
 4  
  
x = 21 ( 4 )  
             1  
  
x = 21(4)  
  
**x = 84 \*Ans.**

24. A painter completes 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.  
  
 2  : 3 =  7  : x               7  is  part of the job that is unfinished. 1 -  2  =  7   
 9           9                    9                                                              9      9  
  
 2 x = 3( 7 )  
 9           9  
  
  
 2 x =  21   
 9         9  
  
 x =  21  (~~9~~)  
         ~~9~~     2  
  
x =  21   
        2  
  
**x = 10.5 days \*Ans.**

25. A boy spent $320, which was 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.  
  
 5 x = $320  
 7  
  
x = 320 ( 7 )  
               5  
  
**x = $448 \*Ans.**

26. 0.0075 x 1000 = \_\_\_\_\_\_\_\_\_\_\_?  
  
To multiply numbers by 10n, move the decimal point of the number to n places to the right.  
  
0.0075 x 1000 = 0.0075 x 103               n = 3 this represents the no. of zero decimals : move the  
                     **= 7.5 \*Ans**                  decimal point 3 places to the right.

27. Express 0.572 as a common fraction in lowest term?  
  
0.572 =  527              0.572 - this has 3 decimal places remove the decimal point and  
             1000                          replace it by the denominator of 103 = 1000.  
  
=  572 / 4   
   1000 / 4  
  
**=  143  \*Ans.**  
**250**

28. Of the following which is the closest approximation to the product 0.33 x 0.41 x 0.625 x 0.83 = \_\_\_\_\_?  
  
0.33   = 1/3  
0.41   = 2/5  
0.625 = 5/8  
0.83   = 5/6  
  
=  1 x 2 x 5 x 5   
    3 x 5 x 8 x 6  
  
=  50   
   720  
  
**= 5 / 72 \*Ans.**

29. Dividing by 0.125 is the same as multiplying by \_\_\_\_\_\_\_\_\_?  
  
=     1      
   0.125  
  
      1   
=    1   
      8  
  
= 1 x  8   
          1  
  
**= 8 \*Ans.**

30. If a copper wire is 3.7 feet long, its length in inches is \_\_\_\_\_\_\_\_?  
  
3.7 feet = 3.7 feet x  12 inches   
                                   foot  
  
**44.4 inches \*Ans.**  
  
44.4 inches is between 44 and 45

31.         9       = \_\_\_\_\_\_\_\_\_?  
      0.09 x 0.9  
  
          9       
=    9   x  9   
   100    10  
  
         9      
=     81      
     1000  
  
= 9 x  1000   
            81  
  
**=  1000  \*Ans.**  
**9**

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 ~~pens~~ x  1 ~~dozen~~  x  $90   
                     12 ~~pens~~   ~~doz.~~  
  
= 6 x $90  
  
= $540  
  
Cost in buying per piece :  
  
= 72 x $7.75  
  
= 558  
  
Amount Saved = $558 - $540  
            **= $18 \*Ans.**

33. Two countries produce 1/8 and 3/10 respectively of the world production of aluminum. What fraction of the world production do the two nations produce together?  
  
N =  1  +  3   
        8     10  
  
    =  5  +  12   
       40     40  
  
 **=  17  \*Ans**  
**40**

34. Of 20 is 25 % of x + 7, then x = \_\_\_\_\_\_\_\_?  
  
25 % ( x + 7 ) = 20  
  
1/4 ( x + 7 ) = 20  
  
x + 7 = 20 x 4  
  
x + 7 = 80  
  
x = 80 - 7  
  
**x = 73 \*Ans.**

35. If 5 x 5 x Z = 15 x 15 x 15, then Z = \_\_\_\_\_\_\_\_\_?  
  
5 x 5 x Z = 15 x 15 x 15  
  
Z =  15 x 15 x 15   
             5 x 5  
  
Z = 3 x 3 x 15  
  
**Z = 135 \*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  
  
8: 05 AM       +      : 45 min-class      +      x     +    :45 min-class      +     x     +    :45 min-class     +    x  
+   :45 min-class     +      x      +     :45 min-class       =      12:00  
  
