Book For

Rajasthan State Road Transport Corporation

RSRTC Conductor Maths Sample Paper

(1) A vendor bought toffees at 6 for a rupee. How many for a rupee must he sell to gain 20%?

[A] 3

[B] 4

[C] 5

[D] 6

Answer : [C]

Explanation:
C.P. of 6 toffees = Re. 1

S.P. of 6 toffees = 120% of Re. 1 = Rs. $\frac{6}{5}$

For Rs. $\frac{6}{5}$, toffees sold = 6.

For Re. 1, toffees sold = $\left(6 \times \frac{5}{6}\right) = 5$.

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(2) The cost price of 20 articles is the same as the selling price of *x* articles. If the profit is 25%, then the value of *x* is:

[A] 15

[B] 16

[C] 18

[D] 25

Answer : [B]

Explanation:
Let C.P. of each article be Re. 1 C.P. of x articles = Rs. x.
S.P. of x articles = Rs. 20.
Profit = Rs. $(20 - x)$.

$\therefore \left(\frac{20 - x}{x} \times 100 = 25\right)$

$\Rightarrow 2000 - 100x = 25x$
$125x = 2000$
$\Rightarrow x = 16$.

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(3) Sam purchased 20 dozens of toys at the rate of Rs. 375 per dozen. He sold each one of them at the rate of Rs. 33. What was his percentage profit?

[A] 3.5

[B] 4.5

[C] 5.6

[D] 6.5

Answer : [C]

Explanation:

Cost Price of 1 toy = Rs. $\left(\frac{375}{12}\right)$ = Rs. 31.25

Selling Price of 1 toy = Rs. 33
So, Gain = Rs. (33 - 31.25) = Rs. 1.75
$\therefore$ Profit % = $\left(\frac{1.75}{31.25} \times 100\right)_{\%}$ = $\frac{28}{5}$% = 5.6%

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(4) A shopkeeper sells one transistor for Rs. 840 at a gain of 20% and another for Rs. 960 at a loss of 4%. His total gain or loss percent is:

[A]
$5\frac{15}{17}$% loss

[B]
$5\frac{15}{17}$% gain

[C]
$6\frac{2}{3}$% gain

[D] None of these

Answer : [B]

Explanation:

C.P. of 1st transistor = Rs. $\left(\frac{100}{120} \times 840\right)$ = Rs. 700.

C.P. of 2nd transistor = Rs. $\left(\frac{100}{96} \times 960\right)$ = Rs. 1000

So, total C.P. = Rs. (700 + 1000) = Rs. 1700.
Total S.P. = Rs. (840 + 960) = Rs. 1800.
$\therefore$ Gain % = $\left(\frac{100}{1700} \times 100\right)_{\%}$ = $5\frac{15}{17}$%

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(5) 100 oranges are bought at the rate of Rs. 350 and sold at the rate of Rs. 48 per dozen. The percentage of profit or loss is:

[A]
$14\frac{2}{7}$% gain

[B] 15% gain

[C]
$14\frac{2}{7}$% loss

[D] 15 % loss

Answer : [A]

Explanation:

C.P. of 1 orange = Rs. $\left(\frac{350}{100}\right)$ = Rs. 3.50

S.P. of 1 orange = Rs. $\left(\frac{48}{12}\right)$ = Rs. 4

$\therefore$ Gain% = $\left(\frac{0.50}{0.50} \times 100\right)$ = $\frac{100}{100}$% = 142%

(3.50)% 7 7

(6) 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 : [B]

Explanation:
Number of runs made by running = 110 - (3 x 4 + 8 x 6)
= 110 - (60)
= 50.
$\therefore$ Required percentage = $\left(\frac{50}{110} \times 100\right)\% = 45\frac{5}{11}\%$

(7) 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.

(8) 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.
$\therefore$ Valid votes polled by other candidate = 45% of 6000

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

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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 : [D]

Explanation:

Let the number be x.

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

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

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(10) 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 : [B]

Explanation:

Let the sum paid to Y per week be Rs. z.

Then, z + 120% of z = 550.

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

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

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

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(11) If the product 4864 x 9 P 2 is divisible by 12, then the value of P is:

[A] 2

[B] 5

[C] 6

[D] 8

[E] None of these

Answer : [E]

Explanation:
Clearly, 4864 is divisible by 4.
So, 9P2 must be divisible by 3. So, (9 + P + 2) must be divisible by 3.
∴ P = 1.

