Book For

State Bank Of India

SBI Sub Staff Aptitude Sample Paper For Main Exam

(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.

(2) In a certain store, the profit is 320% of the cost. If the cost increases by 25% but the selling price remains constant, approximately what percentage of the selling price is the profit?

[A] 30%

[B] 70%

[C] 100%

[D] 250%

Answer : [B]

Explanation:
Let C.P.= Rs. 100. Then, Profit = Rs. 320, S.P. = Rs. 420.
New C.P. = 125% of Rs. 100 = Rs. 125
New S.P. = Rs. 420.
Profit = Rs. (420 - 125) = Rs. 295.
∴ Required percentage = $\left(\frac{295}{420} \times 100\right)\%$ = $\frac{1475}{21}$% = 70% (approximately).

(3) Alfred buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, his gain percent is:

[A]
$4\frac{4}{7}$%

[B]
$5\frac{5}{11}$%

[C] 10%

[D] 12%

Answer : [B]

Explanation:
Cost Price (C.P.) = Rs. (4700 + 800) = Rs. 5500.
Selling Price (S.P.) = Rs. 5800.
Gain = (S.P.) - (C.P.) = Rs.(5800 - 5500) = Rs. 300.
Gain % = $\left(\frac{300}{5500} \times 100\right)\%$ = $5\frac{5}{11}$%

(4) 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. $\left(\dfrac{375}{12}\right)$ = Rs. 31.25

Selling Price of 1 toy = Rs. 33
So, Gain = Rs. (33 - 31.25) = Rs. 1.75

$\therefore$ Profit % = $\left(\dfrac{1.75}{31.25} \times 100\right)_{\%}$ = $\dfrac{28}{5}$% = 5.6%

(5) 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]
$5\dfrac{15}{17}$% loss

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

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

[D] None of these

Answer : [B]

Explanation:

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

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

So, total C.P. = Rs. (700 + 1000) = Rs. 1700.
Total S.P. = Rs. (840 + 960) = Rs. 1800.

$\therefore$ Gain % = $\left(\dfrac{100}{1700} \times 100\right)_{\%}$ = $5\dfrac{15}{17}$%
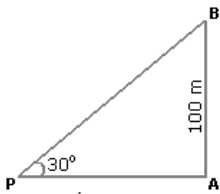
(6) From a point P on a level ground, the angle of elevation of the top tower is 30?. If the tower is 100 m high, the distance of point P from the foot of the tower is:

[A] 149 m

[B] 156 m

[C] 173 m

[D] 200 m

Answer : [C]

Explanation:
Let AB be the tower.

Then, ∠APB = 30? and AB = 100 m.

$\dfrac{AB}{AP}$ = tan 30? = $\dfrac{1}{\sqrt{3}}$

$\Rightarrow$ AP = (AB x $\sqrt{3}$) m

= 100 $\sqrt{3}$ m

= (100 x 1.73) m

= 173 m.

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(7) A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30? with the man's eye. The man walks some distance towards the tower to watch its top and the angle of the elevation becomes 60?. What is the distance between the base of the tower and the point P?

[A] 4 $\sqrt{3}$ units
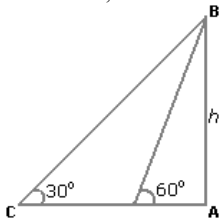
[B] 8 units

[C] 12 units

[D] Data inadequate

[E] None of these

Answer : [D]

Explanation:
One of AB, AD and CD must have given.

So, the data is inadequate.

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(8) The angle of elevation of a ladder leaning against a wall is 60? and the foot of the ladder is 4.6 m away from the wall. The length of the ladder is:
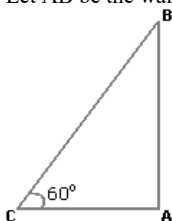
[A] 2.3 m

[B] 4.6 m

[C] 7.8 m

[D] 9.2 m

Answer : [D]

Explanation:
Let AB be the wall and BC be the ladder.

Then, ∠ACB = 60? and AC = 4.6 m.

$\dfrac{AC}{BC}$ = cos 60? = $\dfrac{1}{2}$

$\Rightarrow$ BC = 2 x AC

= (2 x 4.6) m

= 9.2 m.

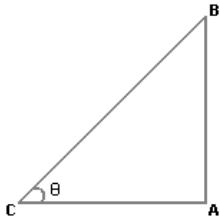**(9) The angle of elevation of the sun, when the length of the shadow of a tree 3 times the height of the tree, is:**

[A] 30?

[B] 45?

[C] 60?

[D] 90?

Answer : [A]

Explanation:
Let AB be the tree and AC be its shadow.

Let $\angle ACB = \theta$.