8:05 + 5(45 minutes) + 4x    =  12:00  
  
8:05 + 225 minutes + 4x       =  12:00  
  
8:05 + 3 hrs & 45 min + 4x  =  12:00  
  
11:50 + 4x = 12:00  
  
4x = 10 minutes  
  
x = 10 / 4  
  
**x = 2.5 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  
  
No. of people = x + 7 -15 + 3              No. of empty seats      = x - (x - 5)  
No. of people = x - 5                            No. of empty seats      = x - x + 5  
                                                           **No. of seats                = 5 \*Ans.**

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  
  
 x + 134 + 150 + 145  = 149  
                  4  
  
x + 429 = 4 (149)  
  
x + 429 = 596  
  
x = 596 - 429  
  
**x = 167 \*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 :  
  
    P   x     1 hr    =  9 pages   
 8 hrs    60 mins      12 mins  
  
  P   =   9   
480     12  
  
P =  9  (480)  
      12  
    
   = 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.  
  
 4  :  80 minutes =  1  : x  
 5                          5  
  
 4 x = 80 ( 1 )  
 5              5  
  
x = 80 ( 1 )  5   
             5    4  
  
   = 20 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?  
  
 3 x =  2   
 8        5  
  
    x =  2 ( 8 )  
           5     3  
  
    x =  16   
           15  
  
 3  x  =  3  ( 16 )  
 4          4    15  
  
**3  x  =  4  \*Ans.**  
**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?  
  
t1 = distance / rate  
    = 240 km / 60 kph  
    = 4 hrs.  
  
t2 = distance / rate  
    = 240 km / 40 kph  
    = 6 hrs.  
  
rate =  total distance   
              total time  
  
       =  240 + 240   
               4 + 6  
  
       =  480   
            10  
  
**= 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  
  
rate = 60  mi  x      1 hr      x  5280 ft   
                hr      3600 sec      1 mile  
  
       =  60 (5280)    ft    
               3600      sec  
  
     **= 88  ft  \*Ans.**  
**sec**

44. What is 0.05 percent of 6.5 ?  
  
= 0.05% x 6.5  
  
= 0.0005 x 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?  
  
 8  =   8 /  4   
52     52 / 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  
  
H =  (16)(10)  ~~pipe~~ - hours  x  9 ~~tanks~~   
              8               ~~tanks~~        12 ~~pipes~~  
  
    =  16 x 10 x 9   
            8 x 12  
  
    =  1440   
          96  
  
**= 15 hours \*Ans.**

47. Mr. Cruz borrows $360,000. If he pays back $378,000 after one year, what is his interest rate?  
  
I = F - P  
  
I = $378,000 - $360,000 = 18,000  
  
rate =  I  x 100%  
         Pt  
  
      =  $18,000  x 100%  
        $360,000  
  
**= 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 =  $3,600  x (2 x 15 man-days)  
        6 x 3  
  
   =  $3,600 x 30   
               18  
  
   = 200 x 30  
  
**= $6,000 \*Ans.**

49. What is 6% of 2.5 ?  
  
6% of 2.5  
  
=   6   x  25   
   100     10  
  
=  150   
   1000  
  
**= 3 / 20 \* Ans.**

50. What is the value of 60 x 31 x 36 x 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 x 1 x 6 x 7 = 0  
  
Therefore, the answer is : **468, 720 \*Ans.**

[**Mathematics Test III Solution - Page 81**](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-81-of-159.html)  
  
Solutions  
  
1. If 9x - 7 = 18y then  9x - 7  = \_\_\_\_\_\_\_\_?  
                                       6  
  
9x - 7 = 18y  
  
 9x - 7  =  18y   
    6            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 MP - 0.125 MP = $175  
  
0.875 MP = $175  
  
7/8 MP = $175 (note : 7/8 is the fraction form of 0.875)  
  
MP = $175 x (8/7)  
  
**MP = $200 \*Ans.**

3. A town house unit was sold fir $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 M  
  
1.25C = $2.5M  
  
 1.25C  =  $2.5M   
 1.25          1.25  
  
C = $2M  
  
The new selling price that would yield at 10% profit on the cost would be :  
  
