42. The ratios of pure milk and water in two vessels are 3 : 1 and 7 : 5 respectively. If equal quantities of the mixtures of the vessels are mixed together, them the ratio of pure milk and water in the new vessel is
A. 1 : 2 C. 5 : 3
B. 2 : 1 D. 3 : 5

43. A certain sum of money is distributed among two friends in the ratio of 5 : 11. If one of them got P1,200 more than the other, the total sum was
A. P 2,000 C. P 3,200
B. P 2,200 D. P 3,600

44. An amount is divided among A, B, and C in the ratio of 4 : 7 : 11 respectively. if 40% of the amount A received is P120, what is the difference between the amounts received by B and C?
A. 400 C. P 800
B. P 200 D. P 300

45. A monkey ascends a greased pole 21 m high. In the first minute he ascends 5 m and in the next minute he descends 3 m. If he continues this process, in how many minutes will he reach the top?
A. 17 minutes C. 21 minutes
B. 10.5 minutes D. 40 minutes

46. Two pipes A and B fill a cistern in 24 minutes and 32 minutes respectively. Assuming that both pipes are opened simultaneously, when must the first tap be turned off so that the cistern may be filled in 16 minutes?
A. After 10 minutes C. after 8 minutes
B. After 12 minutes D. after 16 minutes

47. A thief steals a scooter at 1 P.M. and drives at the speed of 45 km/hr. The theft is discovered at 2 P.M. and the owner chases him at 54 km/hr. He will be caught at
A. 7 P.M. C. 8 P.M
B. 6 P.M. D. 6:30 P.M.

48. Three globes of copper whose radii are 3 cm, 4 cm and 5 cm respectively are melted to form a new globe. The radius of new globe, given that the volume of a globe varies as the cube of its radius is
A. 5 cm C. 9 cm
B. 6 cm D. 12 cm

49. The force of attraction between two bodies of mass, m_1 and m_2 respectively varies directly as the product of their masses and inversely as the square of the distance between them. If the masses of the bodies and the distance between them is doubled, the force of attraction will become
A. Four times C. half
B. Two times D. will not change

50. A major project accounts for one-third of the course grade. The rest of the course grade is determined by the quiz average. A student has quiz grades of 82, 80, 99, and 87, each counting equally. What does the project grade need to be to raise the student's average to 90?
A. 96 C. 69
B. 86 D. 76

51. A shopkeeper buys two types of tea one at P 700 for 10 kg and the other at P 770 for 10 kg. He mixes the two types and the mixture is sold at P 840 for 10 kg. His percentage profit is
A. $14\frac{2}{7}$ C. $12\frac{9}{11}$
B. $16\frac{1}{11}$ D. $14\frac{1}{7}$

52. Sid has $4.85 in coins consisting of nickels, dimes and quarters. If he has six more nickels than dimes and twice as many quarters as dimes, how many coins does he have?
A. 34 C. 22
B. 19 D. 31

53. Two numbers are each positive and one number is 3 less than twice the other number. Their product is 35. Which of the following can be used to find the two numbers?
A. (x-3)(2x)=35 C. (x)(3 -2x)=35
B. (x)(2x-3)=35 D.(x-3)(2x-3)=35

54. Three consecutive integers are such that twice the smallest plus 3 times the middle one plus 4 times the largest is 155. What is the sum of these three integers?
A. 48 C. 51
B. 54 D. 38

Practice Problems

1. Twice the sum of two numbers is 28. The sum of their squares is 100. What is the product of the two numbers?
A. 56 C. 28
B. 48 D. 64

2. Three times the first of three consecutive odd integers is three more than twice the third. Find the third integer.
A. 12 C. 10
B. 15 D. 18

3. The ten's digit of a certain two digit number exceeds the unit's digit by four and is one less than twice the unit's digit. Find the number.
A. 65 C. 95
B. 85 D. 59

4. A merchant marked a certain product for P 180, which is 20% off the normal retail price. If the retail price is 50% higher than the wholesale price, what is the wholesale price of the product?
A. P 120 C. P 130
B. P 150 D. P 140

5. A man sold a watch for P 3500 at a loss of 30% on the cost price. Find the corresponding loss or gain if he sold it for P 5,050.
A. 1% gain C. 1% loss
B. 2% gain D. 2% loss

6. At what time between 4 and 5 o'clock will the hands of the clock be at right angle for the first time?
A. 4:5.45 C. 4:5.23
B. 4:6.42 D. 4.7.62

7. In a certain factory, the ratio of the number of male to female workers is 2:3. If one hundred new female workers are hired, the number of female workers will increase to 65 % of the total number of workers. Find the original number of workers in the factory.
A. 600 C. 700
B. 800 D. 900

8. The difference of the cubes of two positive numbers is 2402 and the cube of their difference is 8. Find the smaller number.
A. 21 C. 19
B. 20 D. 18

9. Three cats can kill 3 rats in 3 minutes. How many minutes will it take for 100 cats to kill 100 rats?
A. 3 C. 100
B. 33.33 D. 300

10. If w varies directly as the product of x and y and inversely as the square of z and that w = 4 when x = 2, y = 6 and z = 3. Find w when x = 1, y = 4 and z = 2.
A. 3 C. 4
B. 2 D. 1

11. A boat takes 2/3 as much time to travel downstream than to travel upstream. If the rate of the water current is 8 kph, what is the rate of the boat in still water?
A. 38 kph C. 40 kph
B. 42 kph D. 45 kph

12. How many minutes after 10:00 o'clock will the hands of the clock be opposite each other for the first time?
A. 22.76 C. 20.45
B. 21.81 D. 21.48

13. The electrical resistance of a piece of wire is inversely proportional to the cross-sectional area. When the cross-sectional area is 5 mm2 its resistance is 7.02 ohms. Compute the resistance when the cross-sectional area is 9 mm2.
A. 4 C. 8
B. 2 D. 5

14. The weight W of an object above the earth varies inversely as the square of the distance d from the center of the earth. If a man weighs 180 pounds on the surface of the earth, what would his weight be at an altitude 1000 miles? Assume the radius of the earth to be 4000 miles.
A. 92.5 C. 28.8
B. 115.2 D. 56.2