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Air Force Common Admission Test



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Q. 1 On selling 17 balls at Rs. 720, there is a loss equal to the cost price of 5 balls. The cost price of a ball is:

- [A] Rs. 45
- [B] Rs. 50
- [C] Rs. 55
- [D] Rs. 60

Answer Option [D]

**Explanation:**

(C.P. of 17 balls) - (S.P. of 17 balls) = (C.P. of 5 balls)  
 $\Rightarrow$  C.P. of 12 balls = S.P. of 17 balls = Rs.720.

$$\Rightarrow \text{C.P. of 1 ball} = \text{Rs.} \left( \frac{720}{12} \right) = \text{Rs. } 60.$$

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Q. 2 **The age of father 10 years ago was thrice the age of his son. Ten years hence, father's age will be twice that of his son. The ratio of their present ages is:**

- [A] 5 : 2
- [B] 7 : 3
- [C] 9 : 2
- [D] 13 : 4

Answer Option [B]

**Explanation:**

Let the ages of father and son 10 years ago be  $3x$  and  $x$  years respectively.

Then,  $(3x + 10) + 10 = 2[(x + 10) + 10]$

$$\Rightarrow 3x + 20 = 2x + 40$$

$$\Rightarrow x = 20.$$

$$\therefore \text{Required ratio} = (3x + 10) : (x + 10) = 70 : 30 = 7 : 3.$$

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Q. 3 **8597 - ? = 7429 - 4358**

- [A] 5426
- [B] 5706
- [C] 5526
- [D] 5476
- [E] None of these

Answer Option [C]

**Explanation:**

$$7429 \quad \text{Let } 8597 - x = 3071 - 4358 \quad \text{Then,} \quad x = 8597 - 3071 \quad \text{----} \quad = 5526 \quad 3071 \quad \text{----}$$

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Q. 4 **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 Option [C]

**Explanation:**

C.P. of 6 toffees = Re. 1

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

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

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

- Q. 5 **Present ages of Sameer and Anand are in the ratio of 5 : 4 respectively. Three years hence, the ratio of their ages will become 11 : 9 respectively. What is Anand's present age in years?**
- [A] 24  
[B] 27  
[C] 40  
[D] Cannot be determined  
[E] None of these

Answer Option [A]

**Explanation:**

Let the present ages of Sameer and Anand be  $5x$  years and  $4x$  years respectively.

$$\text{Then, } \frac{5x + 3}{4x + 3} = \frac{11}{9}$$

$$\Rightarrow 9(5x + 3) = 11(4x + 3)$$

$$\Rightarrow 45x + 27 = 44x + 33$$

$$\Rightarrow 45x - 44x = 33 - 27$$

$$\Rightarrow x = 6.$$

$\therefore$  Anand's present age =  $4x = 24$  years.

- Q. 6 **Q is as much younger than R as he is older than T. If the sum of the ages of R and T is 50 years, what is definitely the difference between R and Q's age?**
- [A] 1 year  
[B] 2 years  
[C] 25 years  
[D] Data inadequate  
[E] None of these

Answer Option [D]

**Explanation: Given that:**

1. The difference of age b/w R and Q = The difference of age b/w Q and T.

2. Sum of age of R and T is 50 i.e.  $(R + T) = 50$ .

**Question:  $R - Q = ?$ .**

Explanation:

$$R - Q = Q - T$$

$$(R + T) = 2Q$$

Now given that,  $(R + T) = 50$

So,  $50 = 2Q$  and therefore  $Q = 25$ .

Question is  $(R - Q) = ?$

Here we know the value(age) of Q (25), but we don't know the age of R.

Therefore,  $(R - Q)$  cannot be determined.

- Q. 7 **If the number  $91876 * 2$  is completely divisible by 8, then the smallest whole number in place of \* will be:**
- [A] 1  
[B] 2  
[C] 3  
[D] 4

[E] None of these

Answer Option [C]

**Explanation:**

Then number  $6x2$  must be divisible by 8.

$\therefore x = 3$ , as 632 is divisible 8.

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Q. 8 What least number must be subtracted from 13601, so that the remainder is divisible by 87 ?

[A] 23

[B] 31

[C] 29

[D] 37

[E] 49

Answer Option [C]

**Explanation:**

87 | 13601 (156) 87 ----- 490 435 ----- 551 522 --- 29 --- The

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Q. 9 A number when divided successively by 4 and 5 leaves remainders 1 and 4 respectively. When it is successively divided by 5 and 4, the

[A] 1, 2

[B] 2, 3

[C] 3, 2

[D] 4, 1

Answer Option [B]

**Explanation:**

4 | x y = (5 x 1 + 4) = 9 ----- 5 | y -1 x = (4 x y + 1) = (4 x 9 + 1) = 37 ----- | 1 -4 Now, 37

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Q. 10 Speed of a boat in standing water is 9 kmph and the speed of the stream is 1.5 kmph. A man rows to a place at a distance of 105 km and comes back to the starting point. The total time taken by him is:

[A] 16 hours

[B] 18 hours

[C] 20 hours

[D] 24 hours

Answer Option [D]

**Explanation:**

Speed upstream = 7.5 kmph.

Speed downstream = 10.5 kmph.

$\therefore$  Total time taken =  $\left( \frac{105}{7.5} + \frac{105}{10.5} \right)$  hours = 24 hours.

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Q. 11 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]  $\frac{15}{517}$  % loss

[B]  $\frac{15}{517}$  % gain

[C]  $\frac{2}{63}$  % gain

[D] None of these

Answer Option [B]

**Explanation:**

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

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

So, total C.P. = Rs. (700 + 1000) = Rs. 1700.

