Quantitative Aptitude Question & Answers

1. Let C1 and C2 be the inscribed and circumscribed circles of a triangle with sides3cm, 4cm and 5cm then find the ratio between the areas of C1 and C2 is

a) 9 /16

b) 9 / 25

c) 4 / 25

d) 16 / 25

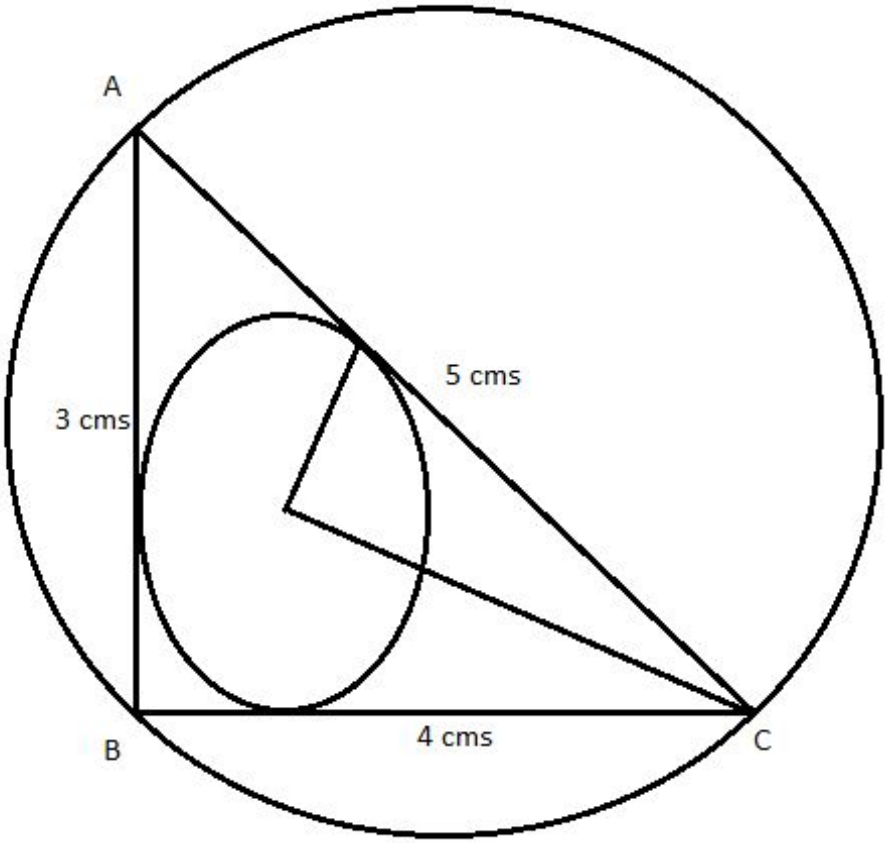
Ans. c.

Explanation: Since, sides are 3, 4, and 5 cms. Therefore, triangle will be a right-angled triangle.

The radius of the inscribed circle C1= (3 + 4 – 5)/2 = 1 cms.

The radius of the circumscribed circle C2= 5/2 = 2.5 cms. (because in this case, the hypotenuse will be the diameter of the circumscribed circle.

Area C1/ Area C2 = pi* $(1)^2$/pi*$(2.5)^2$ = 100/625 = 4/25;



2. If x =1/(√2 +1) ; then (x + 1) equals to ?

a) 2

b) √2-1

c) √2+1

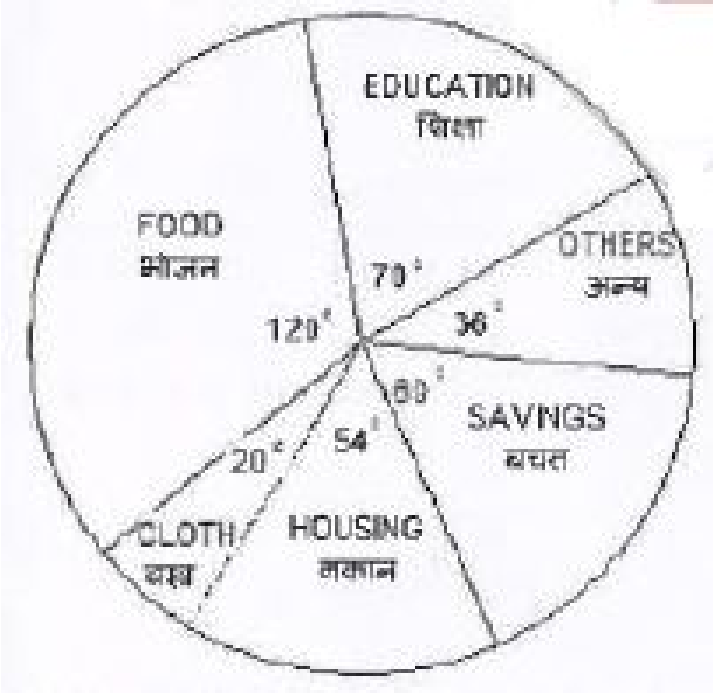
d) √2

Ans. d.

