Percentage

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Chapter: Percentage

(1) When a number is increased by 24, it becomes 104% of itself. What is the number?

(2) A person scores 45% of the total marks in the exam and still fails by 40 marks. The passing percentage of the exam is 55%. What is the maximum marks of the exam?

(3) The number of trees in a town is 17640. If the numbers of trees increases annually at the rate of 5%, then how many trees were there 2 years ago?

(4) If the price of onion increases from Rs 24/kg to Rs 36/kg, then by what percentage a household should decrease the consumption of onion so that expenditure remains same?

(5) 20% of a = b, then b% of 20 is the same as _____ of a.

(6) In an election between two candidates, the winning candidate has got 70% of the votes polled and has won by 15400 votes. What is the number of votes polled for losing candidate?

(7) The present population of a town is 26010. It increases annually at the rate of 2%. What was the population of town 2 years ago?

(8) a% of b + b% of a = _____

(9) In an examination 65% students pass in history and 55% students pass in hindi. If 5% students failed in both subjects, then how many students failed in either subject?

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both the subjects, then what is the percentage of students who have passed in both the subjects?

(10) Pranita got 30 marks more in Math than what she got in Science. Her Math marks are 60% of the sum of her Math and Science marks. What are her Science marks?

(11) If A has got 20% more marks than B, then by what percent marks of B are less than the marks of A?

(12) A, B and C are three students. A got 18% more marks than B and 12% less than C. If B got 220 marks, then how much marks C has got?

(13) 30% of a number exceeds 25% of the same number by 27. What is the value of the number?

(14) Due to increase of 33.33% in the price of apples, a customer can purchase 4 apples less for Rs 16. What is the original price (in paise) of an apple?

(15) A, B and C are three students. A got 36% less marks than B and 16% more marks than C. If B got 145 marks, then what are the marks got by C?

(16) Amit donated 20% of his income to a school and deposited 20% of the remainder in his bank. If he is having Rs 12800 now, then what is the income (in Rs) of Amit?

(17) If A is 6 times more than B, then by what percentage is B is less than A?

(18) After deducting 12% from a certain sum and then deducting 25% from the remainder, 2508 is left, then what is the initial sum?

(19) Raman spends 80% of his income. If his income is
increased by 25% and the expenditure increase by 10%, then what will be the percentage increase in his savings?

(20) A student has to secure 35% marks to pass in a subject. If he gets 82 and fails by 23 marks. What is the maximum marks of the subject?

(21) A shopkeeper by selling 21 items earns a profit equal to the selling price of 1 item. What is his profit percentage?

(22) What is the value of 10% of 150% of 400?

(23) If 40% of x = y, then y% of 40 is same as ____ of x.

(24) If 40 is 0.05% of x, then what is the value of x?

(25) Two labourers A and B are paid a total of Rs. 1120 per day. If A is paid 180 percent of what is paid to B, how much (in Rs) is B paid?

(26) A man wills 25% of his wealth to charity and rest to his family. What percent of the wealth willed to charity does the family get?

(27) When a number is increased by 105, it becomes 135% of itself. What is the number?

(28) A number is increased by 84, it becomes 107% of itself. What is the number?

(29) What is the value of 20% of 500% of 50?

(30) Two numbers are 10% and 20% lesser than a third number respectively. By how much percent is the second number should be enhanced to make it equal to the first number?

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(31) A shopkeeper by selling 6 items, earns a profit equal to the selling price of 1 item. What is his profit percentage?

SCCGL-20AUG-S2 : 58
(a) 10  (b) 15  (c) 12.5  (d) 8

(32) What is the value of 125% of 25% of 80?

SCCGL-21AUG-S1 : 57
(a) 20  (b) 25  (c) 30  (d) 35

(33) When a number is increased by 120, it becomes 130% of itself. What is the number?

SCCGL-21AUG-S2 : 58
(a) 400  (b) 520  (c) 460  (d) 580

(34) 20 is 0.25% of what number?

