12. The real part of $\dfrac{2i^{12}+3i^{13}+4i^{14}+5i^{15}+6i^{16}}{1-i}$ is

    A. -8

    B. 2

    C. 6

    D. 16

[2018-DSE-MATHS 2-36]

13. If a is a real number, then the real part of
$\dfrac{4+i^5}{a+i} - i^6$ is

    A. $\dfrac{4a+1}{a^2-1}$

    B. $\dfrac{4a+1}{a^2+1}$

    C. $\dfrac{a^2+4a+2}{a^2-1}$

    D. $\dfrac{a^2+4a+2}{a^2+1}$

[2019-DSE-MATHS 2-34]

14. Define $z_1 = \dfrac{2+ki}{1+i}$ and $z_2 = \dfrac{k+5i}{2-i}$, where k is a
real number. If the imaginary part of z_1 is equal
to the imaginary part of z_2, then $z_1 - z_2 =$

    A. -20

    B. 0

    C. 3

    D. 10

[2020-DSE-MATHS 2-37]

Interest

1. It is agreed to repay a loan of $1000, with interest at 8½% per annum on the amount owing, in equal yearly instalments starting at the end of one year.

   If this instalment is $75, how long will it take to repay the loan?

   A. Within 5 years
   B. Between 5 and 10 years
   C. Between 10 and 15 years
   D. Between 15 and 20 years
   E. Never

   [1972-CE-MATHS B1-4]

2. Mr. Wong puts $10,000 into Bank X and he also puts $10,000 into Bank Y. The simple interest per year from Bank X is $50 more than that from Bank Y. If the interest rate of Bank Y is 5% per annum, what is the interest rate per annum of Bank X?

   A. 10%
   B. 7.5%
   C. 5.5%
   D. 5.05%
   E. 4.5%

   [1977-CE-MATHS 2-4]

3. If p are deposited in a bank at r% compound interest per annum compounded half-yearly, the amount after n years is

   A. $\$p\left(1+\dfrac{r}{100}\right)^{n}$.

   B. $\$p\left(1+\dfrac{r}{200}\right)^{n}$.

   C. $\$p\left(1+\dfrac{r}{2}\right)^{2n}$.

   D. $\$p\left(1+\dfrac{r}{100}\right)^{2n}$.

   E. $\$p\left(1+\dfrac{r}{200}\right)^{2n}$.

   [1977-CE-MATHS 2-17]

4. $\$P$ amounts to $\$Q$ in n years at simple interest. The rate per annum is

   A. $\dfrac{100n(Q-P)}{P}\%$.

   B. $\dfrac{100(Q-P)}{n}\%$.

   C. $\dfrac{100(Q-P)}{nP}\%$.

   D. $\dfrac{100(Q-P)}{nQ}\%$.

   E. $100\left[\left(\dfrac{Q}{P}\right)^{\frac{1}{n}}-1\right]\%$.

   [1980-CE-MATHS 2-33]

5. What will $\$P$ amount to in 3 years' time if the interest is compounded monthly at 12% per annum?

   A. $\$P\left(1+\dfrac{36}{100}\right)$

   B. $\$P\left(1+\dfrac{1}{100}\right)^{36}$

   C. $\$P\left(1+\dfrac{12}{100}\right)^{36}$

   D. $\$P\left(1+\dfrac{12}{100}\right)^{3}$

   E. $\$P\left(1+\dfrac{1}{100}\right)^{3}$

   [1982-CE-MATHS 2-9]

6. $10 000 is invested for 2 years at 10% per annum, compounded half-yearly. The compound interest, correct to the nearest dollar, is

   A. $12 155 .
   B. $2 155 .
   C. $2 100 .
   D. $2 000 .
   E. $1 025 .

   [1984-CE-MATHS 2-9]

7. If the compound interest on $1000 for two years at 9% p.a., payable half-yearly is x, find x.

   A. $1000\times\dfrac{9}{100}\times2$

   B. $1000\left(1+\dfrac{9}{100}\right)^{4}$

   C. $1000\left(1+\dfrac{4.5}{100}\right)^{4}$

   D. $1000\left(1+\dfrac{9}{100}\right)^{2}-1000$

   E. $1000\left(1+\dfrac{4.5}{100}\right)^{4}-1000$

   [1986-CE-MATHS 2-13]

8. Find, correct to the nearest dollar, the compound interest on $10000 at 8% p.a. for 4 years, compound half-yearly.

   A. $3 200
   B. $3 605
   C. $3 686
   D. $13 200
   E. $13 686

   [1987-CE-MATHS 2-15]

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9. Find the difference between simple interest and compound interest (compounded annually) on a loan of $1000 for 4 years at 6% per annum. (The answer should be correct to the nearest dollar.)

