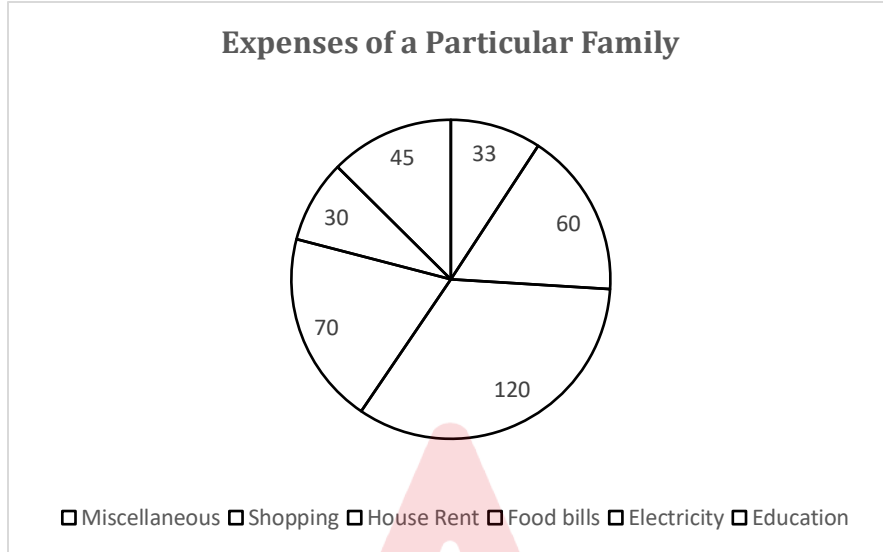


Odisha LTR Practice Mock Test Math

Q1. The pie chart shows the various kinds of expenses of a particular family for a month. The amount spent on electricity for the month is Rs. 4500. What is the total amount spent by the family?



- (a) Rs. 90000
- (b) Rs. 54000
- (c) Rs. 49500
- (d) Rs. 45000

Q2. A sum of money is to be distributed among A, B, C and D in the ratio of 7:8:9:10. If C gets Rs. 500 more than B, then how much did D receive?

- (a) Rs. 4000
- (b) Rs. 3500
- (c) Rs. 4500
- (d) Rs. 5000

Q3. A shopkeeper earns 540% profit on cost. If the cost increases by 60% whereas the selling price remains the same, find the ratio of the new profit to selling price.

- (a) 7:9
- (b) 13:14
- (c) 2:3
- (d) 3:4

Q4. A can do a work in 60 days and is thrice as efficient as B. In how many days will they be together able to complete the work if A joins B every 3rd day?

- (a) 120
- (b) 30
- (c) 60
- (d) 90

Q5. A principal of Rs. 30000 amounts to Rs. 36000 in 5 years at simple interest. What will be the compound interest on the same principal for 2 years?

- (a) Rs. 2448
- (b) Rs. 2444
- (c) Rs. 2442
- (d) Rs. 2446

Q6. Which number's square when multiplied by 10 will be exactly divisible by 30, 36 and 40?

- (a) 18
- (b) 8
- (c) 6
- (d) 12

Q7. Find the value of: $54/9 \times 36/4/3$

- (a) 18
- (b) 12
- (c) 24
- (d) 15

Q8. A farmer raises chickens and horses on a farm. In total he has 35 animals whereas the total number of legs are 100. Find the number of horses he has.

- (a) 20
- (b) 10
- (c) 18
- (d) 15

Q9. If $a+b=70$ and $a-b=30$, then what is the value of ab ?

- (a) 750
- (b) 250
- (c) 1000
- (d) 500

Q10. Convert 10011001 binary to decimal.

- (a) 151
- (b) 153
- (c) 152
- (d) 154

Q11. What is the error percentage if a number which was supposed to be divided by $5/8$ was multiplied by $5/8$ instead?

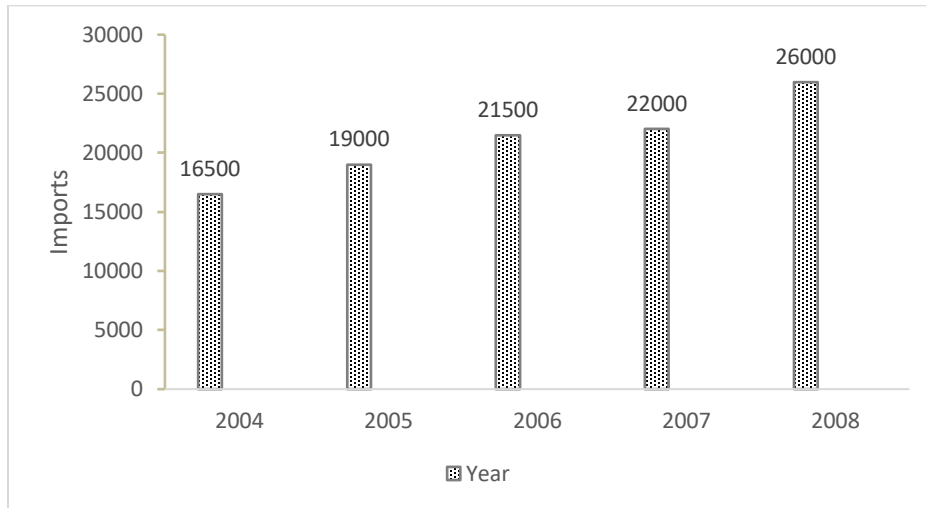
- (a) 120 percent
- (b) 156 percent
- (c) 39 percent
- (d) 144 percent