= $2M + 0.10 ($2M)  
= $2M + 0.20M  
**= $2.2M \*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 - r1) (1 - r2)...(1 - rn)]  
  
for r1 = 5% and r2 = 10%  
  
R = 1 - [(1 - 0.05) (1 - 0.10)]  
    = 1 - [(0.95) (0.90)]  
    = 1 - 0.855  
  **= 0.145 or 14.5% \*Ans.**

5. How many miles are there in 40 kilometers?  
  
1 mile = 1.6 kilometers  
  
40 kilometers = 40 ~~km~~ x  1 mile   
                                      1.6 ~~km~~  
  
                     **= 25 miles \*Ans.**

6. If water tank can be filled 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 ÷  7   
          4  
  
= 1 x  4   
          7  
  
**=  4  \*Ans.**  
**7**

7. If 5 items cost d dollars how much would x items cost at the same rate?  
  
The cost of x items =  d x  
                                  5  
  
                          **=  dx  \*Ans.**  
**5**

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?  
  
Rate =  8000 - 1600  x 100%  
                 8000  
  
        =  6400  x 100%  
            8000  
  
        = 0.8 x 100%  
  
**= 80% \*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;  
  
a + b = 11 + 9  
         = 22 + 18  
         = 33 + 27 and so on...

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?  
  
   1 whole job   x 1 ~~man~~ x 8~~days~~  
4 ~~men~~ x 2 ~~days~~  
  
 8 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 - ( 1  +  1 )  
             10     4  
  
  = 1 - (2 + 5)  
              20  
  
  =  20  -  7   
      20     20  
  
**= 13 / 20 \*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 chioces.  
  
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 \*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 \*Ans.**

14. If 10 parts of alcohol is mixed with 15 parts of water, what part of the mixture is alcohol ?  
  
The part of the mixture is alcohol =      10      
                                                      10 + 15  
  
                                                  =  10   
                                                      25  
  
                                            **= 2/5 \*Ans.**

15. If 2/5 of the workers in a factory go on vacation is September and 1/3 of the remainder take theirvacation 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 - [ 2  +  1  (1 -  2 )]  
           5       3          5  
  
  
= 1 - [ 2  +  1  ( 3 )]  
          5       3    5  
  
  
= 1 - [ 2  +  1  ]  
           5      5  
  
= 1 -  3   
          5  
  
**=  2  \*Ans.**  
**5**

16. A bill was passed by a vote of 7 : 5 . What part of the vote counts were in favor of the bill?  
  
The part of the vote in favor of the bill :     7     
                                                            7 + 5  
  
                                                       **= 7 / 12 \*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?  
  
d1/2 =  1  hr. x  60 km  = 30 km  
           2             hr  
  
  
d1/4 =  1  hr. x  120 km  = 30 km  
           4              hr  
  
Average speed =  total distance   
                               total time  
  
 ( 30 + 30 )   
 ( 1  +  1 )  
   2      4  
  
  
 ( 30 + 30 ) km.  
        3  hr.  
        4  
  
60 ( 4 ) kph  
        3  
  
**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 minutes  
  
= 24 ~~minutes~~ x    1 hr     
                       60 ~~min~~  
  
=  24 / 60 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      The number of boys : 3x = 3(4) = 12  
  
      10x = 40      The number of girls  : 7x = 7(4) = 28  
  
          x =  40     since the desired ratio of boys to girls  
                 10     is 2 : 1 .  
  
          x = 4        the required number of boys is 2 x 28 = 56  
                          so 56 - 12 = **44 more boys are needed. \*Ans.**

20. If 45 feet of uniform wire weigh 5 kilograms, what is the weight of 30 yards o the same wire ?  
  
Let x - be the length of 30 yards of the same wire.  
  
30 yards x  3 feet  = 90 feet  
                  yard  
  
 x  =  5   
90    45  
  
 x  =  1   
90     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  
  
 1 x = 4 ( 1 )  
15          20  
  
 x  =  1   
15    5  
  
x =  1  (15)  
       5  
  
**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% =  7.5   
             100  
  
          =  75   
             100  
  
        **=  3  \*Ans.**  
**40**

24. Write 3/8 % as decimal.  
  
3/8 % = 0.375 %  
  
     **= 0.00375 \*Ans.**

25. Find 40% of 60.  
  
= 0.40 x 60  
  
**= 24 \*Ans.**

26. Find 70% of 60.  
  
= 0.70 x 60  
  
**= 42 \*Ans.**

27. What is 175% of 24 ?  
  
P = Rate x Base  
   = 1.75 x 24  
**= 42 \*Ans.**

28. What percent of 60 is 42 ?  
  
R =  P  x 100%  
       B  
  
**R = 70% \*Ans.**

29. 54 is 20% of what number ?  
  