Explanation:

$$x = \frac{1}{\sqrt{2}+1}; => x = \frac{\sqrt{2}-1}{(\sqrt{2}+1)(\sqrt{2}-1)} = \sqrt{2}-1$$
$$x+1 = \sqrt{2}-1+1 = \sqrt{2};$$

Directions/ In Question nos. / 3 to 5, The pie-chart given here shows expenditure incurred by a family on various items and their savings. Study the chart and answer the questions based on the pie-chart.



3. If the monthly income is Rs. 36000 then the yearly savings is:

a) Rs. 72000

b) Rs. 60000

c) Rs. 74000

d) Rs. 70000

Ans. a.

Explanation: Savings = 60;

Monthly Savings = (60/360)*36000 = Rs. 6000.

Yearly savings = 12*6000 = Rs. 72000.

4. If the expenditure on education is Rs. 1600 more than that of housing then the expenditure on food is:

a) Rs. 6000

b) Rs. 12000

c) Rs. 7000

d) Rs. 3333

Ans. b.

Explanation: Expenditure on education= 70

Expenditure on housing = 54

Difference between expenditure on education and housing = 70 – 54 = 16;

Monthly expenditure on education= (16/360)* Monthly income;

Monthly income = (1600 *360)/16 = Rs. 36000

Hence, the expenditure of food = (120*36000)/360 = 12000;

5. The ratio of expenditure on food to savings is:

a) 2 : 1

b) 3 : 1

c) 3 : 2

d) 10 : 9

Ans. a.

Explanation: The required ratio = 120/60 = 2: 1;

6. The average marks obtained by a student in 6 subjects is 88. On subsequent verification it was found that the marks obtained by him in a subject was wrongly copied as 86 instead of 68. The correct average of the marks obtained by him is-

a) 85

b) 87

c) 84

d) 86

Ans. a.

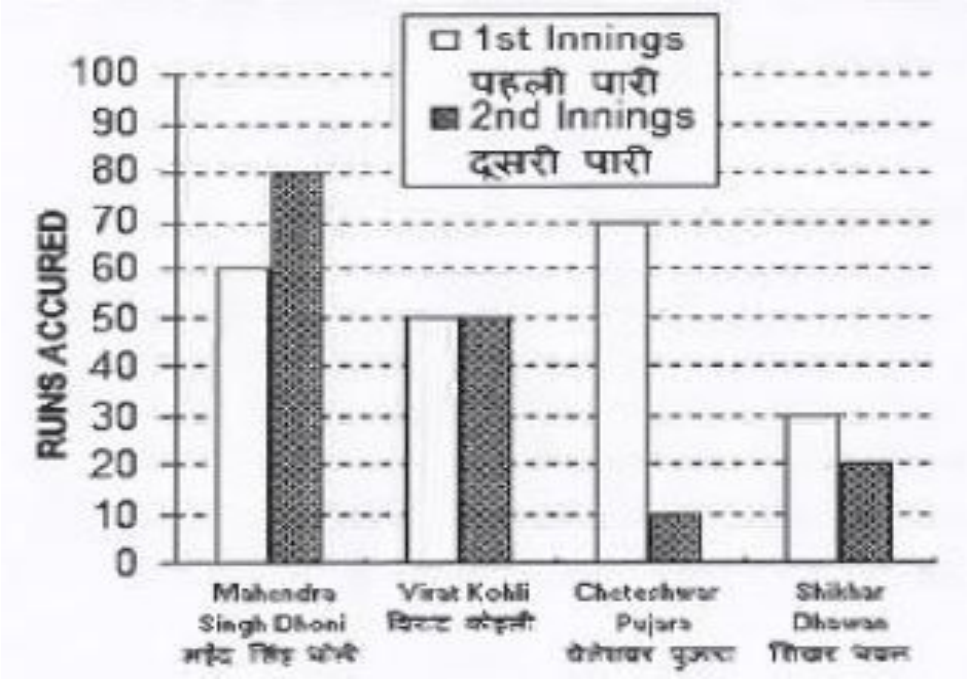
Explanation: Suppose, these 6 subjects are S1, S2, S3,….., S6;

S1 + S2 + S3 + ……. + S6 = 88*6 = 528;

The actual sum of marks in all subjects = 528 -86 + 68 = 510;

Hence, the correct average marks = 510/6 = 85;

Directions / In Question nos. / 7 to 10, Given here a multiple bar diagram of the scores of four players in two innings. Study the diagram and answer the questions.



