

**Tnpsc Group 4 Aptitude & Mental Ability Solved Questions**Tnpsc CCSE 4 2018 Expected Cut Off Marks: <https://goo.gl/bsYwHt>Tnpsc CCSE 4 2018 Answer Key: <https://goo.gl/kUg5Xo>**1. The value of  $e^0$  is**

- (A) e
- (B) 1
- (C) 0
- (D)  $\infty$

**Ans : (B) 1****Solution :**Anything to the **power 0 is 1.****2. How many solutions have a linear equation in one variable ?**

- (A) Three Solutions
- (B) Unique solution
- (C) Two Solutions
- (D) No Solutions

**Ans : (B) Unique Solution****Solution :**

Let us take an example of linear equation with one variable

$$2x - 4 = 0$$

$$2x = 4$$

$$X = 2$$

So for equation with one variable only one solution can be formed.

**3. The 7<sup>th</sup> term of the sequence 0.12 , 0.012 , 0.0012, ..... is**

- (A)  $1.2 * 10^6$

(B)  $1.2 * 10^{-6}$

(C)  $1.2 * 10^7$

(D)  $1.2 * 10^{-7}$

**Ans : (D)  $1.2 * 10^{-7}$**

**Solution :**

1. 0.12

2. 0.012

3. 0.0012

4. 0.00012

5. 0.000012

6. 0.0000012

**7. 0.00000012**

$$0.00000012 = 12 * 10^{-6} = 1.2 * 10^{-7}$$

**4. Simplify :  $\frac{9}{8} \div \frac{3}{5}$  of  $(\frac{3}{4} + \frac{3}{5})$**

(A)  $1\frac{11}{18}$

(B)  $1\frac{5}{18}$

(C)  $1\frac{13}{18}$

(D)  $1\frac{7}{18}$

**Ans : (D)  $1\frac{7}{18}$**

**Solution :**

$$\frac{9}{8} * \frac{5}{3} \text{ of } (\frac{27}{20})$$

$$\frac{45}{24} \div \frac{27}{20}$$

$$\frac{45}{24} * \frac{20}{27} = \frac{25}{18} = 1\frac{7}{18}$$

5. A sum of money triples itself t 8% per annum over a certain period of time.

The time taken is

- (A) 20 years
- (B) 22 years
- (C) 25 years
- (D) 30 years

Ans : (C) 25 years

Solution:

Let us take p = Rs. 100 when it triples total amount will be Rs. 300. So the interest will be Rs. 200.

$$SI = \frac{PNR}{100}$$

$$200 = \frac{100 * N * 8}{100}$$

$$N = \frac{200}{8}$$

$$N = 25 \text{ years.}$$



6. Find the correct relationship between G.C.D. and L.C.M.

- I. G.C.D. = L.C.M.
- II. G.C.D.  $\leq$  L.C.M.
- III. L.C.M.  $\leq$  G.C.D.
- IV. L.C.M.  $>$  G.C.D.

- (A) I
- (B) II
- (C) III
- (D) IV

Ans : (D) IV

**Solution :**

L.C.M and G.C.D must have atleast minimum of two values.

Let us take values 2 and 4

$$\text{L.C.M} = 4$$

$$\text{G.C.D} = 2$$

$$\text{L.C.M.} > \text{G.C.D.}$$

**7. If p,q,r,s,t are in A.P then the value of  $p - 4q + 6r - 4s + t$  is**

(A) 1

(B) 2

(C) 3

(D) 0

**Ans : (D) 0**

**Solution :** In A.P the difference between each value will be same.

Let us take difference between each value as 1.

So  $p = 1$  ,  $q = 2$  ,  $r = 3$  ,  $s = 4$  ,  $t = 5$  sub these values in the eqn

$$1 - 4(2) + 6(3) - 4(4) + 5$$

$$1 - 8 + 18 - 16 + 5 = 0$$

**8. The G.C.D and L.C.M of 90 , 150 , 225 is**

(A) 15 , 450

(B) 450 , 15

(C) 90 , 225

(D) 225 , 150

**Ans : (A) 15 , 450**

**Solution :**

G.C.D of

$$90 = 15 * 3 * 2$$

$$150 = 15 * 5 * 2$$

$$225 = 15 * 15$$

$$\mathbf{G.C.D = 15}$$

$$\mathbf{L.C.M = 15 * 3 * 5 * 2 = 450}$$

$$\mathbf{L.C.M = 450}$$

9. If  $y - \frac{1}{y} = 6$  find the value of  $y^3 - \frac{1}{y^3}$

(A) 216

(B) 222

(C) 234

(D) 228

**Ans : (C) 234**

**Solution :**

$$6^3 + 6(3) = 216 + 18 = \mathbf{234}$$



10. Which of the following statement is false in a parallelogram ?

(A) The opposite sides are parallel

(B) The opposite angles and sides are equal

(C) The diagonals are equal

(D) The diagonals bisect each other

**Ans : (C) The diagonals are equal**

**Solution :**

In parallelogram one diagonal will be larger and one diagonal will be smaller.

11. Reciprocal of 0 is

(A) 0

- (B) 1  
(C)  $\infty$   
(D) No reciprocal

**Ans : (D) No reciprocal**

**Solution :** There is no reciprocal for 0.

**12. Which of the following statements is false ?**

- (A) Among the common divisors of given numbers, the greatest divisor is the G.C.D.  
(B) If the G.C.D of an two numbers is 1 they are said to be prime numbers.  
(C) Among the common multiples of given numbers the least is the L.C.M.  
(D) The product of an two numbers is equal to the product of their G.C.D. and L.C.M.

