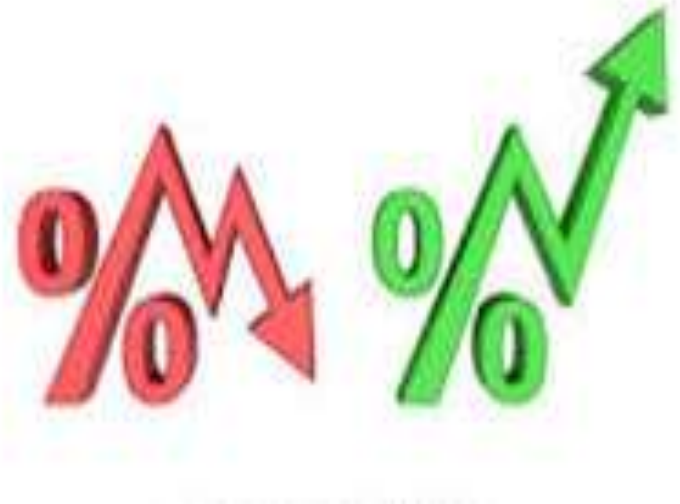
Explore | Expand | Enrich



Increase And Decrease

Or Successive increase

Concept :

If the price of a commodity increases by R%, then the reduction in consumption so as not to increase the expenditure is:

{R/(100+R)*100}%

If the price of a commodity decreases by R%, then the increase in consumption so as not to decrease the expenditure is:

{R/(100-R)*100}%

Value of machine after n years = p (1-R/100) power n.

If A is R% more than B, then b is less than A by 100*R/ (100+R) %.

If A is R% less than B, then b is more than A by 100*R/ (100-R) %.

Concept :

Increase or Decrease of a quantity

% increase/ decrease = (Quantity increase or decrease / original quantity) * 100

Example:

The salary of a man goes up from Rs. 100 to Rs. 125. What is the percentage increase in the salary?

Solution: Increase = 125-100 = Rs. 25 Therefore, % increase = 25/100 * 100% = 25%

Increase and Decrease by the same Percentage

Example:

A Shopkeeper marks up his goods by 20% but then to encourage sales, reduces the price by 20%. By doing so, he makes a profit and loss of:

Concept :

Solution:
Start with 100, after the first increase his price goes up to 120. Reducing 20% of 120, he will have to reduce Rs. 24 and new price is 120 – 24 = 96. So after increasing the price by 20% and reducing it by same percentage, he will make a 4% loss.

Successive Discounts
If successive discounts are made, then each successive discount must be calculated on the discounted price. Do not make the mistake of adding the discounts .

Example: A retail chain gives a discount of 50% and then to increase sales offers another 40% off. By doing this, it has effectively reduced prices by:

Solution: Start with 100, we arrive at 50 after first discount. Then another 40% discount is given, so we discount 50 by 40% and that gives us 20. So the effective price is 20 – 20 = 30, so the shopkeeper has effectively reduced prices by 70%.

Question: 01

A county cricket team has won 10 matches and lost 4. If the matches played represent 70% of the total matches in the tournament, then how many more matches should the team win so as to have a record of exactly 75% wins?

A. 5

B. 6

C. 4

D. 3

Answer:A

Explanation:

10 wins + 4 losses = 14 matches played.
The 14 matches played represent 70% of the total matches in the tournament.
70% → 14
100% → ?
Through cross multiplication, we have: The total matches in the tournament are 20.
For the team to have exactly 75% wins, it has to win 75% of (20) = 15 matches.
Since it has already won 10 matches, it still has to win 5 more matches.

Question: 02

A 90 liters solution has 10% salt. How many liters of water must be evaporated to leave the solution with 20% salt? (Note: Salt cannot be evaporated)

A. 50
B. 45
C. 30
D. 36

Answer:B

Explanation:

It is given that when a salt solution is said to evaporate, only the water content in it evaporates but not the salt.
Amount of salt in the solution = 10% (90) = 9 kg. after ‘x’ kg of water is evaporated, the amount of solution left behind = (90 – x) kg.
The amount of salt remains unchanged.
The latest percentage of salt in the solution =(9/90-x)*100
= 20 (given)
⇔ 900 = (90 - x) 20
⇔ 20x = 1800 – 900 = 900
⇔ x = 45.

