Number System - Percentages

Percentage

Percent means many hundredths.Example: z% is z percent which means z hundredths. It will be written as:

$z\% = z/100$

p/q as percent: $(p/q \times 100)\%$

Commodity

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

$[R/(100 + R) \times 100]\%$

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

$[R/(100 - R) \times 100]\%$

Population

The population of a city is P and let it increases at the rate of R% per annum:

Population after t years: $P(1 + R/100)^t$

Population t years ago: $P/(1 + R/100)^t$

Depreciation

Let V be the present value of machine. Suppose it depreciates at the rate of R% per annum:

Machine's value after t years:$P(1 - R/100)^t$

Machine's value t years ago: $P/(1 - R/100)^t$

- **If P is R% more than Q, then Q is less than P by how many percent?**
  $[R/(100 + R) \times 100]\%$
- **If P is R% more than Q, then Q is more than P by how many percent?**
  $[R/(100 - R) \times 100]\%$

Practice Question on Percentages

Q 1 - What is fraction equivalent of 32%.

A - 6/30

B - 8/25

C - 7/50

D - 11:10

Q 2 - What is fraction equivalent of 160%.

A - 8/5

B - 9/5

C - 6/7

D - 6/23

Q 3 - What is decimal equivalent of 0.8%.

A - 0.008

B - 0.08

C - 0.8

D - 0.0008

Q 4 - What is decimal equivalent of 18%.

A - 0.0018

B - 0.18

C - 18

D - 0.018

Q 5 - What is decimal equivalent of 5%.

A - 0.0005

B - 0.005

C - 0.05

D - 0.5

Q 6 - What is decimal equivalent of 126%.

A - 1.26

B - 126

C - 12.6

D - 1260

Q 7 - What is decimal equivalent of 0.06%.

A - 0.6

B - 0.06

C - 0.006

D - 0.0006

Q 8 - What is 3/4 as per cent?

A - 45

B - 55

C - 65

D - 75

Q 9 - 45% of 280 + 28% of 450 = ?.

A - 352

B - 252

C - 452

D - 552

Q 10 - Which is largest in 50/3%, 2/15, 0.18, 3/7 ?

A - 0.18

B - 3/7

C - 2/15

D - 50/3%

Q 11 - 65% of a number is 21 less than 4/5 th of that number. Find the number.

A - 140

B - 130

C - 120

D - 110

Q 12 - What per cent is 120 of 90?

A - 400/3%

B - 400/6%

C - 200/3%

D - 200/6%

Q 13 - What percent is 5gm of 1kg?

A - 0.15%

B - 0.05%

C - 0.25%

D - 0.35%

Q 14 - What per cent is 120 ml of 3.5 liters?

A - 30/7%

B - 20/7%

C - 10/7%

D - 1/7%

Q 15 - If A's pay is 20% more than that of B, then what number of per penny is B's compensation not as much as that of A?

A - 50/3%

B - 60/3%

C - 70/3%

D - 80/3%

Q 16 - If A's salary is 25% not as much as that of B, then what number of per penny is B's compensation more than that of A?

A - 10/3%

B - 100/3%

C - 20/3 %

D - 200/3 %

Q 17 - If the cost of tea is expanded by 20%, by what amount of percent must the utilization of tea be lessened so as not to build the consumption?

A - 50/3%

B - 100/3%

C - 20/3%

D - 200/3%

Q 18 - If the cost of sugar falls by 10%, by how much per penny should a householder expand its utilization, so as not to diminish its use on sugar?

A - 100/9

B - 10/9

C - 100/3

D - 10/3

Q 19 - The tax on a commodity is diminished by 20% and its consumption increases by 15%. Find the effect on revenue.

A - 8% increase

B - 8% decrease

C - 10% decrease

D - 10% increase

Q 20 - The population of a town is 176400. It increases annually at the rate of 5% p.a. What will be its population after 2 years?

A - 194481

B - 294481

C - 394481

D - 494481

Q 1 - 88% of 370 + 24% of 210 - ? = 118

A - 258

B - 298

C - 320

D - 18

Q 2 - If 25% of a number is subtracted from a second number, the second number reduces to its five-sixth. What is the ratio of the first number to the second number?