7. The average run of two Innings of the player who scored highest in average is:

a) 75

b) 85

c) 80

d) 70

Ans. d.

Explanation: From the figure, it can be seen lucidly that Mahendra Singh Dhoni has scored the maximum runs. Hence,

The average runs scored by MS Dhoni = (60 + 80)/2 = 70.

8. The average run in two innings of the player who has scored minimum at the second innings is:

a) 50

b) 60

c) 40

d) 30

Ans. c.

Explanation: Cheteshwar Pujara scored the lowest marks in the second innings.

Hence, the average runs scored by him = (70 + 10)/2 = 40.

9. The average score in second innings contributed by the four players is:

a) 30

b) 60

c) 40

d) 50

Ans. c.

Explanation: Average run scored by all four player in second inning = (80 + 50 + 10 + 20)/4 = 40

1. The total scores in the first innings contributed by the four players is:

a) 220

b) 200

c) 210

d) 190

Ans. c.

Explanation: The total scores in the first innings by all four players = (60 + 50 + 70 + 30)= 210;

11. If the volume of a sphere is numerically equal to its surface area that its diameter is;

a) 4cm

b) 2 cm

c) 3 cm

d) 6 cm

Ans. c.

Explanation: Volume = Surface Area;

$4/3 * pi * r^3 = 4* pi * r^2$;

r = 3 cms;

12. A train runs at an average speed of 75 km/hr. If the distance to be covered is 1050 km. How long will the train take to cover it?

a) 13 hrs

b) 14 hrs

c) 12 hrs

d) 15 hrs

Ans. b.

Explanation: The time taken by train = Covered distance/ Average Speed;

= 1050/75 = 14 hrs.

13. G is the centroid of ∆ABC. The medians AD and BE intersect at right angles. If the lengths of AD and BE are 9 cm and 12 cm respectively; then the length of AB (in cm) is?

a) 10

b) 10.5

c) 9.5

d) 11

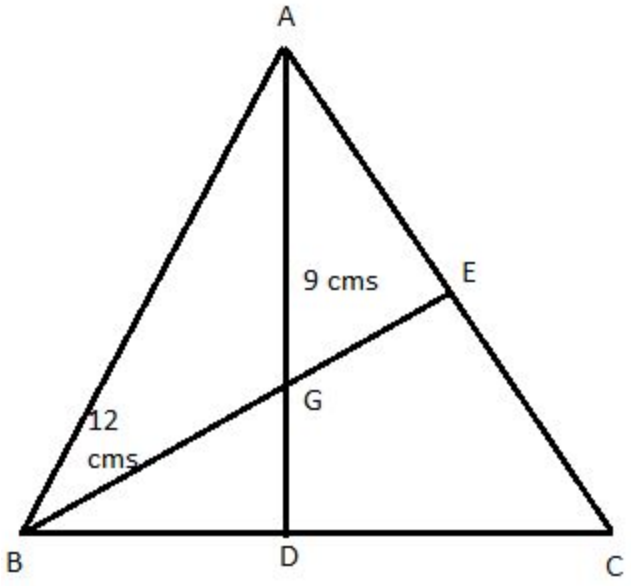
Ans. a.

Explanation: Centroid divides the medians in 2: 1 and median intersects at centroid forming 90 degrees of angle. Hence,

AG: GD = 2: 1; BG: GE = 2: 1;

BG = (2/3) * 12 = 8 cms; AG = (2/3)*9 = 6 cms.

AB = $\sqrt{(8)^2+(6)^2}$ = 10 cms;



14. The minimum value of $2\sin^2\theta + 3\cos^2\theta$ is

a) 1

b) 3

c) 2

d) 4

Ans. c.

Explanation:

$2\sin^2\theta + 3\cos^2\theta = 2*(\sin^2\theta + \cos^2\theta) + \cos^2\theta = 2 + 0 = 2;$

15. If the three angles of a triangle are: $(x+15^0), \left(\frac{6x}{5}+6^0\right)$ and $\left(\frac{2x}{3}+30^0\right)$ **then the triangle is:**

a) scalene

b) isosceles

c) right angled

d) equilateral

Ans. d.