Q12. Two cars started a race together. A car travels at 180 kmph and the other one at 40 m/s.

What will be the time difference in which the cars finished the race of 90 kms?

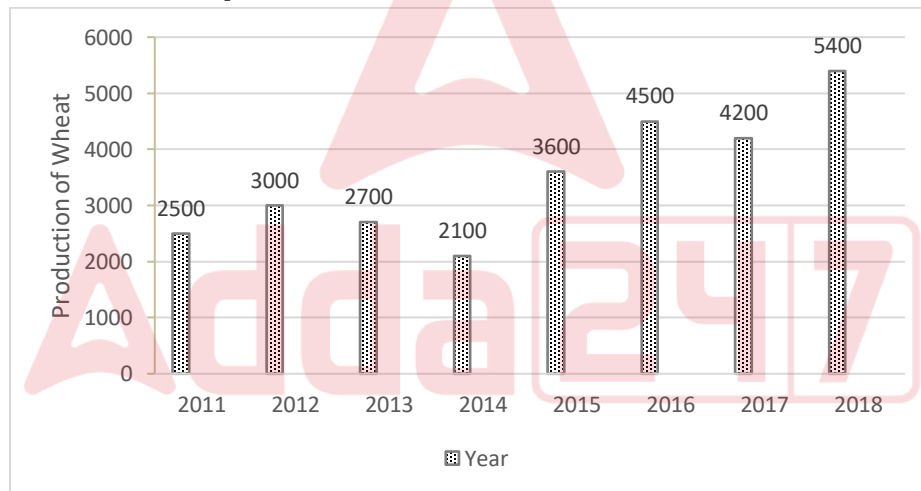
- (a) 360 seconds
- (b) 450 seconds
- (c) 540 seconds
- (d) 750 seconds

Q13. The histogram shows the imports of coal (in tonnes) over a period of time. What is the average amount of imports for the period?



- (a) 21000 tonnes
- (b) 23000 tonnes
- (c) 20000 tonnes
- (d) 22000 tonnes

Q14. The bar chart shows the production of wheat (in tonnes) over a period of time. What is difference between the highest 2 productions and the lowest 2 productions?



- (a) 3300 tonnes
- (b) 4000 tonnes
- (c) 4500 tonnes
- (d) 5300 tonnes

Q15. The price of a bike increases to Rs. 100000 after 3 increases. The 1st increase being 25%, 2nd being 12.50% and 11.11% being the 3rd. Find the original price.

- (a) Rs. 32000
- (b) Rs. 100000
- (c) Rs. 64000
- (d) Rs. 48000

Q16. A family comprised of a couple and their 4 children. 7 years ago, the average age of the family was 25 years. A year ago, the average age of the wife and the children was 28 years. Find the present age of the husband.

- (a) 37 years
- (b) 42 years
- (c) 48 years
- (d) 47 years

Q17. A and B together have Rs. 3500. If $\frac{1}{2}$ of A's amount is equal to $\frac{2}{3}$ of B's amount, how much does A have?

- (a) Rs. 1500
- (b) Rs. 2500
- (c) Rs. 500
- (d) Rs. 2000

Q18. A train travels at a speed of 90 kmph while another train travels at a speed of 30 m/s. They start at the same point. Find the distance between them after 1 minute.