SCCGL-22AUG-S1 : 58
(a) 10000  (b) 8000  (c) 5000  (d) 2500

(35) A man wills 40% of his wealth to his wife and rest to his children. What percent of the wealth willed to the wife do the children get?

SCCGL-22AUG-S3 : 58
(a) 150  (b) 66.6  (c) 50  (d) 20

(36) Priya got 9 marks more in History than what she got in Geography. Her history marks are 56% of the sum of her History and Geography marks. What are her Geography marks?

SCCGL-20AUG-S2 : 58
(a) 10  (b) 15  (c) 12.5  (d) 8

(37) Two labourers A and B are paid a total of Rs. 750 per day. If A is paid 150 percent of what is paid to B, how much (in Rs) is B paid?

SCCGL-23AUG-S2 : 58
(a) 450  (b) 250  (c) 300  (d) 500

(38) When a number is increased by 69, it becomes 103% of itself. What is the number?

SCCGL-23AUG-S3 : 58
(a) 1300  (b) 3300  (c) 2300  (d) 4300

(39) 32% of a number exceeds 17% of the same number by 120. What is the value of the number?

SCCGL-05AUG-S1 : 58
(a) 900  (b) 860  (c) 940  (d) 800

(40) Two labourers A and B are paid a total of Rs 650 per day. If A is paid 160 percent of what is paid to B, how much (in Rs) is B paid?

SCCGL-06AUG-S1 : 58
(a) 250  (b) 400  (c) 350  (d) 450

(41) 50% of a = b, then b% of 40 is the same as ______ of a.

SCCGL-06AUG-S3 : 58
(a) 0.25  (b) 0.16  (c) 2  (d) 0.2
(42) After deducting 60% from a certain number and then deducting 15% from the remainder, 1428 is left. What was the initial number?

किसी संख्या में 60% की कटौती करने के उपरांत तथा बची हुई संख्या में फिर से 15% की कटौती करने पर 1428 शेष बच जाता है। प्रारंभिक संख्या क्या थी?

SCCGL-08AUG-S1 : 58
(a) 4200  (b) 3962  (c) 4150  (d) 4300

(43) A student has to secure 40% marks to pass. He gets 67 and fails by 13 marks. What is the maximum marks?

एक छात्र को उत्तीर्ण होने के लिए 40% अंक प्राप्त करने होते हैं। वह 67 अंक पाता है और 13 अंकों से विफल हो जाता है। अधिकतम अंक क्या है?

SCCGL-20AUG-S3 : 58
(a) 300   (b) 200  (c) 150  (d) 240

Answer Key

Solution

(1) 

\[
x + 24 = \frac{x \times 104}{100} \\
x = 600
\]

(2) 

Let the max marks be \(x\) 

So \(\frac{55x}{100} = 40 + 0.45x\) 

Solving for \(x\) we get 400

(3) 

2 year ago, no. of trees = \(x\) 

Annual increase of trees = 5% 

Therefore after two years no. of trees will be 

\[x \times 1.05 \times 1.05 = 17640\] 

\[x = 16000\] 

(4) 

Let, first expenditure be = 72 rupees 

\[\therefore \text{amount} = \frac{72}{36} = 3 \text{ kg.}\] 

Now amount = \(\frac{72}{24} = 2 \text{ kg.}\) 

Less \% = \(\frac{3 - 2}{3} \times 100 = \frac{1}{3} \times 100\) 

\[= 33.33\%\] 

(5) 

B = 20% of \(a\) = 0.2a 

B% of 20 = 0.2a of 20 = 0.2 \times 0.2 = 0.04 \times a = 4% \times a 

(6) 

Let total vote \(D = x\) 

Total vote winning candidate have = \(\frac{7x}{10}\) 

Total vote losing candidate have = \(\frac{3x}{10}\) 

Now, \(\frac{7x}{10} - \frac{3x}{10} = 15400\) 

\[\frac{4x}{10} = 15400\] 

\[\therefore x = \frac{15400 \times 10}{4} = 38500\] 

Total vote losing candidate have = \(3 \times \frac{38500}{10} = 11550\) 