   A. $22
   B. $196
   C. $540
   D. $760
   E. $1022

   [1988-CE-MATHS 2-12]

10. At the beginning of a year, a man borrows $1000 from a bank at 5% per annum, compounded yearly. He promises to repay $300 at the end of each year. How much will he still owe the bank just after the second repayment?

    A. $402.5
    B. $450
    C. $487.5
    D. $500
    E. $502.5

    [1989-CE-MATHS 2-14]

11. Find the amount (correct to the nearest dollar) of $10000 at 12% p.a., compounded monthly, for 2 years.

    A. 10 201
    B. 12 400
    C. 12 544
    D. 12 697
    E. 151 786

    [1990-CE-MATHS 2-14]

12. A man borrows $10000 from a bank at 12% per annum compounded monthly. He repays the bank $2000 at the end of each month. How much does he still owe the bank just after the second repayment?

    A. $6181
    B. $6200
    C. $6201
    D. $8304
    E. $8400

    [1991-CE-MATHS 2-15]

13. A sum of $10000 is deposited at 4% p.a., compounded yearly. Find the interest earned *in the second year*.

    A. $16
    B. $400
    C. $416
    D. $800
    E. $816

    [1992-CE-MATHS 2-12]

14. Which of the following gives the compound interest on $10000 at 6% p.a. for one year, compounded monthly?

    A. $10000 \times \dfrac{0.06}{12} \times 12$

    B. $10000\,(1.06^{12} - 1)$

    C. $10000\left(1 + \dfrac{0.06}{12}\right)^{12}$

    D. $10000\left[\left(1 + \dfrac{0.06}{12}\right)^{12} - 1\right]$

    E. $10000\left[\left(1 + \dfrac{0.6}{12}\right)^{12} - 1\right]$

    [1993-CE-MATHS 2-43]

15. Find the interest on P at r% p.a. for n years, compounded half-yearly.

    A. $P(1 + 2r\%)^{n} - P$

    B. $P(1 + r\%)^{n} - P$

    C. $P(1 + r\%)^{2n} - P$

    D. $P\left(1 + \dfrac{r}{2}\%\right)^{n} - P$

    E. $P\left(1 + \dfrac{r}{2}\%\right)^{2n} - P$

    [1995-CE-MATHS 2-13]

16. Find the interest on $10 000 at 16% per annum for 2 years, compounded half-yearly. Give the answer correct to the nearest dollar.

    A. $1 664
    B. $3 456
    C. $3 605
    D. $7 424
    E. $8 106

    [1997-CE-MATHS 2-38]

17. A bank offers loans at an interest rate of 18% per annum, compounded monthly. A man took a loan of $20 000 and repays the bank in monthly instalments of $4 000. Find the outstanding balance after his first instalment.

    A. $16 000
    B. $16 240
    C. $16 300
    D. $18 880
    E. $19 600

    [2001-CE-MATHS 2-16]

18. The simple interest on a sum of money at $r\%$ p.a. for 4 years is equal to the compound interest on the same amount at 4% p.a. for 4 years compounded half-yearly. The value of r, correct to 2 significant figures, is

   A. 2.1 .
   B. 4.2 .
   C. 4.3 .
   D. 9.2 .

   [2002-CE-MATHS 2-12]

19. A sum of $8 000 is deposited at 1% p.a., compounded yearly. Find the interest earned after 4 years. Give the answer correct to the nearest dollar.

   A. $303
   B. $320
   C. $324
   D. $325

   [2003-CE-MATHS 2-12]

20. A sum of $14 000 is deposited at 4% per annum for 5 years, compounded yearly. Find the interest correct to the nearest dollar.

   A. $2 378
   B. $2 800
   C. $3 033
   D. $3 034

   [2006-CE-MATHS 2-11]

21. A sum of $30 000 is deposited at an interest rate of 12% per annum for 4 years, compounded monthly. Find the amount correct to the nearest dollar.