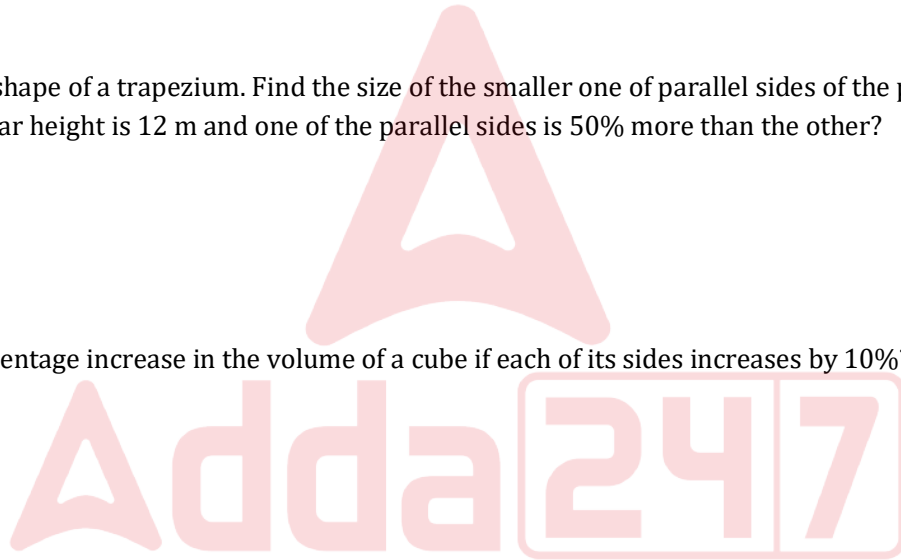
- (a) 360 m
- (b) 300 m
- (c) 200 m
- (d) 240 m

Q19. A park is in the shape of a trapezium. Find the size of the smaller one of parallel sides of the park if its area is 450 sq m, the perpendicular height is 12 m and one of the parallel sides is 50% more than the other?

- (a) 30 m
- (b) 36 m
- (c) 40 m
- (d) 25 m

Q20. What is the percentage increase in the volume of a cube if each of its sides increases by 10%?

- (a) 31 percent
- (b) 33.10 percent
- (c) 21 percent
- (d) 30 percent



Solutions

S1. Ans.(b)

Sol. The amount spent on electricity for the month is Rs. 4500.

Expense of electricity = 30

So, 30 -----4500

1-----1500

amount spent in education = $150 \times 45 = 6750$

amount spent in Miscellaneous = $150 \times 33 = 4950$

amount spent in shopping = $150 \times 60 = 9000$

amount spent in HR = $150 \times 120 = 18000$

amount spent in food bills = $150 \times 72 = 10800$

Total amount spent by the family = $6750 + 4950 + 9000 + 18000 + 10800 = 54000$ Rs.

S2. Ans.(d)

Sol. Let A's money $7x$, B's money $8x$, C's money = $9x$, and D's money = $10x$

According to question

$$C = 500 + B$$

$$9x = 500 + 8x$$

$$X = 500$$

$$\text{Then } D = 10 \times 500 = 5000.$$

S3. Ans.(d)

Sol. Let the original cost price (CP) = x

Given, the shopkeeper earns a profit of 540%, the profit = 540% of $x = 5.4x$

So, the selling price (SP) = CP + Profit = $x + 5.4x = 6.4x$

If the cost increases by 60%, the new CP = $x + 60\% \times x = 1.6x$

the SP remains the same, $6.4x$

The new profit = SP - New CP = $6.4x - 1.6x = 4.8x$

The ratio of the new profit to the selling price = $4.8x : 6.4x = 3 : 4$

S4. Ans.(d)

Sol. According to question

A is thrice as efficient as B,

$$B = 60 \times 3 = 180 \text{ days.}$$

A's one day work is $1/60$ and B's one day work is $1/180$.

A works one day (with B) and takes two days off.

Therefore, in 3 days their combined work = $\frac{1}{60} + \frac{1}{180} + \frac{2}{180} = \frac{1}{60} + \frac{1}{60} = 1/30$

To complete the work = $3 \times 30 = 90$ days.

S5. Ans.(a)

Sol. According to question

$$S.I = 36000 - 30000 = \text{Rs. } 6000$$

$$P = \text{Rs. } 30000$$

Time = 5 years

$$S.I = \frac{P \times r \times t}{100}$$

$$6000 = \frac{30000 \times r \times 5}{100}$$

$$r = 4\%$$

For C.I

$$n = 2 \text{ years}$$

$$A = P \left(1 + \frac{r}{100}\right)^2$$

$$A = 30000 \left(1 + \frac{4}{100}\right)^2$$

$$A = 30000 \left(\frac{104}{100}\right)^2$$

$$A = (30000 \times 10816) / 100$$

$$A = \text{Rs. } 32448$$

$$C.I = 32448 - 30000 = \text{Rs. } 2448.$$

S6. Ans.(c)

Sol. LCM of 30, 36, and 40 = 360

Let number = x

According to question

$$x^2 \times 10 = 360$$

$$x^2 = 36$$

$$x = 6$$

S7. Ans.(a)

$$\text{Sol. } \frac{\frac{54 \times 36}{9 \times 4}}{3}$$

$$= \frac{6 \times 9}{3} = 18$$

S8. Ans.(d)**Sol.** According to question

(total animals)

$$C+H=35 \text{ -----(1)}$$

since chickens have 2 legs and horses have 4

$$2C+4H=100 \text{ or } C+2H = 50 \text{ -----(2)}$$

Solving these equations $H = 15$ **S9. Ans.(c)****Sol.** Given, $a+b=70$ ----(1) and $a-b=30$ ----(2)