(7) 

\[x \times \frac{102}{100} \times \frac{102}{100} = 26010\] 

\[x = 25000\]
(8) \[ a \times b / 100 + b \times a / 100 = ab/100 + ab/100 = 2ab/100 \]

(9) 65% pass in History
55% pass in Hindi
35% failed in History
45% failed in Hindi
30% failed only in History
40% failed only in Hindi
Total failed = 30% + 40% + 5% = 75%
Total passed = 25%

(10) \[ x + 30 = 0.6 \times (2x + 30) \]
x = 60

(11) Marks of B = 100
Marks of A = 120
Difference = 20
Difference Percentage = \[(20/120) \times 100 = 16.66\% \]

(12) Marks of A = 220 × 118 = 259.6
Marks of B = \[(259.6/88) \times 100 = 295 \]

(13) Let the number be \( x \)
\[ \sqrt{\frac{3}{4}} \times x - \sqrt{\frac{1}{4}} \times x = 27 \]
\[ \sqrt{\frac{3}{4}} = 27 \]
\[ x = \frac{3}{4} \times 540 = 540 \]

(15) A will get = \( \sqrt{\frac{3}{4}} \times 145 = 92.8 \)
\[ \sqrt{\frac{3}{4}} \times C = 92.8 \]
C = 80

(16) A will get = \( \sqrt{\frac{3}{4}} \times 145 = 92.8 \)
\[ \sqrt{\frac{3}{4}} \times C = 92.8 \]
C = 80

(17) Let B = x
Than A will be = x + 6x = 7x
Required percentage = \[(7x-x)/7x \times 100 \]
= 6/7 \times 100
= 85.71%

(18) Amount = 100
After 12% discount = 88
After 25% discount = 88 - 22 = 66
66/100 = 2508/x
x = 3800

(20) If student gets 82 and fails by 23, then
Passing Marks = 82 + 23 = 105
As per question
35% = 105
1% = 105/35 = 3
100% = 3 \times 100 = 300

(21) Let the SP of 1 item be Rs 1
\[ \sqrt{\frac{3}{4}} \times 21 = Rs 21 \]
Profit = Rs 1
\[ \sqrt{\frac{3}{4}} \times 21 = Rs 20 \]
\[ \sqrt{\frac{3}{4}} \times 21 = Rs 20 \]
\[ \sqrt{\frac{3}{4}} \times 21 = 5% \]

(22) \[ 10/100 \times 150/100 \times 400 = 60 \]

(23) 40% of \( x \) = \( y \)
\[ 2x = 5y \]
Let, y% of 40 = a% of x
\[
y/100 \times 40 = a/100 \times x
\]
\[
2y/5 = a/100 \times 5/2 \quad \text{(as, 2x = 5y)}
\]
a = 16%

(24)
ATQ
0.05/100 \times x = 40
x = 80000

(25)
Let B be paid be Rs x
∴ ATQ
1.8x + x = 1120
2.8x = 1120
x = 1120/2.8 = 400
∴ B is paid Rs 400

(26)
Required percentage = 75/25 \times 100 = 300

(28)
let no. is = x
x + 84 = 107x/100 \Rightarrow 84 = 107x/100 - x
x = 1200

(29)
The value is 20/100 \times 500/100 \times 50 = 50

(30)
Let third no. = 100

Ist no. = 90
2nd No. = 80
So, 2nd No. should be enhanced to make it equal to first no.
= 90-80/80 \times 100 = 12.5%

(31)
Profit percentage = \frac{\text{1 item profit}}{\text{5 item costprice}} \times 100 = 20%

(32)
The Req. value = 125/100 \times 25/100 \times 80 = 25

(33)
Let the number be ‘x’
ATQ (x + 120) = 130/100 x
100x + 12000 = 130x
x = 400
∴ The number is 400

(34)
\[
20 = \frac{0.25}{100} \text{ of } x
\]
x = \frac{20 \times 100}{0.25} = 8000

(35)
Required % = 60/40 \times 100 = 150%