   A. $44 400
   B. $47 206
   C. $48 141
   D. $48 367

   [2007-CE-MATHS 2-11]

22. A sum of $30 000 is deposited at an interest rate of 5% per annum for 2 years, compounded yearly. Find the interest correct to the nearest dollar.

   A. $3 000
   B. $3 075
   C. $3 114
   D. $3 122

   [2009-CE-MATHS 2-11]

23. A sum of $40 000 is deposited at an interest rate of 4% per annum for 3 years, compounded quarterly. Find the amount correct to the nearest dollar.

   A. $44 800
   B. $44 995
   C. $45 046
   D. $45 073

   [2010-CE-MATHS 2-14]

24. A sum of $15 000 is deposited at an interest rate of 6% per annum for 10 years, compounded monthly. Find the interest correct to the nearest dollar.

   A. $9 000
   B. $11 863
   C. $12 291
   D. $27 291

   [2011-CE-MATHS 2-10]

Price

25. A hawker sells eggs. The selling price of one dozen eggs is equal to the cost price of 20 eggs. What is his profit per cent?

   A. 20%
   B. $33\frac{1}{3}\%$
   C. 40%
   D. 60%
   E. $66\frac{2}{3}\%$

   [1978-CE-MATHS 2-36]

26. The cost price of tooth-brushes is $18 per dozen. At what price must each one be sold in order that the profit made is 40% of the cost price?

   A. $2.40
   B. $2.10
   C. $1.90
   D. $1.50
   E. $1.30

   [1979-CE-MATHS 2-20]

27. A man sold a car for $35 000 at a loss of 30% on the cost price. What would have been the loss or gain percent if he had sold it for $50 500?

   A. A gain of 10%
   B. A gain of 1%
   C. No gain nor loss
   D. A loss of 10%
   E. A loss of 1%

   [1980-CE-MATHS 2-12]

28. The marked price of a book is x. 30% of this price is profit. If the book is sold at a discount of 20%, what will the profit then be?

A. $0.04x$
B. $0.06x$
C. $0.1x$
D. $0.24x$
E. $0.56x$

[1981-CE-MATHS 2-13]

29. A merchant sold 100 chairs. 80 of them were sold at a profit of 30% on each chair, while 20 of them were sold at a loss of 40% on each chair. What is his percentage gain or loss on the whole stock?

A. A loss of 80%
B. A loss of 10%
C. A gain of 8%
D. A gain of 16%
E. A gain of 24%

[1981-CE-MATHS 2-17]

30. The marked price of a book is $240. If the book is sold at a discount of 20%, the profit will be 20% of the cost price. What is the cost price of the book?

A. $153.6
B. $160
C. $192
D. $200
E. $240

[1982-CE-MATHS 2-13]

31. A man marks his goods at a price that will bring him a profit of 25% on the cost price. If he wants to sell his goods to a friend at the cost price, the percentage discount on the marked price should be

A. 25%.
B. 20%.
C. $16\frac{2}{3}\%$.
D. 15%.
E. 12%.

[1983-CE-MATHS 2-15]

32. A merchant sold 2 articles each at $1000. For the first article, he gained 25% on the cost price. For the second article, he lost 20% on the cost price. Altogether

A. he gained $100.
B. he gained $50.
C. he lost $100.
D. he lost $50.
E. he lost $48.

[1983-CE-MATHS 2-42]

33. The marked price of a book is 20% above the cost price. If the book is sold at a discount of 10% off the marked price, what is the gain per cent based on the cost price?

A. 8%
B. 10%
C. 12%
D. 18%
E. None of the above.

[1984-CE-MATHS 2-16]

34. A hawker bought 120 apples and the cost was $90. It was found that $\frac{1}{8}$ of the apples were rotten and could not be sold. He sold the rest at $1 each. What percentage of the cost was the profit?

A. $11\frac{1}{9}\%$
B. $14\frac{2}{7}\%$
C. $16\frac{2}{3}\%$
D. $28\frac{4}{7}\%$
E. $33\frac{1}{3}\%$

[1985-CE-MATHS 2-12]

35. The marked price of a book is double that of its cost. In a sale, what percentage discount was given if the profit made was 20% of the cost?

A. 10%
B. 20%
C. 30%
D. 40%
E. 50%

[1985-CE-MATHS 2-13]

36. The marked price of an article is originally P. The marked price is then increased so that when a discount of 10% is made on the new marked price, the selling price is still P. What is the new marked price?