Explanation: (x + 15) + (6x/5 + 6) + (2x/3 + 30) = 180;

43x/15 = 129; => x = 45;

Hence, Every angle of the triangle will be 60 degrees.

16. If number of Vertices: edges and faces of a rectangular parallelopied are denoted by v, e and f respectively, the value of (v – e + f) is

a) 4

b) 2

c) 1

d) 0

Ans. b.

Explanation: The rectangular parallelepiped has 8 vertices, 12 edges, and 6 faces.

Hence, v – e + f = 8 – 12 + 6 = 2;

17. 5 persons will live in a tent. If each person requires $16m^2$ floor area and $100m^3$ space for air then the height of the cone of smallest size to accommodate these persons would be?

a) 18.75 m

b) 16m

c) 10.25 m

d) 20 m

Ans. a.

Explanation: The required area = 16 sq. m.;

Suppose the radius of tent = r meter; => $pi*r^2 = 5*16$; => r = 5.04 meter.

(given) The volume of air = 5*100 m^3;

1/3 * pi * r^2 * h = 500; => h= 18.75 cms

18. If the altitude of an equilateral triangle is 12√3 cm, then its area would be:

a) 12 sq. cms.

b) 72 sq. cms.

c) 36√3 sq. cms.

d) 144√3 sq. cms.

Ans. d.

Explanation: The altitude of the equilateral triangle = (√3* side)/2; => Side = 24 cms.

The required area = (√3* side * side)/4 = (√3* 24 * 24)/4 =144√3 sq. cms.

19. The difference between successive discounts of 40% followed by 30% and 45% followed by 20% on the marked price of an article is Rs. 12. The marked price of the article is:

a) Rs. 400

b) Rs. 200

c) Rs. 800

d) Rs. 600

Ans. d.

Explanation: Suppose, the marked price of the article= Rs. x;

The price after 40% and 30% successive discounts = x*0.60*0.70 = 0.42x;

The price after 45% and 20% successive discounts = x*0.55*0.80 = 0.44x;

(Given), 0.02x = 12; => x = Rs. 600;

20. The area of the triangle formed by the graphs of the equation x=0, 2x + 3y=6 and x + y = 3 is:

a) 1 sq. unit

b) 1.5 sq. unit

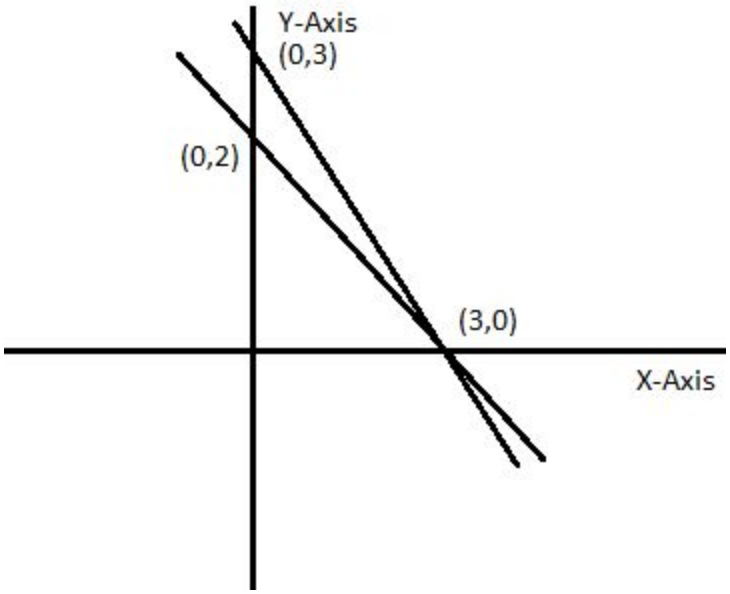
c) 1 sq. unit

d) 4.5 sq. unit

Ans. b.

Explanation: The area of triangle = (1/2) * base * height;

= (1/2) *1 * 3 = 1.5 cms;



21. Among the equations x + 2y + 9 = 0; 5x – 4 = 0; 2y – 13 = 0; 2x – 3y = 0, the equation of the straight line passing through origin is-

a) 2x – 3y = 0

b) 5x – 4 = 0

c) x + 2y + 9 = 0

d) 2y – 13 = 0

Ans.