N = 54 **÷** 0.20  
  
    = 540 / 2  
  
**= 270 \*Ans.**

30. 24 is 150% of what number ?  
  
24 = 1.5 x N  
  
N = 24 / 1.5  
  
N = 240 / 15  
  
**N = 16 \*Ans.**

31. How many thirty- seconds are there in 62 ½ % ?  
  
 N   =  62 ½ %  
32  
  
 N   =   5   
32        8  
  
N    =   5  (32)  
            8  
  
**N    =  20 \*Ans.**

32. A shirt marked $560 is sold for $392. What was the rate of discount ?  
  
Rate =    discount     x 100%  
           original price  
  
        =  $560 - $392  x 100 %  
                $560  
  
        =  $168  x 100%  
            $560  
  
**= 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.  / 1  +  1     =  \_\_\_\_\_\_\_\_\_ ?  
    √ 25    144  
  
          \_\_\_\_\_\_\_\_\_  
=       / 144  +  25   
      √    25     144  
  
          \_\_\_\_\_\_\_\_\_  
=       /      169       
      √  (25 ) (144)

=           13       
        (5 ) (12)  
  
**=   13 / 60 \*Ans.**

35. A basketball team has won 24 games out of 36 games played. It has 24 more games to play. How many ofthese must the team win to make its record 80% for the season ?  
  
The total number of wins = 80% x (total no. of games played)  
                                      = 0.80 x ( 36 + 24 )  
                                      = 0.80 ( 60 )  
                                      = 48  
  
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 ⅓  % what is the net effect on gross revenue ?  
  
Revenue = price x no. items sold  
R = P x N  
  
Rorig = PN  
  
If prices are reduced by 25%  
  
Rnew = ( P - 25% P) ( N + 33 ⅓  N )  
  
         = ( P - ¼ P ) ( N + ⅓ N )  
  
         = ( ¾ P ) ( 4/3 N )  
  
Rnew = PN  
Rnew = Rorig  
  
**The revenues remain the same \* Ans.**

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 ?  
  
Let x - be the length of the shorter rope.  
Let 8 - x be the length of the larger rope  
  
x =  3  ( 8 - x )  
       5  
  
5x = 3 ( 8 - x )  
5x = 24 - 3x  
5x + 3x = 24  
8x = 24  
**x = 3 meters \* Ans.**

38. When the gasoline guage 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?  
  
Let x - be the capacity in liters  
  
x -  1 x = 52.5  
      2  
  
 7 x = 52.5  
 8  
  
x = 52.5 ( 8 )  
                7  
  
**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 pints = 7 pints x  1 gal   
                            8 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 = s2  
36 =  s2  
        \_\_\_\_\_  
s = √ 36  
  
s = 6 cm.  
  
P = 4s  
   = 4 (6 cm.)  
**= 24 cm. \* Ans.**

42. A truck can carry a load of 8 / 9 tons. How many trips must the truck make to deliver 10 and 2 / 3 tons of sand?  
  
Let N - be the number of trips.  
  
N = 10 **⅔ ÷** 8/9  
  
    =  32  **÷**8   
         3       9  
  
    =  32  x  9   
         3       8  
  
**= 12 trips \* Ans.**

43. What is the value of  
  
 6a2b3  
\_\_\_\_\_\_ if a = 2 and b = 3 ?  
    9  
  
  
   6a2b3  
= \_\_\_\_\_\_  
      9  
  
  
   6(2)2(3)3  
= \_\_\_\_\_\_\_\_  
        9  
  
  
   6(4)(27)  
= \_\_\_\_\_\_\_\_  
        9  
  
**= 72 \* Ans.**

44.  Z +  4  = 4  
              Z  
This problem can be solved the easiest way by substituting each choice to Z.  
  
**Z = 1**  
1 +  4  = 4  
       1  
  
1 + 4 = 4  
  
      5 ≠ 4  
  
  
**Z = 2**  
  
2 +  4  = 4  
       2  
  
2 + 2 = 4  
  
     **4 = 4 \* Ans.**

45.  1 **÷**1  = \_\_\_\_\_\_\_\_\_ ?  
       x     1   
              x  
  
=       1 •   x   
         x     1  
 **=  1 \* Ans.**

          \_\_\_\_\_\_  
46. x √0.0004  =  4 : x  =  \_\_\_\_\_\_\_ ?  
  