A. $\frac{9}{10}P$
B. $\frac{109}{100}P$
C. $\frac{11}{10}P$
D. $\frac{111}{100}P$
E. $\frac{10}{9}P$

[1986-CE-MATHS 2-39]

37. If the selling price of 5 pens is the same as the cost price of 6 pens, the percentage profit in selling a pen will be

   A. $16\frac{2}{3}\%$.

   B.   20% .

   C.   60% .

   D. $116\frac{2}{3}\%$.

   E.   120% .

   [1987-CE-MATHS 2-16]

38. Peter bought an article for $x. He sold it to Mary at a profit of 20%. Mary then sold it to John for $90 at a loss of 25%. Find x.

   A.   56.25
   B.   81
   C.   90
   D.   100
   E.   144

   [1987-CE-MATHS 2-35]

39. If a flat is sold for $720 000, the gain is 20%. Find the percentage loss if the flat is sold for $540 000.

   A.   5%

   B. $6\frac{1}{4}\%$

   C.   10%

   D. $11\frac{1}{9}\%$

   E. $33\frac{1}{3}\%$

   [1990-CE-MATHS 2-15]

40. P sold an article to Q at a profit of 25%. Q sold it to R also at a profit of 25%. If Q gained $500, how much did P gain?

   A. $250
   B. $320
   C. $333
   D. $400
   E. $500

   [1991-CE-MATHS 2-43]

41. By selling an article at 10% discount off the marked price, a shop still makes 20% profit. If the cost price of the article is $19 800, then the marked price is

   A. $21 600 .
   B. $26 136 .
   C. $26 400 .
   D. $27 225 .
   E. $27 500 .

   [1992-CE-MATHS 2-44]

42. A merchant marks his goods 25% above the cost. He allows 10% discount on the marked price for a cash sale. Find the percentage profit the merchant makes for a cash sale.

   A.   12.5%

   B.   15%

   C.   22.5%

   D.   35%

   E.   37.5%

   [1993-CE-MATHS 2-18]

43. A wholesaler sells an article to a retailer at a profit of 20%. The retailer sells it to a customer for $3 600 at a profit of $720. Find the original cost of the article to the wholesaler.

   A. $2 304
   B. $2 400
   C. $2 880
   D. $3 000
   E. $3 456

   [1994-CE-MATHS 2-10]

44. The marked price of a toy is $120 and the percentage profit is 60%. If the toy is sold at a discount of 20%, the profit is

   A. $14.40 .
   B. $21.00 .
   C. $24.00 .
   D. $33.60 .
   E. $48.00 .

   [1995-CE-MATHS 2-44]

45. Shop A offers a 10% discount on a book marked at $$P$. Shop B offers a 15% discount on the same book marked at $$Q$. If the selling price of the book is the same in both shops, express Q in terms of P.

   A. $Q = P + 5$

   B. $Q = \frac{17}{18}P$

   C. $Q = \frac{20}{21}P$

   D. $Q = \frac{21}{20}P$

   E. $Q = \frac{18}{17}P$

   [1996-CE-MATHS 2-14]

46. A man bought a box of 200 apples for $500. 10 of the apples were rotten and the rest were sold at $4 each. Find his percentage profit correct to 2 significant figures.

    A.   34%
    B.   38%
    C.   52%
    D.   57%
    E.   60%

    [1998-CE-MATHS 2-14]

47. A man bought two books at $30 and $70 respectively. He sold the first one at a profit of 20% and the second one at a loss of 10%. On the whole, he

    A.   lost 1%.
    B.   lost 10%.
    C.   gained 1%.
    D.   gained 10%.
    E.   gained 13%.

    [2000-CE-MATHS 2-14]

48. The cost price of a toy is $100 and the marked price is $140. If the toy is sold at 10% discount of the marked price, the profit is

    A. $26.
    B. $30.
    C. $36.
    D. $50.

    [2002-CE-MATHS 2-14]

49. The marked price of a book is 20% above the cost. If the book is sold at a 10% discount on the marked price, then the percentage profit is

    A.   2%.
    B.   8%.
    C.   10%.
    D.   18%.

    [2004-CE-MATHS 2-12]

50. Peter sold two flats for $999 999 each. He lost 10% on one and gained 10% on the other. After the two transactions, Peter

