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Syndicate Bank

Syndicate Bank TA Aptitude Sample Paper

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(1) A can do a work in 15 days and B in 20 days. If they work on it together for 4 days, then the fraction of the work that is left is :

[A]

$\dfrac{1}{4}$

[B]

$\dfrac{1}{10}$

[C]

$\dfrac{7}{15}$

[D]

$\dfrac{8}{15}$

Answer : [D]

Explanation:

A's 1 day's work = $\dfrac{1}{15}$;

B's 1 day's work = $\dfrac{1}{20}$;

(A + B)'s 1 day's work = $\left(\dfrac{1}{15} + \dfrac{1}{20} \right) = \dfrac{7}{60}$.

(A + B)'s 4 day's work = $\left(\dfrac{7}{60} \times 4 \right) = \dfrac{7}{15}$.

Therefore, Remaining work = $\left(1 - \dfrac{7}{15} \right) = \dfrac{8}{15}$.

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(2) A and B can together finish a work 30 days. They worked together for 20 days and then B left. After another 20 days, A finished the remaining work. In how many days A alone can finish the work?

[A] 40

[B] 50

[C] 54

[D] 60

Answer : [D]

Explanation:

(A + B)'s 20 day's work = $\left(\dfrac{1}{30} \times 20 \right) = \dfrac{2}{3}$.

Remaining work = $\left(1 - \dfrac{2}{3} \right) = \dfrac{1}{3}$.

Now, $\dfrac{1}{3}$ work is done by A in 20 days.

Therefore, the whole work will be done by A in (20 x 3) = 60 days.

(3) Sakshi can do a piece of work in 20 days. Tanya is 25% more efficient than Sakshi. The number of days taken by Tanya to do the same piece of work is:

[A] 15

[B] 16

[C] 18

[D] 25

Answer : [B]

Explanation:
Ratio of times taken by Sakshi and Tanya = 125 : 100 = 5 : 4.
Suppose Tanya takes x days to do the work.

$5 : 4 :: 20 : x \implies x = \left(\dfrac{4 \times 20}{5} \right)$

$\implies x = 16$ days.
Hence, Tanya takes 16 days to complete the work.

(4) A works twice as fast as B. If B can complete a work in 12 days independently, the number of days in which A and B can together finish the work in :

[A] 4 days

[B] 6 days

[C] 8 days

[D] 18 days

Answer : [A]

Explanation:
Ratio of rates of working of A and B = 2 : 1.
So, ratio of times taken = 1 : 2.

B's 1 day's work = $\dfrac{1}{12}$.

$\therefore$ A's 1 day's work = $\dfrac{1}{6}$; (2 times of B's work)

(A + B)'s 1 day's work = $\left(\dfrac{1}{6} + \dfrac{1}{12} \right) = \dfrac{3}{12} = \dfrac{1}{4}$.

So, A and B together can finish the work in 4 days.

(5) A and B can do a job together in 7 days. A is $1\dfrac{3}{4}$ times as efficient as B. The same job can be done by A alone in :

[A]

$9\dfrac{1}{3}$ days

[B] 11 days

[C]

1

$12\dfrac{}{4}$ days

[D]

$16\dfrac{1}{3}$ days

Answer : [B]

Explanation:

(A's 1 day's work) : (B's 1 day's work) = $\dfrac{7}{4}$: 1   =   7 : 4.

Let A's and B's 1 day's work be $7x$ and $4x$ respectively.

Then, $7x + 4x = \dfrac{1}{7}$ $\Rightarrow$ $11x = \dfrac{1}{7}$ $\Rightarrow$ $x = \dfrac{1}{77}$.

$\therefore$ A's 1 day's work = $\left(\dfrac{1}{77} \times 7\right)$ = $\dfrac{1}{11}$.

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(6) 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 : [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 = $\left(\dfrac{14}{70} \times 100\right)\%$ = 20%.

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(7) 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 : [C]

Explanation:
Let their marks be $(x + 9)$ and x.

Then, $x + 9 = \dfrac{56}{100}(x + 9 + x)$

$\Rightarrow 25(x + 9) = 14(2x + 9)$
$\Rightarrow 3x = 99$
$\Rightarrow x = 33$
So, their marks are 42 and 33.

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(8) 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 : [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.

(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 : [D]

Explanation:

Let the number be x.

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

Error% = $\left(\frac{16x}{15} \times \frac{3}{5x} \times 100\right)$% = 64%.

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

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

(11) Three times the first of three consecutive odd integers is 3 more than twice the third. The third integer is:

[A] 9

[B] 11

[C] 13

[D] 15

Answer : [D]

Explanation:
Let the three integers be x, $x + 2$ and $x + 4$.
Then, $3x = 2(x + 4) + 3 \iff x = 11$.
$\because$ Third integer = $x + 4 = 15$.

(12) If one-third of one-fourth of a number is 15, then three-tenth of that number is:

[A] 35

[B] 36

[C] 45

[D] 54

Answer : [D]

Explanation:
Let the number be x.
Then, $\frac{1}{3}$ of $\frac{1}{4}$ of $x = 15 \iff x = 15 \times 12 = 180$.

So, required number $= \left(\frac{3}{10} \times 180 \right) = 54$.