x (0.02) = 4  
x           =    4     
                0.02  
x           =  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  
  
part =  length of the shortest part   
              length of entire wire  
  
       =   x    
          13x  
  
      **= 1 / 13 \* Ans.**

48. What is the average of the first 20 positive integers ?  
  
Average =  sum of the numbers   
                numbers of items added  
  
              =  1 + 2 + + 3 + 4 + 5 + 6 + 7 .... + 20   
                                            20  
 **= 10.5 \* 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 ?  
  
Commission = 5% (6000) + 8% (80,000 - 60,000)  
  
                    = 0.05 (60,000) + 0.08 (20,000)  
  
                    = 3,000 + 1,600  
  
               **= $ 4, 600 \* Ans.**

        \_\_\_\_\_\_\_\_\_  
50.  /  12  +  12   
    √    27      9  
  
        \_\_\_\_\_\_\_\_\_  
       /   4  +   4   
    √    9       3  
  
        \_\_\_\_\_\_\_\_\_  
       /   4  +  12   
    √          9

        \_\_\_\_\_  
       /   16   
    √     9  
  
**= 4 / 3 \* Ans.**

[**Mathematics Test IV Solution - Page 93**](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-93-of-159.html)  
  
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 depreciationcost ?  
  
Yearly depreciation cost =  depreciation   
                                          no. of years  
  
                                      =   $ 1,200,000 - $ 600,000   
                                                              5  
  
                                      =  $ 600,000   
                                                 5  
  
                                  **= $ 120, 000 per year \* 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 ?  
  
Cost of the 550 sheets =     $ 44      x 550 sheets  
                                      100 sheets  
  
                                   = $ 44 x 5.5  
  
                              **= $ 242 \* 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 )  
  
Cost =  $ 25 x  2" x 2" x 12" bd. ft.   
           bd. ft.               12"  
  
**= $ 1, 500 \* Ans.**

5. The decimal form of 0.56 % is \_\_\_\_\_\_\_\_\_\_ ?  
  
Move 2 decimal places to the left (100%).  
  
**0.56 % = 0.0056 \* Ans.**

6. If 3 feet = 1 yard, how many yards are there in 27 feet ?  
  
3 feet : 1 yard = 27 feet : x yard  
  
3 : 1 = 27 : x  
   3x = 1(27)  
   3x = 27  
     x = 27 / 3  
**x = 9 yards \* Ans.**

7. How many feet are there in 9 and 1/3 yards ?  
  
Given that 1 yard = 3 feet :  
  
1 yard : 3 feet = 9 ⅓ yards : x feet  
  
1 : 3 = 9 ⅓ : x  
1(x) = 3(9 ⅓)  
    x = 3 (28/3)  
**x = 28 feet \* 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 ?  
  
Net Price = $ 69, 950 - 20 ($69,950)  
               = $ 69, 950 - $13,390  
               **= $ 55, 960 \* 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 thearticle ?  
  
Total Amount to be paid = $ 99.80 + 0.10 ($99.80)  
                                      = $ 99.80 + $ 9.98  
                                   **= $ 109.78 \* 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 \* 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 x 1.05  
  
       **= $ 151.20 \* 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 x 30) sq. meters x  $ 3, 500   
                                                      sq. meters  
  
                 = 14 x 30 x $3,500  
  
              **= $ 1, 470, 000 \* 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 \* 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 \* 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?  
  
Part of the money spent =   $ 630 / $ 210   
                                         $ 1050 / $ 210  
  
                                  **= 3 / 5 \* Ans.**

16. MS. Cecille Garcia saves 18% of her monthly salary of $ 16, 500. How much does she saved in a year?  
  
Amount of money saved = 0.18 x  $ 16, 500  x 12 ~~month~~  
                                                     ~~month~~              year  
  
                                      = 0.18 x $ 16, 500 x 12  
  
                          **= $ 35, 640 \* Ans.**

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 ?  
  