    A.   gained $10 101.
    B.   gained $20 202.
    C.   lost $10 101.
    D.   lost $20 202.

    [2005-CE-MATHS 2-12]

51. The marked price of a car is 50% higher than the cost. If the car is sold at a 20% discount on the marked price, then the percentage profit is

    A.   10%.
    B.   20%.
    C.   30%.
    D.   40%.

    [2006-CE-MATHS 2-10]

52. The marked price of a bag is $900. If the bag is sold at the marked price, then the percentage profit is 50%. If the bag is sold at a 20% discount on the marked price, then the profit is

    A. $120.
    B. $180.
    C. $210.
    D. $270.

    [2008-CE-MATHS 2-12]

53. If a dictionary is sold at its marked price, then the percentage profit is 30%. If the dictionary is sold at a 20% discount on its marked price, then the profit is $5. Find the cost of the dictionary.

    A. $104
    B. $105
    C. $125
    D. $130

    [2009-CE-MATHS 2-10]

54. If the price of a magazine is 60% higher than the price of a newspaper, then the price of the newspaper is

    A.   37.5% lower than the price of the magazine.
    B.   40% lower than the price of the magazine.
    C.   60% lower than the price of the magazine.
    D.   62.5% lower than the price of the magazine.

    [2010-CE-MATHS 2-13]

Miscellaneous

55. A vessel contains 1,000 cm^3 of liquid A. 250 cm^3 of liquid B is added and the two liquids are thoroughly mixed. If 500 cm^3 of the mixture is now removed, how many percent of the remaining mixture is liquid B?

    A.   20
    B.   25
    C. $33\frac{1}{3}$
    D.   40
    E.   50

    [1977-CE-MATHS 2-3]

56. A new machine costs $10 000. Its value depreciates each year by 20% of the value at the beginning of that year. What is its value after it has been in use for 3 years?

A. $4 000
B. $5 000
C. $5 120
D. $6 000
E. $7 000

[1979-CE-MATHS 2-21]

57. A driver wishes to reduce his travelling time by 20%. By what percentage must he increase the speed of his car?

A. 20%
B. $22\frac{1}{2}\%$
C. 25%
D. 75%
E. 80%

[1979-CE-MATHS 2-39]

58. A group consists of n boys and n girls. If two of the girls are replaced by two other boys, then 51% of the group members will be boys. What is n?

A. 50
B. 51
C. 52
D. 100
E. 102

[1981-CE-MATHS 2-14]

59. A child spent $\frac{1}{10}$ of his savings on a shirt and $\frac{1}{5}$ of his savings on a pair of trousers. He then spent 30% of the rest of his savings on books. What percentage of his savings did he spend altogether?

A. 49.6%
B. 50.4%
C. 51%
D. 58%
E. 60%

[1982-CE-MATHS 2-10]

60. The rent of a flat is raised by 30% every two years beginning from a fixed date. Counting from that date, after how many years will the rent just exceed twice the original rent?

A. 4 years
B. 5 years
C. 6 years
D. 7 years
E. Over 7 years

[1982-CE-MATHS 2-11]

61. Coffee A and coffee B are mixed in the ratio $1:2$. A profit of 20% on the cost price is made by selling the mixture at $36/kg. If the cost price of A is $12/kg, what is the cost of B?

A. $18/kg
B. $24/kg
C. $39/kg
D. $48/kg
E. $66/kg

[1982-CE-MATHS 2-16]

62. It took Paul 40 minutes to walk from Town A to Town B. If the return journey took him 30 minutes, the percentage increase in his speed was

A. 10%.
B. $16\frac{2}{3}\%$.
C. 25%.
D. $33\frac{1}{3}\%$.
E. 40%.

[1983-CE-MATHS 2-41]

63. Last year, a man saved 10% of his income. By how much per cent must his income be increased if his expenditure increases by 20% and he wants to save 20% of his income?

A. 50%
B. 35%
C. 30%
D. 20%
E. 15%

[1984-CE-MATHS 2-40]

64. 60% of the students in a school are boys. 70% of the boys and 40% of the girls wear glasses. If 696 students wear glasses, how many students are there in the school?