Explanation: x + 2y + 9 =0; (this line will intersect both the axes)

5x – 4 =0; (This line will be parallel to Y-axis)

2y – 13 =0; (This line will be parallel to X-axis)

2x – 3y =0; (This line will pass through the origin)

22. The HCF of $x^8 – 1$ and $x^4 + 2x^3 – 2x – 1$ is:

a) $x^2 + 1$

b) x + 1

c) $x^2 – 1$

d) x – 1

Ans. c.

Explanation: x^2 -1 =(x +1)*(x-1); => x = -1, 1;

Both the values of x will satisfy the other equation;

Hence, (x^2 -1) will be the appropriate answer.

23. The least number which when divided by 6, 9, 12, 15, 18 leaves the same remainder 2 in each case is:

a) 178

b) 182

c) 176

d) 180

Ans. b.

Explanation: The LCM of these numbers = LCM (6, 9, 12, 15, 18) = 180;

Hence, the appropriate answer = 180 + 2 = 182;

24. Internal bisectors of ∠Q and ∠R of ∆PQR intersect, at O. If ∠ROQ = 96 then the value of∠RPQ is:

a) 12

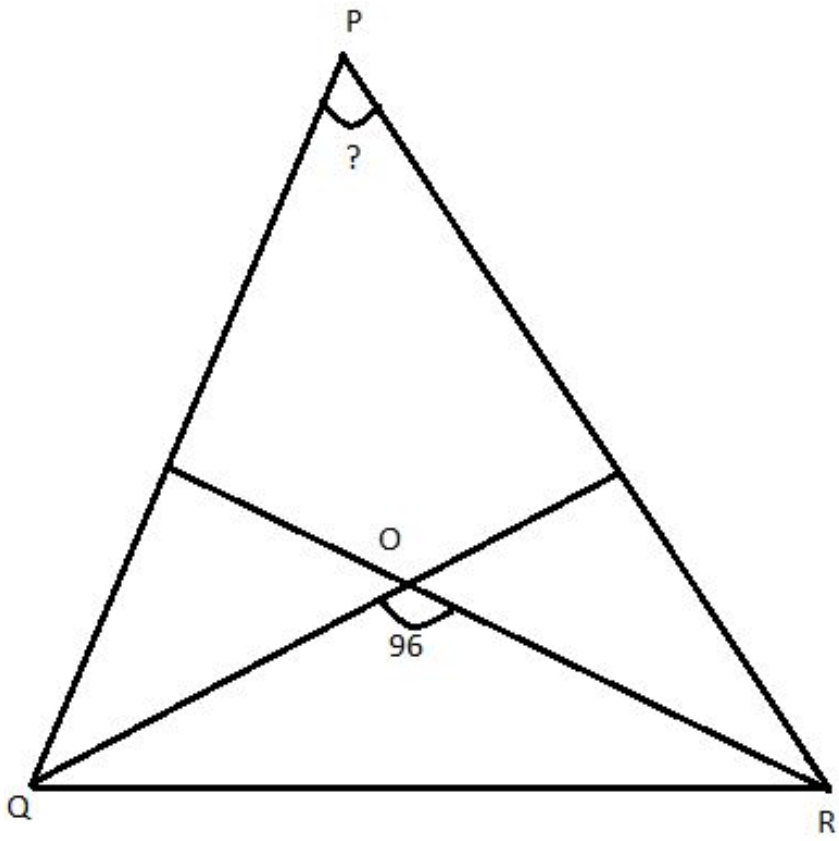
b) 6

c) 36

d) 24

Ans. a.

Explanation: ROQ = 90 + P/2 ; => P = 12 degrees;



25. A certain sum will amount to Rs. 12,100 in 2 years at 10% per annum of compound interest, interest being compounded annually. The sum is-

a) Rs. 12000

b) Rs. 6000

c) Rs. 8000

d) Rs. 10000

Ans. d.

Explanation: $A = P(1 + r/100)^n$;

$12100 = P (1 + 0.1)^2 = P * 1.1 * 1.1 \Rightarrow P = Rs. 10000$;

26. A's 2 days work is equal to B's 3 days work. If A can complete the work in 8 days then to complete the work B will take:

a) 14 days

b) 15 days

c) 16 days

d) 12 days

Ans. d.

Explanation: The efficiency ratio of A and B = 2: 3;

2: 3 = 8: x; => x = 12 days;

27. If the measure of three angles of a triangle are in the ratio 2 : 3: 5, then the triangle is:

a) equilateral

b) isosceles

c) Obtuse angled

d) right angled

Ans. d.