**Ans : (B) If the G.C.D of an two numbers is 1 they are said to be prime numbers.**

**13. If the product of 4four consecutive number is 625. Find the first term.**

- (A) 15  
(B) 25  
(C) 5  
(D) 35

**Ans : (C) 5**

**Solution :**

$$5, 25, 125, 625$$

$$5 * 5 = 25$$

$$25 * 5 = 125$$

$$125 * 5 = 625$$

**14. Gain or loss percent is always calculated on**

- (A) Cost price
- (B) Selling price
- (C) Gain
- (D) Loss

**Ans : (A) Cost price**

**Solution :**

Gain or loss percent is always calculated on cost price only.

**15. A student goes to his school from his house at a speed 3 km/hr and returns at a speed of 2 km/hr. If he takes 5 hours in going and coming the distance between his house and school is**

- (A) 5 km
- (B) 5.5 km
- (C) 6 km
- (D) 6.5 km

**Ans : (C) 6 km**

**Solution :**

House to School – 3km/hr

School to house – 2km/hr

For 1hr =3km

For 1hr = 2km

L.C.M of 3 and 2 will be 6

For 1hr =3km

For 1hr = 2km

For 6km = 2hrs

For 6km = 3 hrs

Totally 5 hrs

**16. If  $x$  ,  $2x + 2$  ,  $3x + 3$  are in G.P then  $11x$  ,  $22x + 22$  ,  $33x + 33$  form**

- (A) an A.P.

- (B) a G.P.  
 (C) a constant sequence  
 (D) Neither A.P. nor a G.P.

**Ans : (B) a G.P.**

**Solution :**

$$11(x), 11(2x + 2), 11(3x + 3)$$

**They are In multiples only so it is G.P.**

**17. The sum of three numbers is 264 if the first number be twice the second and third be one third of the first , then the second number is**

- (A) 48  
 (B) 72  
 (C) 54  
 (D) 64

**Ans : (B) 72**

**Solution :**

The first number be twice the second and third be one third of the first. So the ratio is 6 : 3 : 2

$$\text{totally 11 parts } 264 \div 11 = 24$$

$$1 \text{ part} = 24$$

$$3 \text{ parts} = 3 * 24 = 72.$$

**18. If  $1^2 + 2^2 + 3^2 + \dots + 10^2 = 385$  then  $2^2 + 4^2 + 6^2 + \dots + 20^2$  is**

- (A) 770  
 (B) 1150  
 (C) 1540  
 (D)  $385 \times 385$



**Ans : (C) 1540**

**Solution :**

$$1^2 + 2^2 + 3^2 + \dots + 10^2 = 385$$

$$2^2 + 4^2 + 6^2 + \dots + 20^2 = 2^2 (1^2 + 2^2 + 3^2 + \dots + 10^2)$$

$$4 (385) = 1540$$

**19. If the ratio x% of y to y% of x , its fraction value is equals to**

(A)  $\frac{1}{xy}$

(B)  $xy$

(C)  $\frac{x}{y}$

(D) 1

**Ans : (D) 1**

**Solution**

$$\frac{x \cdot y}{100} : \frac{y \cdot x}{100} = 1$$



**20. Arun is half old as his father. Twelve years ago the father's age was three times as old as Arun. Now the present age of his father's age is**

(A) 24 years

(B) 36 years

(C) 48 years

(D) 50 years

**Ans : (C) 48 years**

**Solution :**

Twelve years ago the father's age was three times as old as Arun so the ratio is 12 : 36

Now the present age is 12 + 12 : 36 + 12

24 : 48

21. If  $a, b, c$  are in A.P. Then  $3^a, 3^b, 3^c$  are in

- (A) A.P.
- (B) G.P.
- (C) A.P. and G.P.
- (D) None of these

**Ans : (B) G.P.**

**Solution :**

$a, b, c$  are in A.P. then  $a=1, b=2, c=3$

$$3^1, 3^2, 3^3 = 3, 9, 27$$

**So it is a G.P. series.**

22. If  $-1 < r < 1$  then the sum of infinite number of geometric series is

(A)  $\frac{a(r^n-1)}{r-1}$

(B)  $\frac{a(1-r^n)}{1-r}$

(C)  $\frac{a}{1-r}$

(D) None of these

**Ans : (C)  $\frac{a}{1-r}$**

23. The angle in a semicircle is a \_\_\_\_\_

- (A) Acute angle
- (B) Obtuse angle
- (C) Straight angle
- (D) Right angle

**Ans : (D) Right angle**

**24. If  $\frac{a}{3} = \frac{b}{4} = \frac{c}{7}$  then  $\frac{a+b+c}{c}$  is**

(A) 7

(B) 2

(C)  $\frac{1}{2}$

(D)  $\frac{1}{7}$

**Ans : (B) 2**

**Solution :**

$$a = 3, b = 4, c = 7$$

$$\frac{3+4+7}{7} = \frac{14}{7} = 2$$

**25. Which is biggest ratio ?**

**2:3 , 3:5 , 4:7 , 5:8**

(A) 3:5

(B) 4:7

(C) 5:8

(D) 2:3

**Ans : (D) 2:3**

**Solution :**

$$\frac{2}{3} = 0.66 ; \quad \frac{3}{5} = 0.6 ; \quad \frac{4}{7} = 0.57 ; \quad \frac{5}{8} = 0.625$$