A. 1200
B. 1050
C. 808
D. 849
E. 800

[1985-CE-MATHS 2-15]

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65. A number is first reduced by $p\%$ and then increased by $x\%$. If the number so obtained is the same as the original number, then $x =$

A. p.

B. $\dfrac{p}{100}$.

C. $\dfrac{p}{1-p}$.

D. $\dfrac{100}{100-p}$.

E. $\dfrac{100p}{100-p}$.

[1985-CE-MATHS 2-41]

66. Ten litres of a mixture contain 60% of alcohol and 40% of water by volume. How many litres of water should be added so that it contains 30% of alcohol by volume?

A. 5
B. 10
C. 15
D. 20
E. 30

[1986-CE-MATHS 2-41]

67. Last year, the cost of a school magazine consisted of:

cost of paper $8
cost of printing $5
cost of binding $3

This year, the cost of paper will increase by 25% and the cost of printing will increase by 40% while the cost of binding will remain unchanged. The cost of a school magazine will increase by

A. 20%.
B. 25%.
C. 27.5%.
D. 32.5%.
E. 65%.

[1988-CE-MATHS 2-13]

68. X sells an article to Y at a profit. Y then sells it to Z for $60 at a profit of 20%. If X had sold the article directly to Z for $60 much MORE profit would be have made?

A. $10
B. $12
C. $48
D. $50
E. It cannot be found.

[1988-CE-MATHS 2-41]

69. A car travels from P to Q. If its speed is increased by $k\%$, then the time it takes to travel the same distance is reduced by

A. $k\%$.

B. $\dfrac{100}{k}\%$.

C. $\dfrac{100k}{100+k}\%$.

D. $\dfrac{k}{100+k}\%$.

E. $\dfrac{k}{100-k}\%$.

[1988-CE-MATHS 2-42]

70. A bag contains n balls of which 60% are red and 40% are white. After 10 red balls are taken out from the bag, the percentage of red balls becomes 50%. Find n.

A. 20
B. 40
C. 50
D. 60
E. 100

[1988-CE-MATHS 2-43]

71. If A is greater than B by 20% and B is smaller than C by 30%, then

A. A is smaller than C by 16%.
B. A is smaller than C by 6%.
C. A is greater than C by 6%.
D. A is greater than C by 10%.
E. A is greater than C by 16%.

[1989-CE-MATHS 2-13]

72. If A is 30% greater than B and B is 30% less than C, then

A. A is 9% less than C.
B. C is 9% less than A.
C. $A = C$.
D. A is 9% greater than C.
E. C is 9% greater than A.

[1990-CE-MATHS 2-42]

73. 3 kg of a solution contains 40% of alcohol by weight. How many alcohol should be added to contain a solution containing 50% of alcohol by weight?

A. 0.3 kg
B. 0.6 kg
C. 0.75 kg
D. 1.5 kg
E. 3.75 kg

[1991-CE-MATHS 2-42]

74. Originally $\frac{2}{3}$ of the students in a class failed in an examination. After taking a re-examination, 40% of the failed students passed. Find the total pass percentage of the class.

    A. $26\frac{2}{3}\%$

    B. $33\frac{1}{3}\%$

    C. 40%

    D. 60%

    E. $73\frac{1}{3}\%$

    [1993-CE-MATHS 2-44]

75. Mr Chan bought a car for $143 900. If the value goes down by 10% each year, find its value at the end of the third year. (Give your answer correct to the nearest hundred dollars.)

    A. $94 400
    B. $100 700
    C. $104 900
    D. $115 100
    E. $116 600

    [1994-CE-MATHS 2-9]

76. There are 1 200 students in a school, of which 640 are boys and 560 are girls. If 55% of the boys and 40% of the girls wear glasses, what percentage of students in the school wear glasses?

    A. 47%
    B. 47.5%
    C. 48%
    D. 52%
    E. 53%

    [1997-CE-MATHS 2-10]

77. In a class, students study either History or Geography, but not both. If the number of students studying Geography is 50% more than those studying History, what is the percentage of students studying History?

    A. 25%

    B. $33\frac{1}{3}\%$

    C. 40%

    D. 60%

    E. $66\frac{2}{3}\%$

    [1999-CE-MATHS 2-11]

78. 40% of the students in a class failed in a test. They had to sit for another test in which 70% of them failed again. Find the percentage of students who failed in both tests.

    A. 10%
    B. 12%
    C. 18%
    D. 28%
    E. 30%

    [2001-CE-MATHS 2-27]

79. John's daily working hours have increased from 8 hours to 10 hours but his hourly pay has decreased by 25%. Find the percentage change in John's daily income.