Question: 03

In 2008, the price of a mobile phone increases by 20% with respect to that in 2007. By what percentage is its price in 2007 less than that in 2008?

A. 15%
B. 16.67%
C. 13.33%
D. 20%

Answer:B

Explanation:

Let us assume that price of mobile in 2007 be Rs. 100.
So price of mobile in 2008 = 20% more = 120
To make price in 2008 as 100, we need to multiply by 100/120
So, corresponding price in 2007 will be 100/120 * 100 = 83.33
Hence price is less by 16.67 %

Question: 04

A book-seller sold 30% of his books and left with 420 books. How many books did he have initially in his stock?

A. 1400

B. 1000

C. 800

D. 600

Answer:D

Explanation:

The initial number of books with the book seller is 100%.
If 30% of the books are sold he is left with 70%.
Given that 70% of the total books = 420 i.e., (70/100)*(total books) = 420.
So, total number of books= 420*100/70=600
Alternately, 70% → 420 books
100% → ? books
Through cross multiplication, we have: The total number of books = (100/700)*420=600

Question: 05

Due to inflation the total cost of monthly household items has gone up by 25%, but the salary of Gupta had increased by only 20%. Initially, Gupta is used to spend 40% of his salary on household items. What percentage of the present salary would Gupta spend to buy the same quantities of household items?

A. 40%

B. 41.33%

C. 41.67%

D. 42%

Answer:C

Explanation:

Assume that the salary of Mr Gupta is Rs 100
Expenditure on house hold items = 40
New Inflated expenditure = 1.25(40) = 50
New Salary = 120 % of Salary into this expenditure = 50/120 = 41.67%

Question: 06

Two numbers A and B are such that the sum of 5% of A and 4% of B is two-third of the sum of 6% of A and 8% of B. Find the ratio of A : B.

A.2 : 3
B.1 : 1
C.3 : 4
D.4 : 3

Answer:D

Explanation:

5% of A + 4% of B = 2/3(6% of A + 8% of B)
(5/100)A + (4/100)B = 2/3(6/100A + 8/100B)
1/20A + 1/25B = 1/25A + 4/75B
(1/20-1/25)A = (4/75 - 1/25)B
1/100A = 1/75B
A/B = 100/75 = 4/3
Ration = 4:3

Question: 07

In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was:

A.2700
B.2900
C.3000
D.3100

Answer:A

Explanation:

Number of valid votes = 80% of 7500 = 6000.
Number of valid votes = 80% of 7500 = 6000.
(4/100)*6000 = 2700

Question: 08

Gauri went to the stationers and bought things worth Rs. 25, out of which 30 paise went on sales tax on taxable purchases. If the tax rate was 6%, then what was the cost of the tax free items?

A.Rs. 15
B.Rs. 15.70
C.Rs. 19.70
D.Rs. 20

Answer:C

Explanation:

Let the amount taxable purchases be Rs. *x*
Then, 6% of *x* = 30/00
x=(30/100 * 100/6) = 5
Cost of tax free items = Rs. [25 - (5 + 0.30)] = Rs. 19.70

Question: 09

The population of a town increased from 1,75,000 to 2,62,500 in a decade. The average percent increase of population per year is:

A.4.37%
B.5%
C.6%
D.8.75%

Answer: B

Explanation:

Increase in 10 years = (262500 - 175000) = 87500.
Increase% = ((87500./ 175000)*100)% = 50%
Required average = (50/10)% = 5 %

Question: 10

Abhishek secures 42% of the total marks in an exam and gets 29 marks more than the pass mark. Anirban secures 29% of the total marks in the same exam and fails by 23 marks. What is the pass mark as a percentage of the total marks?