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(12) 4500 x ? = 3375

[A]
$\frac{2}{5}$

[B]
$\frac{3}{4}$

[C]
$\frac{1}{4}$

[D]
$\frac{3}{5}$

[E] None of these

Answer : [B]

Explanation:
$4500 \times x = 3375 \Rightarrow x = \frac{\cancel{3375}^{75}}{\cancel{4500}_{100}} = \frac{3}{4}$

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(13) The sum all even natural numbers between 1 and 31 is:

[A] 16

[B] 128

[C] 240

[D] 512

Answer : [C]

Explanation:
Required sum = (2 + 4 + 6 + ... + 30)
This is an A.P. in which $a = 2$, $d = (4 - 2) = 2$ and $l = 30$.
Let the number of terms be n. Then,
$t_n = 30 \Rightarrow a + (n - 1)d = 30$
$\Rightarrow 2 + (n - 1) \times 2 = 30$
$\Rightarrow n - 1 = 14$
$\Rightarrow n = 15$
$\therefore S_n = \frac{n}{2}(a + l) = \frac{15}{2} \times (2 + 30) = 240.$

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(14) The smallest 6 digit number exactly divisible by 111 is:

[A] 111111

[B] 110011

[C] 100011

[D] 110101

[E] None of these

Answer : [C]

Explanation:

The smallest 6-digit number 100000. 111) 100000 (900 999 ----- 100 --- Required number = 100000 + (111 - 10

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(15) $\{(476 + 424)^2 - 4 \times 476 \times 424\} = ?$

[A] 2906

[B] 3116

[C] 2704

[D] 2904

[E] None of these

Answer : [C]

Explanation:

Given Exp. $= [(a + b)^2 - 4ab]$, where $a = 476$ and $b = 424$

$= [(476 + 424)^2 - 4 \times 476 \times 424]$

$= [(900)^2 - 807296]$

$= 810000 - 807296$

$= 2704.$

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(16) The ratio between the perimeter and the breadth of a rectangle is 5 : 1. If the area of the rectangle is 216 sq. cm, what is the length of the rectangle?

[A] 16 cm

[B] 18 cm

[C] 24 cm

[D] Data inadequate

[E] None of these

Answer : [B]

Explanation:

$\frac{2(l + b)}{b} = \frac{5}{1}$

$\Rightarrow 2l + 2b = 5b$
$\Rightarrow 3b = 2l$
$b = \frac{2}{3}l$

Then, Area = 216 cm^2
$\Rightarrow l \times b = 216$

$\Rightarrow l \times \frac{2l}{3} = 216$

$\Rightarrow l^2 = 324$
$\Rightarrow l = 18$ cm.

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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.
$\therefore$ 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 man walked diagonally across a square lot. Approximately, what was the percent saved by not walking along the edges?

[A] 20

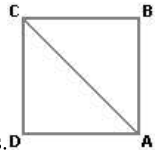
[B] 24

[C] 30

[D] 33

Answer : [C]

Explanation:
Let the side of the square(ABCD) be x metres.



Then, AB + BC = $2x$ metres.
AC = $\sqrt{2}x = (1.41x)$ m.
Saving on $2x$ metres = $(0.59x)$ m.
Saving % = $\left(\frac{0.59x}{2x} \times 100\right)\%$ = 30% (approx.)

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(19) What is the least number of squares tiles required to pave the floor of a room 15 m 17 cm long and 9 m 2 cm broad?

[A] 814

[B] 820

[C] 840

[D] 844

Answer : [A]

Explanation:
Length of largest tile = H.C.F. of 1517 cm and 902 cm = 41 cm.
Area of each tile = (41 x 41) cm^2.
$\therefore$ Required number of tiles = $\left(\frac{1517 \times 902}{41 \times 41}\right)$ = 814.

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(20) The difference between the length and breadth of a rectangle is 23 m. If its perimeter is 206 m, then its area is:

[A] 1520 m^2

[B] 2420 m^2

[C] 2480 m^2

[D] 2520 m^2

Answer : [D]

Explanation:
We have: (l - b) = 23 and 2(l + b) = 206 or (l + b) = 103.
Solving the two equations, we get: l = 63 and b = 40.
$\therefore$ Area = (l x b) = (63 x 40) m^2 = 2520 m^2.