Explanation: 2x + 3x + 5x = 180; => x = 18;

Hence, these angles will be respectively- 36, 54, and 90.

Therefore, the triangle will be right-angled.

28. What must be added to each term of the ratio 2 : 5. so that it may equal to 5 : 6?

a) 12

b) 78

c) 65

d) 13

Ans. d.

Explanation: $(2 + x)/(5 + x) = 5/6$;

$12 + 6x = 25 + 5x$; => $x = 13$;

29. If the sum and difference of two angles are 22/9 radian and 36 respectively, then the value of smaller angle in degree taking the value of π as 22/7 is:

a) 60

b) 48

c) 52

d) 56

Ans.

Explanation:

30. 4 men and 6 women complete a work in 8 days, 2 men and 9 women also complete in 8 days. The number of days 18 women complete the work is:

a) 4 2/3 days

b) 5 2/3 days

c) 4 1/3 days

d) 5 1/3 days

Ans. d.

Explanation: (4m + 6w)*8 = (2m + 9w)*8;

2m = 3w;

As per the given condition,

18w* d = (4m + 6w)*8;

Put the values of m in the above equation-

18*w*d =(6w + 6w)*8;

d= 12*8*w/18*w = 16/3 days.

31. If $(x^{24} + 1) / x^{12} = 7$; then the value of $(x^{72} + 1) / x^{36}$ is-

a) 432

b) 433

c) 343

d) 322

Ans. d.

Explanation:

$(x)^{12} + (1/x^{12}) = 7$;

Taking cubes of both sides-

$[x^{12} + (1/x^{12})]^3 = 343$;

$(x)^{36} + (1/x^{36}) + 3*x^{12}* (1/x^{12})[(x)^{12} + (1/x^{12})] = 343$;

$(x)^{36} + (1/x^{36}) = 343 – 3*7 = 322$;

32. If $5x + 9y = 5$ and $125x^3 + 729y^3 = 120$, then the product of x and y is-

a) 135

b) 1/135

c) 1/9

d) 45

Ans. b.

Explanation: 5x + 9y = 5;

Taking cubes of both sides-

$(5x + 9y)^3 = 5^3$;

$125x^3 + 729y^3 + 3*5x *9y (5x + 9y) = 125$;

120 + 675xy = 125; => xy = 5/675=1/135;

33. If 4 men or 8 women can do a piece of work in 15 days, in how many days can 6 men and 12 women do the same piece of work?

a) 45 days

b) 20 days

c) 5 days

d) 30 days

Ans. c.

Explanation: 4*m*15 = 8*w*15; => m = 2w;

(6*m + 12*w)*d = 4*m*15;

D = 60*m / 12*m = 5 days.

34. The value of Sin^2 22 + Sin^2 68 + Cot^2 30 is

a) 3/4

b) 4

c) 5/4

d) 3

Ans. b.

Explanation:

Sin^2 22 + Sin^2 68 + Cot^2 30 = Sin^2 22 + Sin^2 (90 – 22) + Cot^2 30 = Sin^2 22 + Cos^2 22 + 3 =4;

35. Find a simple discount equivalent to a discount series of 10%, 20% and 25%

a) 45%

b) 55%

c) 52%

d) 46%

Ans. d.

Explanation: The amount after successive discounts on a price = x * 0.9*0.8*0.75 = 0.54x; https://www.freshersnow.com/previous-year-question-papers/

Hence, the simple discount will be equivalent = 46%.

36. If Θ be acute angle and tan (4Θ - 50) = cot(50 - Θ), then the value of Θ in degrees is:

a) 30

b) 40

c) 20

d) 50

Ans. a.

Explanation:

tan(4θ -50) = tan(90- 50 + θ);

4θ -50 = 40 + θ; => θ = 30;

37. Cost price of 100 books is equal to the selling price of 60 books. The gain or loss percentage will be:

a) 66 2/3%

b) 66 ¼%

c) 66%

d) 66 ¾%

Ans.

Explanation:

38. If 5SinΘ = 3, the numerical value of (SecΘ – TanΘ) / (SecΘ + TanΘ)

a) 1/3

b) 1/2

c) 1/4

d) 1/5

Ans. c.

Explanation: $\sin\theta = 3/5$;

$\cos\theta = 4/5$; $\tan\theta = 3/4$;

By putting these values in the given equation-

$\text{Sec}\Theta - \text{Tan}\Theta = 5/4 - 3/4 = 1/2$;

$\text{Sec}\Theta + \text{Tan}\Theta = 5/4 + 3/4 = 2$;

Hence, the required ratio = 1/4;

39. If 3/4 of number is 7 more than 1/6 of the number, then 5/3 of the number is:

a) 15

b) 18

c) 12

d) 20

Ans. d.