A. 28%

B. 32.25%

C. 34.75%

D. 35%

Answer:C

Explanation:

Let x be total marks in exam.
Passing marks = 0.42x – 29
Also, passing marks = 0.29x + 23
So, 0.42x – 29 = 0.29x + 23
⇒ 0.13x = 52
⇒ x = 400
Passing marks = 0.42x – 29 = 0.42(400) – 29 = 139
Pass marks as a percentage of total marks = 139/400 =34.75%

Question: 11

Sharma’s tutorial center was started in the year 2004. Every year a certain number of students enroll for class XII tutorials. This number increased by 20% every year. If the number of students in the year 2008 is 576 more than the number of students in the year 2007, how many students enrolled in the year 2005?

A. 2000

B. 2160

C. 2340

D. 2400

Answer:A

Explanation:

Let the number of students who enrolled in 2005 be x

So in subsequent years it will be 1.2 x for 2006,

1.44x for 2007 and 1.728x for 2008.

$1.728x - 1.44x = 576$

$\Rightarrow 0.288\ x = 576$

$\Rightarrow x = 2000$

Question: 12

The success rate of the Indian cricket team in Australia was 25% from 60 matches. If 54 matches were played since then, how many more matches would India have lost if its overall success rate is 50%?

A. 12

B. 14

C. 18

D. 22

Answer:A

Explanation:

From first 60 matches, India won 25% = 15 Wins.

For total 114 matches,

India won 50% = 57 Wins So in 54 matches,

India won 57 – 15 = 42 matches.

So, India lost 54 – 42 = 12 matches out of 54 matches.

Question: 13

The price of an LED TV has been decreasing every year by a constant percentage over the last 4 years. If the cost of the LED TV was Rs. 150000, 4 years ago and it costs Rs. 98415 now, then find the annual rate of decrease.

A. 8%

B. 9%

C. 10%

D. 15%

Answer:C

Explanation:

Average value for Actual / Original = $\sqrt{98415/150000} = 0.9$

Hence the value will be decrease by 10% every year.

Question: 14

If the area of a rectangle is increased by 56% and its breadth is increased by 20%, what is the percentage increase in its perimeter?

A. 20%

B. 24%

C. 30%

D. Indeterminate

Answer:D

Explanation:

Let L, B and A be length, breadth and Area of the rectangle.
Also let L', B' and A' be the new length, breadth and area of rectangle.
A' = 1.56 A
B' = 1.2 B
L' = A'/B' = (1.56/ 1.2) * A/B
⇒ L' = 1.3 L
So new perimeter = 2 L' + 2B' = 2.6 L + 2.4 B
And old perimeter = 2L + 2B
Increase in perimeter = 0.6 L + 0.4 B
% Change in perimeter = (0.6L+0.4B)/(2L+2B)
This will vary depending on values of L & B which are both unknown.
Hence this is indeterminate.

Question: 15

Rocket Singh is a salesman and has to choose between two schemes of remuneration. Scheme I has a fixed salary of Rs. 3700 and a commission of 2% on sales above Rs. 50000. Scheme II has no fixed salary, but offers 3% commission on the sales up to Rs. 50000 and increases at a rate of 1 percentage point for every increase of Rs. 50000 of sales up to a maximum of 20% of sales. What is the minimum value of the sales (in Rs.) above which he can prefer Scheme II?

A. 50000

B. 89000

C. 140000

D. No such sales value exists.

Answer:C

Explanation:

Let x be minimum salary at which he can start preferring Scheme II.
So, in scheme I his remuneration = 3700 + 0.02(x – 50,000)
Obviously the breakeven will happen in 3rd slab.
So, in scheme II his remuneration
= 0.03(50,000) + 0.04(50,000) + 0.05(x – 100,000) 3700 + 0.02(x – 50,000)
= 0.03(50,000) + 0.04(50,000) + 0.05(x – 100,000) ⇒ 3700 -1000
= 0.03x + 1500 + 2000 -5000
⇒ 0.03 x = 4200
⇒ x = 4200/0.03
⇒ x = 140,000

THANK YOU