Total price of the car = **⅓** x $ 150, 000 + 10 x $ 11, 000  
  
                                = $ 50, 000 + $ 110, 000  
  
                             **= $ 160, 000 \* Ans.**

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 ?  
  
Selling price          =          $ 12, 500 x ( 1 +  3  )  
                                                                    20  
  
                            =          $ 12, 500 ( 23 )  
                                                          20  
  
                         **=          $ 14, 375 \* Ans.**

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 =  $ 2, 440, 000   
             1.22  
  
**x = $ 2, 000, 000 \* 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 - 0.15 x = $ 1530  
  
0.85x = $ 1530  
  
x =  $ 1540   
         0.85  
  
**x = $ 1, 800 \* 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 ?  
  
Amount saved = 4 x ( $ 60.00 - $ 47.50)  
                      = 4 x $ 12.50  
                     **= $ 50.00 \* Ans.**

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 =  km  x 6 ½ hours  
          hr  
  
= (60 x 6 ½ ) km  
  
= [60 x 6 + 60 ½ ] km  
  
= 360 + 30  
  
**= 390 km \* Ans.**

23. The sum of √ 81    +  √ 100    is \_\_\_\_\_\_\_\_ ?  
  
square root of 81 is 9 and  
square root of 100 is 10  
  
**therefore, 9 + 10 = 19 \* 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 \* 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 hrs + 24 / 60 hr.  
       = 3 and **⅖**  hrs.  
  
distance = rate x time  
  
=  35 miles  x 3 **⅖** hrs  
        hr  
  
= (35 x 3 **⅖**) miles  
  
= (35 x 3) + (35 + **⅖)** miles  
  
= [105 + 14] miles  
  
**= 119 miles \* Ans.**

26. Elmer can deliver newspaper in his route for 1 **½** hours. Wowie who takes his place one day finds that it takes him 1 **½** longer to deliver these. How long will it take to deliver the papers if they work together ?  
  
In one hour,  
  
Elmer can do  1  =  1  =  2  of the job  
                      1      3      3  
  
Wowie can do           1        =  1  of the job  
                       1  **½ +**1  **½**3  
  
(Part of the job finished in 1 hr.) **x**  
(no. of hours) = 1 whole job  
  
( **⅔ + ⅓**) x N = 1  
  
 3  x N = 1  
 3  
  
1 x 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 sock 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 :  1  = 54 :  1   
      12           18  
  
N( 1 ) =  1  (54)  
    18     12  
  
                  27    3  
N =  1  x ~~54~~ x ~~18~~ days  
       ~~12~~  
        2  
  
**N = 81 days \* Ans.**

29. Find the next number in the series 1, 4, 9, 16, \_\_\_\_\_ ?  
  
12 = 1  
22 = 4  
32 = 9  
42 = 16  
**52 = 25 \* Ans.**

30. A bag is sold for $680 while marked at $800. What was the rate of the discount ?  
  
rate of discount =     discount    x 100 %  
                           marked price  
  
                        =  800 - 680  x 100%  
                                800  
                    
                        =  120  x 100%  
                            800  
  
                     **= 15 % \* Ans.**

31. Six hundred examinees passed the Licensure Examination last year. This represents the 8 ⅓ percent of the total examinees. How many examinees failed the exam?  
  
let F - be the number of examinees who failed  
  
8  ⅓ % : 600  =  ( 100 - 8  ⅓ ) % : F  
  
 1  : 600 =  11  : F  
12              12  
  
  
 1  F =  11  ( 600 )  
12        12  
  
**F = 6, 600 \* Ans.**

32. If 4 miles = 6.44 km, then 14.49 km equals how many miles ?  
  
4 miles : 6.44 km   =  x miles : 14.49 km  
  
4 : 6.44 = x : 14.49  
   6.44x = 4 (14.49)  
   6.44x = 57.96  
          x = 57.96 / 6.44  
 **x = 9 miles \* Ans.**

33.  (a2 - 4b2) c  is equivalent to ac + \_\_\_\_\_\_\_\_\_ ?  
      (a + 2b)  
  
=  (a + 2b) (a - 2b)  x c  
       (a + 2b)  
  
= (a - 2b) x c  
= ac - 2bc  
**= ac + (-2bc) \* 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 ?  
  