Explanation: ¾ * x = x/6 +7; => x = 12;

Hence, the required answer = 5/3 * 12 = 20;

40. What is the arithmetic mean of first 20 odd natural numbers?

a) 17

b) 19

c) 22

d) 20

Ans. d.

Explanation: Sum of first 20 odd numbers = 10*[2*1 + 19*2] = 400;

Hence, the arithmetic mean = 400/20 = 20;

41. A kite is flying at the height of 75m from the ground. The string makes an angle Θ (where CotΘ = 8/15) with the level ground. Assuming that there is no slack in the string, the length of the string is equal to:

a) 75m

b) 85m

c) 40m

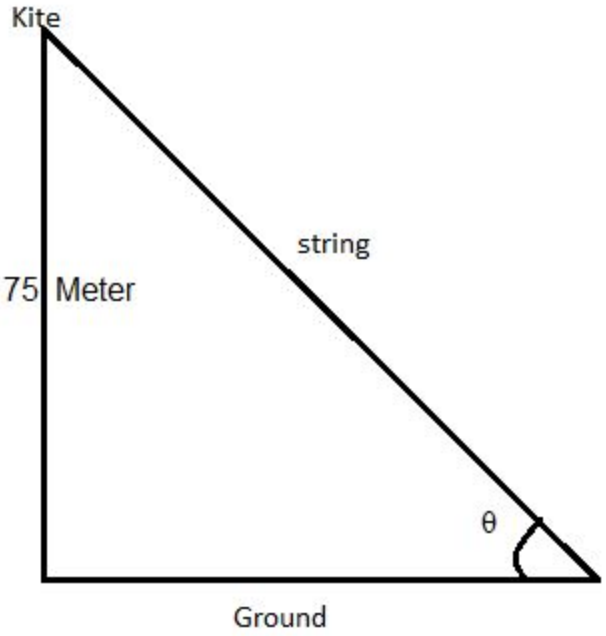
d) 65m

Ans. b.

Explanation: cotθ =8/15; => Sinθ=15/17;

From the given figure-

Sinθ = 75/string; => string's length = 75/(15/17) = 85 m



42. If a person travels from a point L towards east for 12 km and then travels 5km towards north and reaches a point M, then shortest distance from L to M is:

a) 14

b) 12

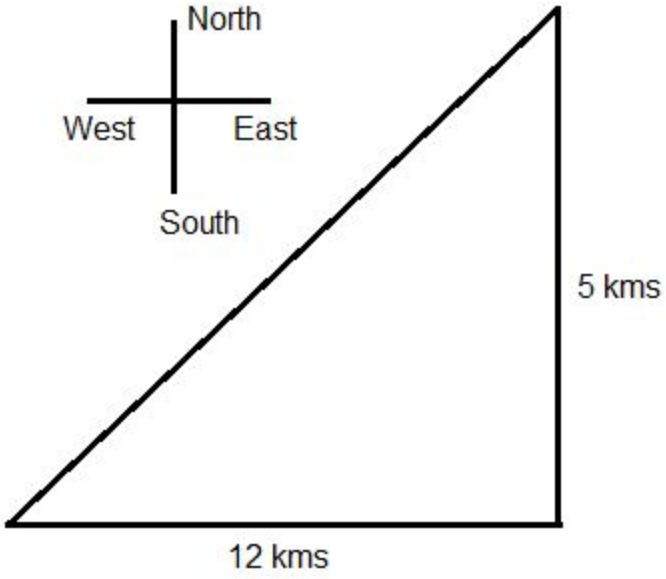
c) 17

d) 13

Ans.

Explanation: From the figure given below- we can find the shortest distance between the starting point and destination point using Pythagoras theorem-

$=\sqrt{(13)^2+(5)^2}$= 13 meters.



43. In an examination, a student must get 36% marks to pass. A student who gets 190 marks failed by 35 marks. The total marks in that examination is:

a) 500

b) 625

c) 810

d) 450

Ans. b.

Explanation: Let the total marks in the examination = x;

Minimum marks to pass the examination = 0.36x;

0.36x = 190 + 35; => x = 225/0.36 = 625.

44. A train 180 mts long is running at a speed of 90 km/h. How long will it take to pass a post?

a) 8.2 secs

b) 7.8 secs

c) 8 secs

d) 7.2 secs

Ans. d.