(13) The sum of the squares of three numbers is 138, while the sum of their products taken two at a time is 131. Their sum is:

[A] 20

[B] 30

[C] 40

[D] None of these

Answer : [A]

Explanation:
Let the numbers be a, b and c.
Then, $a^2 + b^2 + c^2 = 138$ and $(ab + bc + ca) = 131$.
$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca) = 138 + 2 \times 131 = 400$.
$\Rightarrow (a + b + c) = \sqrt{400} = 20$.

(14) The sum of the digits of a two-digit number is 15 and the difference between the digits is 3. What is the two-digit number?

[A] 69

[B] 78

[C] 96

[D] Cannot be determined

[E] None of these

Answer : [D]

Explanation:
Let the ten's digit be x and unit's digit be y.
Then, $x + y = 15$ and $x - y = 3$ or $y - x = 3$.
Solving $x + y = 15$ and $x - y = 3$, we get: $x = 9$, $y = 6$.
Solving $x + y = 15$ and $y - x = 3$, we get: $x = 6$, $y = 9$.
So, the number is either 96 or 69.
Hence, the number cannot be determined.

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(15) The product of two numbers is 120 and the sum of their squares is 289. The sum of the number is:

[A] 20

[B] 23

[C] 169

[D] None of these

Answer : [B]

Explanation:
Let the numbers be x and y.
Then, $xy = 120$ and $x^2 + y^2 = 289$.
$\therefore$ $(x + y)^2 = x^2 + y^2 + 2xy = 289 + (2 \times 120) = 529$
$\therefore$ $x + y = \sqrt{529} = 23$.

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(16) The percentage increase in the area of a rectangle, if each of its sides is increased by 20% is:

[A] 40%

[B] 42%

[C] 44%

[D] 46%

Answer : [C]

Explanation:
Let original length = x metres and original breadth = y metres.
Original area = (xy) m^2.

New length = $\left(\dfrac{120}{100}x\right)$ m = $\left(\dfrac{6}{5}x\right)$ m.

New breadth = $\left(\dfrac{120}{100}y\right)$ m = $\left(\dfrac{6}{5}y\right)$ m.

New Area = $\left(\dfrac{6}{5}x \times \dfrac{6}{5}y\right)$ m^2 = $\left(\dfrac{36}{25}xy\right)$ m^2.

The difference between the original area = xy and new-area 36/25 xy is
= (36/25)xy - xy
= xy(36/25 - 1)
= xy(11/25) or (11/25)xy

$\therefore$ Increase % = $\left(\dfrac{11}{25}xy \times \dfrac{1}{xy} \times 100\right)$% = 44%.

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(17) A rectangular park 60 m long and 40 m wide has two concrete crossroads running in the middle of the park and rest of the park has been used as a lawn. If the area of the lawn is 2109 sq. m, then what is the width of the road?

[A] 2.91 m

[B] 3 m

[C] 5.82 m

[D] None of these

Answer : [B]

Explanation:
Area of the park = (60 x 40) m^2 = 2400 m^2.
Area of the lawn = 2109 m^2.
∵ Area of the crossroads = (2400 - 2109) m^2 = 291 m^2.
Let the width of the road be x metres. Then,
$60x + 40x - x^2 = 291$
$\Rightarrow x^2 - 100x + 291 = 0$
$\Rightarrow (x - 97)(x - 3) = 0$
$\Rightarrow x = 3.$

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(18) A towel, when bleached, was found to have lost 20% of its length and 10% of its breadth. The percentage of decrease in area is:

[A] 10%

[B] 10.08%

[C] 20%

[D] 28%

Answer : [D]

Explanation:
Let original length = x and original breadth = y.

Decrease in area $= xy - \left(\dfrac{80}{100}x \times \dfrac{90}{100}y \right)$

$= \left(xy - \dfrac{18}{25}xy \right)$

$= \dfrac{7}{25}xy.$

∴ Decrease % $= \left(\dfrac{7}{25}xy \times \dfrac{1}{xy} \times 100 \right)_{\%} = 28\%.$

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(19) The diagonal of a rectangle is √41 cm and its area is 20 sq. cm. The perimeter of the rectangle must be:

[A] 9 cm

[B] 18 cm

[C] 20 cm

[D] 41 cm

Answer : [B]

Explanation:
$l^2 + b^2 = 41.$
Also, $lb = 20.$

$(l + b)^2 = (l^2 + b^2) + 2lb = 41 + 40 = 81$
$\Rightarrow (l + b) = 9.$
$\therefore$ Perimeter $= 2(l + b) = 18$ cm.

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(20) A tank is 25 m long, 12 m wide and 6 m deep. The cost of plastering its walls and bottom at 75 paise per sq. m, is:

[A] Rs. 456

[B] Rs. 458

[C] Rs. 558

[D] Rs. 568

Answer : [C]

Explanation:
Area to be plastered $= [2(l + b) \times h] + (l \times b)$

$= \{[2(25 + 12) \times 6] + (25 \times 12)\}$ m^2

$= (444 + 300)$ m^2

$= 744$ m^2.

$\therefore$ Cost of plastering = Rs. $\left(744 \times \dfrac{75}{100}\right)$ = Rs. 558.