

TCS previous placement paper - 22

1. X takes 4 days to complete one-third of a job, Y takes 3 days to complete one-sixth of the same work and Z takes 5 days to complete half the job. If all of them work together for 3 days and X and Z quit, how long will it take for Y to complete the remaining work done.

- a. 6 days
- b. 7 days
- c. 5.1 days
- d. 8.1 days

Answer: c

Explanation:

X takes 12 days to complete the full work. Y takes 18 days, Z takes 10 days.

$$3 \text{ days work} = 3 \left(\frac{1}{12} + \frac{1}{18} + \frac{1}{10} \right) = \frac{43}{60}$$

$$\text{Remaining work} = 1 - \frac{43}{60} = \frac{17}{60}$$

This work should be completed by Y in $\frac{17}{60} \times 18 = 5.1$ days

2. Thomas takes 7 days to paint a house completely whereas Raj would require 9 days to paint the same house completely. How many days will take to paint the house if both them work together. (give answers to the nearest integer)?

- a. 4
- b. 2
- c. 5
- d. 3

Answer: a

Explanation:

$$\text{Simple formula} = \frac{xy}{x+y} = \frac{7 \times 9}{7+9} \simeq 4$$

3. One day, Eesha started 30 minutes late from home and reached her office 50 minutes late, while driving 25% slower than her usual speed. How much time in minutes does Eesha usually take to reach her office from home?

- a. 20
- b. 40
- c. 60
- d. 80

Answer: c

Explanation:

She got late to the office 20 minutes late as she drove at $\frac{3}{4}$ th of the speed.

$$\text{Given, } \frac{d}{\frac{3}{4}s} - \frac{d}{s} = 20$$

$$\Rightarrow \frac{d}{s} \left(\frac{4}{3} - 1 \right) = 20$$

$$\Rightarrow \text{Time} = \frac{d}{s} = 60$$

4. Curious Elva asked her father what he would gift for her nineteenth birthday. Father replied that it would depend on the day of the week and be one of SUNglasses, MONeybag, ..., FRIdcake, and SATchel. Please help Elva find the day of the week on 08-Jan-2029

- a. Monday
- c. Thursday

- b. Tuesday
- d. Saturday

Answer: a

Explanation:

Number of odd days upto 2000 = 0

From 2001 to 2028 = $28 + 7 = 35 = 0$ ($\because 35/7$ remainder zero)

From 2019 January 1 to 7 = $7 = 0$

So 08 - Jan - 2029 falls on the same week day as 1-1-1 which is Monday.

5. All even numbers from 2 to 98 inclusive, except those ending 0, are multiplied together. What is the rightmost digit (the units digit) of the product?

- a. 6
- c. 0

- b. 2
- d. 4

Answer: a

Explanation:

$2 \times 4 \times 6 \times 8 \times 12 \times 14 \times \dots \times 98$

Now units digit of $2 \times 4 \times 6 \times 8 = 4$

Also $12 \times 14 \times 16 \times 18$ also 4. So on

Total 10 times 4 occurs in the units digit = $4^{10} = 6$

6. In 2003, there are 28 days in February and there are 365 days in the year. In 2004, there are 29 days in February and there are 366 days in the year. If the date March 11, 2003 is Tuesday, then which one of the following would the date March 11, 2004 be?

- a. Monday
- c. Wednesday

- b. Thursday
- d. Tuesday

Answer: b

Explanation:

March 11, 2003 is Tuesday. So March 11, 2004 weekday will be 2 days after Tuesday. i.e., Thursday.

7. 8 year old Eesha visited her grandpa. He gave her this riddle.

I started working at 13. I spent $1/6$ of my working life in a factory. I spent $1/4$ of my working life in an office, and I spent $1/4$ of my working life as a school caretaker. For the last 32 years of my working life I've been doing social service. How old am I?

- a. 109
- c. 105

- b. 102
- d. 113

Answer: a

Explanation:

Let x be the number of years he worked.

$$\Rightarrow \frac{x}{6} + \frac{x}{4} + \frac{x}{4} + 32 = x$$

$$\Rightarrow x = 96$$

$$\text{His age} = 96 + 13 = 109$$

8. 100 students appeared for two examinations. 60 passed the first, 50 passed the second and 30 passed both.

Find the probability that a student selected at random has failed in both the examinations?

a. $1/5$

b. $5/6$

c. $1/7$

d. $5/7$

Answer: a

Explanation:

$$n(A \cup B) = n(A) + n(B) - n(A \cap B)$$

$$n(A \cup B) = 60 + 50 - 30 = 80$$

So 80 passed in atleast one of the exams. $100 - 80 = 20$ failed in both.

$$\text{Probability} = 20/100 = 1/5$$

9. What is the greatest power of 143 which can divide $125!$ exactly

a. 12

b. 11

c. 8

d. 9

Answer: d

Explanation:

$143 = 11 \times 13$. So highest power of 13 should be considered in $125!$.

$\begin{array}{r} 11 \overline{) 125} \\ 11 \\ \hline 1 \end{array}$	$\cdot 12$	$\begin{array}{r} 13 \overline{) 125} \\ 117 \\ \hline 8 \end{array}$
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Highest power of 11 in $125!$ is 12 but highest power of 13 is only 9. That means, $125! = 11^{12} \times 13^9 \times \dots$

So only nine 13's are available. So we can form only nine 143's in $125!$. So maximum power of 143 is 9.

10. Three containers A, B and C are having mixtures of milk and water in the ratio of 1:5, 3:5, 5:7 respectively. If the capacities of the containers are in the ratio 5:4:5, find the ratio of milk to water, if all the three containers are mixed together.

a. 53:115

b. 53:113

c. 54:115

d. 54:113

Answer: a

Explanation:

$$\text{Weighted average rule can be applied} = \frac{5 \times \frac{1}{6} + 4 \times \frac{3}{8} + 5 \times \frac{5}{12}}{5 + 4 + 5} = \frac{53}{168}$$

$$\text{So milk and water concentration} = 53 : (168 - 53) = 53 : 115$$