Solving these equations

We get $a = 50$ and $b = 20$

$$ab = 50 \times 20 = 1000$$

S10. Ans.(b)**Sol.** To convert a binary number to decimal, multiply each bit by 2 raised to the power of its position, starting from 0 on the right.

$$1 \times 2^7 = 128$$

$$0 \times 2^6 = 0$$

$$0 \times 2^5 = 0$$

$$1 \times 2^4 = 16$$

$$1 \times 2^3 = 8$$

$$0 \times 2^2 = 0$$

$$0 \times 2^1 = 0$$

$$1 \times 2^0 = 1$$

Adding these values $= 128 + 16 + 8 + 1 = 153$.**S11. Ans.(b)****Sol.** LCM of 5 and 8 = 40

$$\text{Actual multiplied number} = 40 \times \frac{5}{8} = 25$$

$$\text{But here error so number} = 40 \times \frac{8}{5} = 64$$

$$\text{Error \%} = \frac{64-25}{25} \times 100 = 156\%$$

S12. Ans.(b)**Sol.** The first car travels $= 180 \times 5 / 18 = 50$ m/s.The distance of the race $= 90$ km $= 90 \times 1000 = 90000$ meters.

Time = Distance / speed

For the first car

$$\text{Time}_1 = 90000 / 50 = 1800 \text{ seconds.}$$

For the second car

$$\text{Time}_2 = 90000 / 40 = 2250 \text{ seconds.}$$

The time difference between the two cars finishing the race

$$\text{Time}_2 - \text{Time}_1 = 2250 - 1800 = 450 \text{ seconds.}$$

S13. Ans.(a)**Sol.** The average amount of imports for the period in all years

$$= \frac{16500+19000+21500+22000+26000}{5} = \frac{105000}{5} = 21000 \text{ tonnes}$$

S14. Ans.(d)**Sol.** The sum of the highest 2 productions = 5400+4500 = 9900 tonnes

The sum of the highest 2 productions = 2500+2100 = 4600 tonnes

difference between the highest 2 productions and the lowest 2 productions

= 9900 - 4600 = 5300 tonnes.

S15. Ans.(c)**Sol.** To reverse a 11.11% increase, we divide by $1+11.11/100=1.1111$.To reverse a 12.50% increase, we divide by $1+12.50/100=1.125$.To reverse a 25% increase, we divide by $1+25/100=1.25$.the original price 'P' = $\frac{100000}{\frac{1.1111}{1.125} \times 1.25}$ = Rs. 64000.**S16. Ans.(d)****Sol.** According to questionThe average age was 25 years for 6 members = $25 \times 6 = 150$ years.

Since 7 years have passed for each of the 6 members,

the total age increase for the family is $7 \times 6 = 42$ years.Therefore, the total age of the family = $150 + 42 = 192$ years.The total age of these 5 members a year ago = $28 \times 5 = 140$ years.The total current age of the wife and the 4 children = $140 + 5145$ years.The husband's age = the total current age of the wife - the children from the total current age of the family
= $192 - 145 = 47$ years.**S17. Ans.(d)****Sol.** According to question $1/2$ of A's amount is = $2/3$ of B's amount $A/B = 4/3$

Total amounts 7 -----3500

1-----500

Amount of A = $4 \times 500 = \text{Rs. } 2000$ **S18. Ans.(b)****Sol.** The speed of the first train = $90 \times 5/18 = 25 \text{ m/s}$.The speed of the second train = 30 m/s .

the distance between them is 1 minute, which is 60 seconds.

Distance covered by the first train in 60 seconds = $25 \times 60 = 1500 \text{ m}$ Distance covered by the second train in 60 seconds is $30 \times 60 = 1800 \text{ m}$.The difference in the distances covered by the two trains = $1800 \text{ m} - 1500 \text{ m} = 300 \text{ m}$.**S19. Ans.(a)****Sol.** The area of a trapezium $A = h/2(a+b)$.Given $A = 450 \text{ sq m}$, $h = 12 \text{ m}$,Let the smaller side = x meters,

the longer side = $x+0.5x=1.5x$ meters.

Therefore

$$450 = \frac{1}{2} \times 12 \times (x + 1.5x)$$

$$450 = 6(2.5x)$$

$$450 = 15x$$

$$X = 30 \text{ m.}$$

S20. Ans.(b)

Sol. Let the edge of a cube = a

$$\text{Volume of cube} = a^3$$

$$\text{New edge} = 110\% \times a = 1.1a$$

$$\text{New volume} = (1.1a)^3 = 1.331a^3$$

$$\text{Increase \% in volume} = \frac{1.331a^3 - a^3}{a^3} \times 100$$

$$= \frac{0.331a^3}{a^3} \times 100 = 33.10\%$$