A - 2:3

B - 3:2

C - 1:4

D - 4:1

Q 3 - A fruit seller had some fruits. He sells 40% of them and still has 420 of them. Originally, he had how many of them?

A - 800

B - 600

C - 700

D - 900

Q 4 - Siya secures 90%, 60% and 54% marks in test papers with 100, 150 and 200 respectively as maximum marks. The percentage of her aggregate marks is?

A - 72%

B - 70%

C - 75%

D - 64%

Q 5 - A sum of Rs 817 is divided among A, B and C such that A receives 25% more than B and B receives 25% less than C. What is the A share in the amount?

A - 228

B - 247

C - 285

D - 304

Q 6 - In a recent survey 40% houses contained 2 or more people. Of those houses containing only one person, 25% were having only a male. What is the percentage of all the houses which contain exactly one females and no males?

A - 75

B - 40

C - 15

D - 45

Q 7 - Water tax is increased by 30% but its consumption is decreased by 20%. Then, the increase or decreased in the expenditure of the money is

A - no change

B - 5% increase

C - 4% decrease

D - 4 % increase

Q 8 - 150% of 14+75% of 75 = ?

A - 2503.5

B - 2650.5

C - 2525

D - 2558.60

Q 9 - In an examination, 60% of the candidates passed in English and 70% of the candidates passed in Mathematics but 20% failed in both the subjects. If 2500 candidates passed in both the subjects, the number of candidates that appeared in the examination was:

A - 3000

B - 3500

C - 4000

D - 5000

Q 10 - After spending 15% on raw material, 30 % on machinery, 15% on furniture, 10% on machinery, Harish had a balance of 1300. The money with him was:

A - 3568

B - 4010

C - 3952

D - 4333

1Answer - B

Explanation

32% = 32/100 = 8/25.

2Answer - A

Explanation

160% = 160/100 = 8/5

3Answer - A

Explanation

0.8% = 0.8/100 = 0.008.

4Answer - B

Explanation

18% = 18/100 = 0.18

5Answer - C

Explanation

5% = 5/100 = 0.05

6Answer - A

Explanation

126% = 126/100 = 1.26

7Answer - D

Explanation

0.06% = 0.06/100 = 0.0006.

8Answer - D

Explanation

3/4= (3/4*100)% = 75%

9Answer - B

Explanation

45% of 280+28% of 450 = (450/100*280)(28/100*450)
= (126+126) = 252

10Answer - B

Explanation

162/3% = 50/(3*100) = 1/6 = 0.166, 2/15 =0.133, 3rd number = 0.18, 3/7 = 0.42.
Clearly, 3/7 is largest.

11Answer - A

Explanation

Let the number be x. Then,
(4/5 x)-(65% of x)= 21 => 4x/5-65x/100=21 => 4x/5-13x/20=21
=> 16x-13x=420 =>3x=420 ?x=140.
Required number = 140.

12Answer - A

Explanation

Required % = (120/90*100)%= 400/3%

13Answer - B

Explanation

Required % = (5/1000*100)%= 1/2%=0.05%

14Answer - A

Explanation

Required % = (150/3500*100)%= 30/7%

15Answer - A

Explanation

B's salary is less than that of A by is less than that of a by {R/((100+R))*100}%
= {20/((120))*100}% = 50/3%

16Answer - B

Explanation

B's salary is more than that of A by {R/((100-R))*100}%
= {25/((100-25))*100}% = (25/75*100)=100/3%

17Answer - A

Explanation

Reduction % in consumption = {R/((100+R))*100}%(20/120*100)%
= 50/3%

18Answer - A

Explanation

Increase % in consumption = {R/((100-R))*100}% = {10/((100-10))*100} = 100/9%

19Answer - B

Explanation

Let originally revenue obtained by Rs. x.
New revenue = (Consumption * Tax)
= (115% of 80% of Rs. x) = Rs(115/100*80/100*x)=Rs.92x/100
= 92% of the original.
Hence, the revenue is decreased by 8%.

20Answer - A

Explanation

Population after 2 years = $\{176400 * (1+5/100)^2\}$
176400* 21/20*21/20=194481.