Girls = 5 / 9 (total number of students)  
  
        = (5 / 9) 54  
  
     **= 30 girls \* Ans.**

35. Solve for x :  
  
ax = bx + cx - d,       a ≠ b ≠ c.  
  
d = bx + cx - ax  
d = x (b + c - a)  
x =        d         
      (b + c - a)  
  
  
**x =        d        \* Ans**  
**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 ?  
  
Original number of men;  
  
( 5 / 8 ) x 2, 400  =  1, 500  
  
Original number of women;  
  
( 3 / 8 ) x 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)  
  
Rold = pq  
Rnew = (p - 0.20p) x (q x 0.25q)  
         = (0.80p)(1.25) pq  
         = (0.80)(1.25) pq  
         = 1 pq  
Rnew = Rold  
  
**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?  
  
 Sum of the items added    =   average  
    no. of items added  
  
 x + y + (other number)    = xyz  
                 3  
  
  
~~3~~[ x + y + (other number)    = xyz ] 3  
                ~~3~~  
  
  
 x + y + other number      =  3  xyz  
  
         **other number      = 3 xyz - (x + y) \* Ans.**

[**Mathematics Test IV Solution - Page 102**](http://cscreviewer.blogspot.com/2013/03/civil-service-commission-professional-or-sub-professional-reviewer-page-102-of-159.html)  
  
39. When + 13 is added to - 15, the sum is \_\_\_\_\_\_\_ ?  
  
Sum = +13 + (-15)  
**Sum = -2 \* Ans.**

40. When -15 is subtracted from -18, the difference is \_\_\_\_\_\_\_?  
  
Difference = -18 - (-15)  
Difference = -18 + 15  
**Difference = -3 \* Ans.**

41. When the product of (-4) and (-17) is divided by 2, the quotient is \_\_\_\_\_ ?  
  
Product =  (-4) (-17)   
                        2  
             = 68 / 2  
         **= 34 \* Ans.**

42. If 5x + 17 = 32, then x = \_\_\_\_\_\_\_\_\_ ?  
  
5x + 17 = 32  
        5x = 32 - 17  
        5x = 15  
          x = 15 / 5  
        **x = 3 \* Ans.**

43. Solve for M :  
  
 M  -  M  = 4  
 7       3  
  
 3M  -  7M  = 4  
  21      21  
  
 -4M  = 4  
   21  
  
M = ~~4~~ ( -21 )  
              ~~4~~  
**M = -21 \* Ans.**

44. If x + y = 4a and x - y = 2b then y = \_\_\_\_\_\_ ?  
  
x + y = 4a           ------->         x = 4a - y  
x - y = 2b            ------->        x = 2b + y  
  
x = x  
2b + y = 4a - y  
  y + y = 4a - 2b  
      2y = 4a - 2b  
  
      ~~2~~y =  4a - 2b   
      ~~2~~           2  
  
        y = ~~4~~a - ~~2~~b   
                  ~~2~~  
      **y = 2a - b \* Ans.**

45. If 0.37 m = 0.0111 then m = \_\_\_\_\_ ?  
  
m =  0.0111   
         0.37  
  
    =  11.1   
          37  
  
**= 0.3 \* Ans**

46. If 1 / M = 4 and S = 2, what is S in terms of M ?  
  
Since S = 2  
  
4 =  1   
      M  
  
2 (2) =  1   
            M  
  
2 S   =  1   
            M  
 **S   =  1**  
**2M    \* Ans.**

47. A horse is tied to a pole with a rope of 7 meters long. How much grazing area does it have?  
(use π = 22 / 7).  
  
Area = π r2  
        = π (7m)2  
        =  22  (~~49m~~2)  
            ~~7~~  
        = 22 (7m2)  
        **= 154m2 \* Ans.**