Then, $\dfrac{AC}{AB} = $ 3 $\Rightarrow$ cot θ =   3

$\therefore$ θ = 30?.

(10) 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%.

(11) 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 : [D]

Explanation:
Suppose originally he had x apples.

Then, (100 - 40)% of x = 420.

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

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

(12) 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 : [D]

Explanation:

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

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

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

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

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

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

$\because$ Required ratio = 4 : 3

(13) In a certain school, 20% of students are below 8 years of age. The number of students above 8 years of age is $\dfrac{2}{3}$ 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 : [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.

$\because$ 80% of x = 48 + $\dfrac{2}{3}$ of 48

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

$\Rightarrow x = 100.$

(14) 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.
$\Rightarrow z + \dfrac{120}{100}z = 550$

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

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

(15) A grocer has a sale of Rs. 6435, Rs. 6927, Rs. 6855, Rs. 7230 and Rs. 6562 for 5 consecutive months. How much sale must he have in the sixth month so that he gets an average sale of Rs. 6500?

[A] Rs. 4991

[B] Rs. 5991

[C] Rs. 6001

[D] Rs. 6991

Answer : [A]

Explanation:
Total sale for 5 months = Rs. (6435 + 6927 + 6855 + 7230 + 6562) = Rs. 34009.
∵ Required sale = Rs. [(6500 x 6) - 34009]
 = Rs. (39000 - 34009)
 = Rs. 4991.

(16) The average weight of 8 person's increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What might be the weight of the new person?

[A] 76 kg

[B] 76.5 kg

[C] 85 kg

[D] Data inadequate

[E] None of these

Answer : [C]

Explanation:
Total weight increased = (8 x 2.5) kg = 20 kg.
Weight of new person = (65 + 20) kg = 85 kg.

(17) In the first 10 overs of a cricket game, the run rate was only 3.2. What should be the run rate in the remaining 40 overs to reach the target of 282 runs?

[A] 6.25

[B] 6.5

[C] 6.75

[D] 7

Answer : [A]

Explanation:

$$\text{Required run rate} = \left(\frac{282 - (3.2 \times 10)}{40}\right) = \frac{250}{40} = 6.25$$

(18) A car owner buys petrol at Rs.7.50, Rs. 8 and Rs. 8.50 per litre for three successive years. What approximately is the average cost per litre of petrol if he spends Rs. 4000 each year?

[A] Rs. 7.98

[B] Rs. 8

[C] Rs. 8.50

[D] Rs. 9

Answer : [A]

Explanation:

$$\text{Total quantity of petrol consumed in 3 years} = \left(\frac{4000}{7.50} + \frac{4000}{8} + \frac{4000}{8.50}\right) \text{litres}$$

$$= 4000 \left(\frac{2}{15} + \frac{1}{8} + \frac{2}{17}\right) \text{litres}$$

$$= \left(\frac{76700}{51}\right) \text{litres}$$

Total amount spent = Rs. (3 x 4000) = Rs. 12000.

$$\therefore \text{Average cost} = \text{Rs.} \left(\frac{12000 \times 51}{76700}\right) = \text{Rs.} \frac{6120}{767} = \text{Rs. } 7.98$$

(19) The average monthly income of P and Q is Rs. 5050. The average monthly income of Q and R is Rs. 6250 and the average monthly income of P and R is Rs. 5200. The monthly income of P is:

[A] 3500

[B] 4000

[C] 4050

[D] 5000

Answer : [B]

Explanation:
Let P, Q and R represent their respective monthly incomes. Then, we have:
P + Q = (5050 x 2) = 10100 .... (i)
Q + R = (6250 x 2) = 12500 .... (ii)
P + R = (5200 x 2) = 10400 .... (iii)
Adding (i), (ii) and (iii), we get: 2(P + Q + R) = 33000 or   P + Q + R = 16500 .... (iv)
Subtracting (ii) from (iv), we get P = 4000.
$\therefore$ P's monthly income = Rs. 4000.

(20) The average weight of A, B and C is 45 kg. If the average weight of A and B be 40 kg and that of B and C be 43 kg, then the weight of B is:

[A] 17 kg

[B] 20 kg

[C] 26 kg

[D] 31 kg

Answer : [D]

Explanation:
Let A, B, C represent their respective weights. Then, we have:

A + B + C = (45 x 3) = 135 .... (i)
A + B = (40 x 2) = 80 .... (ii)
B + C = (43 x 2) = 86 ....(iii)
Adding (ii) and (iii), we get: A + 2B + C = 166 .... (iv)
Subtracting (i) from (iv), we get : B = 31.
∵ B's weight = 31 kg.