1. A batsman scored 110 runs which included 3 boundaries and 8 sixes. What percent of his total score did he make by running between the wickets?

   A. 45%

   B. $45\frac{5}{11}\%$

   C. $54\frac{6}{11}\%$

   D. 55%

   Answer: Option **B**
   Explanation:

   Number of runs made by running = 110 - (3 x 4 + 8 x 6)

   = 110 - (60)

   = 50.

   $\therefore$ Required percentage = $\left(\frac{50}{110} \times 100\right)\% = 45\frac{5}{11}\%$

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2. Two students appeared at an examination. One of them secured 9 marks more than the other and his marks was 56% of the sum of their marks. The marks obtained by them are:

   A. 39, 30

   B. 41, 32

   C. 42, 33

   D. 43, 34

   Answer: Option **C**
   Explanation:
   Let their marks be $(x + 9)$ and x.
   Then, $x + 9 = \frac{56}{100}(x + 9 + x)$
   $\Rightarrow 25(x + 9) = 14(2x + 9)$
   $\Rightarrow 3x = 99$
   $\Rightarrow x = 33$

   So, their marks are 42 and 33.

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3. A fruit seller had some apples. He sells 40% apples and still has 420 apples. Originally, he had:

   A. 588 apples

   B. 600 apples

C. 672 apples

D. 700 apples

Answer: Option **D**
Explanation:
Suppose originally he had x apples.
Then, (100 - 40)% of x = 420.

$\Rightarrow \frac{60}{100} \times x = 420$

$\Rightarrow x = \left(\frac{420 \times 100}{60}\right) = 700.$

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4. What percentage of numbers from 1 to 70 have 1 or 9 in the unit's digit?

A. 1

B. 14

C. 20

D. 21

Answer: Option **C**
Explanation:

Clearly, the numbers which have 1 or 9 in the unit's digit, have squares that end in the digit 1.
Such numbers from 1 to 70 are 1, 9, 11, 19, 21, 29, 31, 39, 41, 49, 51, 59, 61, 69.

Number of such number =14

$\therefore$ Required percentage = $\left(\frac{14}{70} \times 100\right)\% = 20\%.$

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5. If A = x% of y and B = y% of x, then which of the following is true?

A. A is smaller than B.

B. A is greater than B

C. Relationship between A and B cannot be determined.

D. If x is smaller than y, then A is greater than B.

E. None of these

Answer: Option **E**
Explanation:

x% of $y = \left(\frac{x}{100} \times y\right) = \left(\frac{y}{100} \times x\right) = y$% of x

$\therefore$ A = B.

6. If 20% of a = b, then b% of 20 is the same as:

A. 4% of a

B. 5% of a

C. 20% of a

D. None of these

Answer: Option **A**
Explanation:

20% of $a = b \Rightarrow \frac{20}{100}a = b$.

$\therefore$ b% of 20 $= \left(\frac{b}{100} \times 20\right) = \left(\frac{20}{100}a \times \frac{1}{100} \times 20\right) = \frac{4}{100}a$ = 4% of a.

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7. In a certain school, 20% of students are below 8 years of age. The number of students above 8 years of age is $\frac{2}{3}$ of the number of students of 8 years of age which is 48. What is the total number of students in the school?

A. 72

B. 80

C. 120

D. 150

E. 100

Answer: Option **E**
Explanation:
Let the number of students be x. Then,
Number of students above 8 years of age = (100 - 20)% of x = 80% of x.

$\therefore$ 80% of $x = 48 + \frac{2}{3}$ of 48

$\Rightarrow \frac{80}{100}x = 80$

$\Rightarrow x = 100$.

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8. 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: Option **D**
Explanation:

5% of A + 4% of B = $\frac{2}{3}$ (6% of A + 8% of B)

$\Rightarrow \frac{5}{100}A + \frac{4}{100}B = \frac{2}{3}\left(\frac{6}{100}A + \frac{8}{100}B\right)$

$\Rightarrow \frac{1}{20}A + \frac{1}{25}B = \frac{1}{25}A + \frac{4}{75}B$

$\Rightarrow \left(\frac{1}{20} - \frac{1}{25}\right)A = \left(\frac{4}{75} - \frac{1}{25}\right)B$

$\Rightarrow \frac{1}{100}A = \frac{1}{75}B$

$\frac{A}{B} = \frac{100}{75} = \frac{4}{3}$.

$\therefore$ Required ratio = 4 : 3

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9. A student multiplied a number by $\frac{3}{5}$ instead of $\frac{5}{3}$.

What is the percentage error in the calculation?

A. 34%

B. 44%

C. 54%

D. 64%

Answer: Option **D**

Explanation:

Let the number be *x*.

Then, error = $\frac{5}{3}x - \frac{3}{5}x = \frac{16}{15}x$.

Error% = $\left(\frac{16x}{} \times \frac{3}{} \times 100\right)\% = 64\%$.

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10. 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: Option **A**

Explanation:

Number of valid votes = 80% of 7500 = 6000.

$\therefore$ Valid votes polled by other candidate = 45% of 6000

$= \left(\frac{45}{100} \text{ x } 6000\right) = 2700.$

11. Three candidates contested an election and received 1136, 7636 and 11628 votes respectively. What percentage of the total votes did the winning candidate get?

A. 57%

B. 60%

C. 65%

D. 90%

Answer: Option **A**
Explanation:

Total number of votes polled = (1136 + 7636 + 11628) = 20400.

$\therefore$ Required percentage $= \left(\frac{11628}{20400} \text{ x } 100\right)\% = 57\%.$

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12. Two tailors X and Y are paid a total of Rs. 550 per week by their employer. If X is paid 120 percent of the sum paid to Y, how much is Y paid per week?

A. Rs. 200

B. Rs. 250

C. Rs. 300

D. None of these

Answer: Option **B**
Explanation:
Let the sum paid to Y per week be Rs. z.
Then, z + 120% of z = 550.

$\Rightarrow z + \frac{120}{100}z = 550$

$\Rightarrow \frac{11}{5}z = 550$

$\Rightarrow z = \left(\frac{550 \text{ x } 5}{11}\right) = 250.$

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13. 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: Option **C**
Explanation:
Let the amount taxable purchases be Rs. x.

Then, 6% of $x = \frac{30}{100}$

$\Rightarrow x = \left(\frac{30}{100} \times \frac{100}{6}\right) = 5.$

$\therefore$ Cost of tax free items = Rs. [25 - (5 + 0.30)] = Rs. 19.70

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14. Rajeev buys good worth Rs. 6650. He gets a rebate of 6% on it. After getting the rebate, he pays sales tax @ 10%. Find the amount he will have to pay for the goods.

A. Rs. 6876.10

B. Rs. 6999.20

C. Rs. 6654

D. Rs. 7000

Answer: Option **A**
Explanation:
Rebate = 6% of Rs. 6650 = Rs. $\left(\frac{6}{100} \times 6650\right)$ = Rs. 399.

Sales tax = 10% of Rs. (6650 - 399) = Rs. $\left(\frac{10}{100} \times 6251\right)$ = Rs. 625.10

$\therefore$ Final amount = Rs. (6251 + 625.10) = Rs. 6876.10

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15. 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: Option **B**
Explanation:

Increase in 10 years = (262500 - 175000) = 87500.

Increase% = $\left(\frac{87500}{175000} \times 100\right)\%$ = 50%.

$\therefore$ Required average = $\left(\frac{50}{10}\right)\%$ = 5%.