Explanation: Time = Distance/ Speed = 180/(1000 *90)= 0.002 hours.

=> 0.002*60*60 = 7.2 secs

45. An article which is marked at Rs. 975 is sold for Rs. 897. The % discount is?

a) 6%

b) 10%

c) 12%

d) 8%

Ans. d.

Explanation: % discount = (975 – 897)*100/975 = 8%

46. If SecΘ + TanΘ = p, (p ≠ 0) then SecΘ is equal to

a) (p + 1/p), p ≠ 0

b) 1/2(p + 1/p), p ≠ 0

c) 2(p – 1/p), p ≠ 0

d) (p – 1/p), p ≠ 0

Ans. b.

Explanation: Secθ + tanθ = p;

$\text{Sec}\theta - \tan\theta = 1/p;$

$\text{Sec}\theta = (1/2)*(p + 1/p);$

47. If p = 99 then the value of p ($p^2 + 3p + 3$)

a) 999999

b) 988899

c) 989898

d) 998889

Ans. a.

Explanation:

$= 99(99^2 + 3*99 + 3);$

$= 99 [(100 -1)^2 + 300 – 3 +3];$

$=99 [10000 + 1 – 200 +300];$

$=99(10101) = 999999;$

48. If x = 2 then the value of $x^3 + 27x^2 + 243x + 631$

a) 1233

b) 1231

c) 1321

d) 1211

Ans. a.

Explanation:

$= (2)^3 + 27(2)^2 + 243(2) + 631;$

$= 8 + 108 + 486 + 631;$

$= 1233;$

49. If D, E and F are the mid points of BC, CA and AB respectively of the ΔABC then the ratio of area of the parallelogram DEFB and area of the trapezium CAFD is:

a) 1 : 3

b) 1 : 2

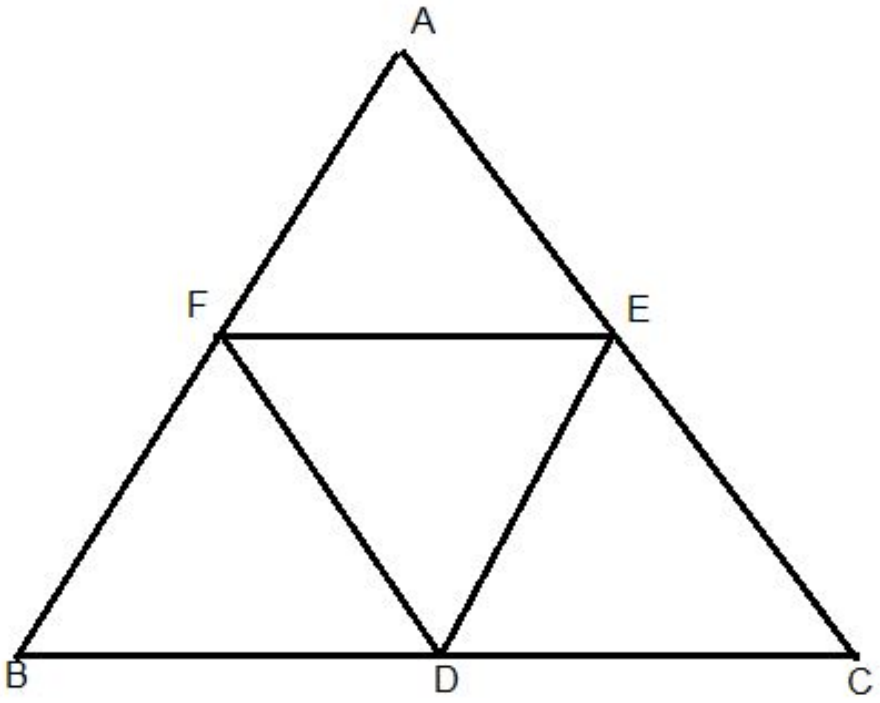
c) 3 : 4

d) 2 : 3

Ans. d.

Explanation: the area of each triangle is equal in triangle ABC.

Hence, Area(DEFB) : Area(CAFD) = 2*[Area(DEF)]:3*[Area(DEF)] = 2: 3;



50. If A and B are in the ratio 4 : 5 and the difference of their squares is 81, what is the value of A?

a) 36

b) 15

c) 45

d) 12

Ans. a.

Explanation: Let the first number A= 4x and second number B= 5x;

$25x^2 – 16x^2 = 81$; => x=9;

Hence, the value of A = 36;