Total S.P. = Rs. (840 + 960) = Rs. 1800.

$$\therefore \text{Gain \%} = \left( \frac{100}{1700} \times 100 \right) \% = \frac{15}{517} \%$$

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Q. 12 The percentage profit earned by selling an article for Rs. 1920 is equal to the percentage loss incurred by selling the same article for Rs. 1280. At what price should the article be sold to make 25% profit?

[A] Rs. 2000

[B] Rs. 2200

[C] Rs. 2400

[D] Data inadequate

Answer Option [A]

**Explanation:**

Let C.P. be Rs.  $x$ .

$$\text{Then, } \frac{1920 - x}{x} \times 100 = \frac{x - 1280}{x} \times 100$$

$$\Rightarrow 1920 - x = x - 1280$$

$$\Rightarrow 2x = 3200$$

$$\Rightarrow x = 1600$$

$$\therefore \text{Required S.P.} = 125\% \text{ of Rs. } 1600 = \text{Rs.} \left( \frac{125}{100} \times 1600 \right) = \text{Rs.} 2000.$$

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Q. 13  $217 \times 217 + 183 \times 183 = ?$

[A] 79698

[B] 80578

[C] 80698

[D] 81268

Answer Option [B]

**Explanation:**

$$(217)^2 + (183)^2 = (200 + 17)^2 + (200 - 17)^2$$

$$= 2 \times [(200)^2 + (17)^2] \quad [\text{Ref: } (a + b)^2 + (a - b)^2 = 2(a^2 + b^2)]$$

$$= 2[40000 + 289]$$

$$= 2 \times 40289$$

$$= 80578.$$

Q. 14 What is the unit digit in  $7^{105}$  ?

- [A] 1
- [B] 5
- [C] 7
- [D] 9

Answer Option [C]

**Explanation:**

Unit digit in  $7^{105} =$  Unit digit in  $[(7^4)^{26} \times 7]$

But, unit digit in  $(7^4)^{26} = 1$

$\therefore$  Unit digit in  $7^{105} = (1 \times 7) = 7$

Q. 15 How many of the following numbers are divisible by 132 ?  
264, 396, 462, 792, 968, 2178, 5184, 6336

- [A] 4
- [B] 5
- [C] 6
- [D] 7

Answer Option [A]

**Explanation:**

$132 = 4 \times 3 \times 11$

So, if the number divisible by all the three number 4, 3 and 11, then the number is divisible by 132 also.

264  $\rightarrow$  11,3,4 (/)

396  $\rightarrow$  11,3,4 (/)

462  $\rightarrow$  11,3 (X)

792  $\rightarrow$  11,3,4 (/)

968  $\rightarrow$  11,4 (X)

2178  $\rightarrow$  11,3 (X)

5184  $\rightarrow$  3,4 (X)

6336  $\rightarrow$  11,3,4 (/)

Therefore the following numbers are divisible by 132 : 264, 396, 792 and 6336.

Required number of number = 4.

Q. 16 Some articles were bought at 6 articles for Rs. 5 and sold at 5 articles for Rs. 6. Gain percent is:

- [A] 30%
- [B]  $\frac{1}{33} \frac{1}{3} \%$
- [C] 35%
- [D] 44%

Answer Option [D]

**Explanation:**

Suppose, number of articles bought = L.C.M. of 6 and 5 = 30.

$$\text{C.P. of 30 articles} = \text{Rs.} \left( \frac{5}{6} \times 30 \right) = \text{Rs.} 25.$$

$$\text{S.P. of 30 articles} = \text{Rs.} \left( \frac{6}{5} \times 30 \right) = \text{Rs.} 36.$$

$$\therefore \text{Gain \%} = \left( \frac{11}{25} \times 100 \right) \% = 44\%.$$

- Q. 17 **666 ? 6 ? 3 = ?**
- [A] 37
  - [B] 333
  - [C] 111
  - [D] 84
  - [E] None of these

Answer Option [A]

**Explanation:**

$$\text{Given Exp.} = 666 \times \frac{1}{6} \times \frac{1}{3} = 37$$

- Q. 18  **$2 + 2^2 + 2^3 + \dots + 2^9 = ?$**
- [A] 2044
  - [B] 1022
  - [C] 1056
  - [D] None of these

Answer Option [B]

**Explanation:**

This is a G.P. in which  $a = 2$ ,  $r = \frac{2^2}{2} = 2$  and  $n = 9$ .

$$\therefore S_n = \frac{a(r^n - 1)}{(r - 1)} = \frac{2 \times (2^9 - 1)}{(2 - 1)} = 2 \times (512 - 1) = 2 \times 511 = 1022.$$

- Q. 19 **Which one of the following is a prime number ?**
- [A] 119
  - [B] 187
  - [C] 247
  - [D] 551
  - [E] None of these

Answer Option [E]

**Explanation:**

$$551 > 22$$

All prime numbers less than 24 are : 2, 3, 5, 7, 11, 13, 17, 19, 23.

119 is divisible by 7; 187 is divisible by 11; 247 is divisible by 13 and 551 is divisible by 19.

So, none of the given numbers is prime.

- Q. 20 **What will be remainder when  $17^{200}$  is divided by 18 ?**
- [A] 17
  - [B] 16
  - [C] 1
  - [D] 2

Answer Option [C]

**Explanation:**

When  $n$  is even,  $(x^n - a^n)$  is completely divisible by  $(x + a)$

$(17^{200} - 1^{200})$  is completely divisible by  $(17 + 1)$ , i.e., 18.

$\Rightarrow (17^{200} - 1)$  is completely divisible by 18.

$\Rightarrow$  On dividing  $17^{200}$  by 18, we get 1 as remainder.