48. What number is missing in this sequence : 5, 7, 11, 17, \_\_\_\_\_\_\_\_ ?  
  
5 + 2 = 7  
7 + 4 = 11  
11 + 6 = 17  
17 + 8 = 25  
  
**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 x 4 = 20  
  
**therefore, 20 numbers \* Ans.**

50. What is the value of x in 5 : x = x : 125 ?  
  
5 : x = x : 125  
x (x) = 5 (125)  
x2 = 625  
        \_\_\_\_\_  
x = √ 625  
**x = 25 \* Ans.**

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  
  
N : 126 = 1 : 7  
N (7) = 126 (1)  
7N = 126  
  N = 126 / 7  
**N = 18 \* Ans.**

Solutions  
  
1. What number is as much more than 8 as it is less than 32 ?  
  
Let x - be the number  
  
x - 8 = 32 - x  
x + x = 32 +8  
    2x = 40  
      x = 40 / 2  
    **x = 20 \* 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  
  
No. of trips = (No. of crates) x  volume  x          1 trip           
                                                crate         volume of the van  
  
               N = 200 ~~crates~~ x  6 ~~m~~~~3~~  x       1 trip         
                                          ~~crate~~     (3 x 5 x 4)~~m~~~~3~~  
  
               N =  (200) (6)   
                       3 x 4 x 5  
  
               N =  1200   
                         60  
  **N = 20 trips \* Ans.**

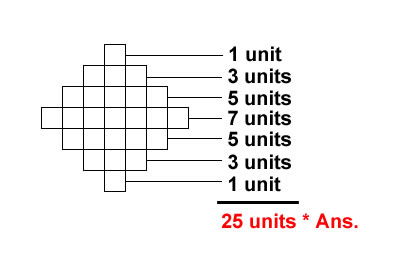
3. A rectangular block of copper, with dimensions 4m x 6m x 9m, is melted and recast into a cubical block. Find the length of the side of the cubical block.  
  
Vcubical block   =   Vrectangular block  
  
S3 = (4 x 6 x 9) m3  
S3 = 216 m3  
          \_\_\_\_\_\_  
S = ∛216 m3  
  
**S = 6m \* Ans.**

4. There are 9 male teachers for every 14 female teachers. If there are 69 teachers in all, how many teachersare female?  
  
 9 : 14  =  Male : Female   
   23                 69  
  
No. of Female teachers  =  (69 / 23) x 14  
                                      = 3 x 14  
                                    **= 42 \* Ans.**

                                                                     \_\_\_  
5. What would be the closest approximation to√ 66    ?  
  \_\_\_  
√ 64   =  8  
 **\_\_\_**  
**√ 66   ≅ 8.1 \* 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.  
  
( 1  +  1  +  1 ) N = 1  
  1      2      3  
  
  
( 6  +  3  +  2 ) N = 1  
          6  
  
                  11  N = 1  
                   6  
                        N = 1 x  6  (reciprocal of 11 / 6)  
                                     11  
                      **N = 6 / 11 day \* Ans.**

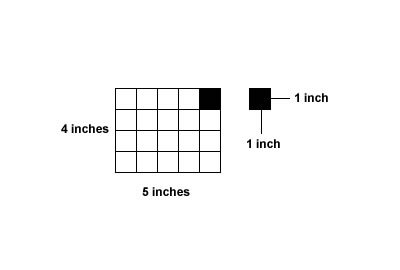
7. In the figure, all the line segments meet at right angles and each segments has a length of 1 unit. What is the area of the figure in square units?

[](http://1.bp.blogspot.com/-QfUcGP1xLCU/UTVVz0gGAmI/AAAAAAAANmk/flmDWxKHU1k/s1600/figure-6.jpg)

8. If x - 3 = y, then (y - x )3 = \_\_\_\_\_ ?  
  
If x - 3 = y;  
  
     -3 = y - x  
(-3)3 = (y - x)3  
**-27 = (y - 3)3 \* Ans.**

9. A speed of 90 km per hour is equivalent to how many meters per second?  
  
=  90 km  x     1 hr     x  1000 m   
       hr        3600 sec        km  
  
=  90 x 1000   m   
        3600       hr  
  
**= 25  m   \* Ans.**  
**sec**

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?

[](http://1.bp.blogspot.com/-YbSucyJUEW8/UTVY2IWrP8I/AAAAAAAANm0/aampNH_0v_U/s1600/figure-7.jpg)

**There are 20 squares \* Ans**