    A. A decrease of 6.67%
    B. A decrease of 6.25%
    C. 0%
    D. An increase of 6.67%

    [2003-CE-MATHS 2-11]

80. If the bus fare is increased from $4 to $5, then the percentage increase of the fare is

    A. 20% .
    B. 25% .
    C. 80% .
    D. 125% .

    [2007-CE-MATHS 2-10]

HKDSE Problems

81. Mary sold two bags for $240 each. She gained 20% on one and lost 20% on the other. After the two transactions, Mary

    A. lost $20.
    B. gained $10.
    C. gained $60.
    D. had no gain and no loss.

    [SP-DSE-MATHS 2-10]

82. Peter invests $P at the beginning of each month in a year at an interest rate of 6% per annum, compounded monthly. If he gets $10 000 at the end of the year, find P correct to 2 decimal places.

    A. 806.63
    B. 829.19
    C. 833.33
    D. 882.18

    [SP-DSE-MATHS 2-39]

Provided by dse.life

83. John buys a vase for $1 600. He then sells the vase to Susan at a profit of 20%. At what price should Susan sell the vase in order to have a profit of 20%?

    A. $2 240
    B. $2 304
    C. $2 400
    D. $2 500

    [PP-DSE-MATHS 2-10]

84. In a company, 37.5% of the employees are female. If 60% of the male employees and 80% of the female employees are married, then the percentage of married employees in the company is

    A. 32.5%.
    B. 45%.
    C. 55%.
    D. 67.5%.

    [2012-DSE-MATHS 2-8]

85. Susan sells two cars for $80 080 each. She gains 30% on one and loses 30% on the other. After the two transactions, Susan

    A. loses $15 840.
    B. gains $5 544.
    C. gains $10 296.
    D. has no gain and no loss.

    [2013-DSE-MATHS 2-10]

86. A sum of $50 000 is deposited at an interest rate of 8% per annum for 1 year, compounded monthly. Find the interest correct to the nearest dollar.

    A. $4 000
    B. $4 122
    C. $4 143
    D. $4 150

    [2013-DSE-MATHS 2-11]

87. There are 792 workers in a factory. If the number of male workers is 20% less than that of female workers, then the number of male workers is

    A. 352.
    B. 360.
    C. 432.
    D. 440.

    [2014-DSE-MATHS 2-9]

88. If the price of a souvenir is increased by 70% and then decreased by 60%, find the percentage change in the price of the souvenir.

    A. −58%
    B. −32%
    C. 2%
    D. 10%

    [2015-DSE-MATHS 2-9]

89. A sum of $50 000 is deposited at an interest rate of 6% per annum for 3 years, compounded quarterly. Find the amount correct to the nearest dollar.

    A. $59 000
    B. $59 551
    C. $59 755
    D. $59 781

    [2015-DSE-MATHS 2-10]

90. The monthly salary of Donald is 25% higher than that of Peter while the monthly salary of Peter is 25% lower than that of Teresa. It is given that the monthly salary of Donald is $33 360. The monthly salary of Teresa is

    A. $31 275.
    B. $33 360.
    C. $35 584.
    D. $52 125.

    [2016-DSE-MATHS 2-10]

91. A sum of $2000 is deposited at an interest rate of 5% per annum for 4 years, compounded half-yearly. Find the interest correct to the nearest dollar.

    A. $400
    B. $431
    C. $437
    D. $440

    [2017-DSE-MATHS 2-10]

92. A sum of $100 000 is deposited at an interest rate of 2% per annum for 3 years, compounded monthly. Find the interest correct to the nearest dollar.

    A. $6 000
    B. $6 121
    C. $6 176
    D. $6 178

    [2018-DSE-MATHS 2-9]

93. A sum of \$65 000 is deposited at an interest rate of 7% per annum for 8 years, compounded quarterly. Find the amount correct to the nearest dollar.

    A. \$101 400

    B. \$111 682

    C. \$113 244

    D. \$113 609

[2019-DSE-MATHS 2-11]

94. The cost of a toy is x% lower than its selling price. After selling the toy, the percentage profit is 25%. Find x.

    A. 20

    B. 25

    C. 75

    D. 80

[2020-DSE-MATHS 2-9]