



Accelerated 3-month Course

IIT/NEET

We are not a school. These are additional classes.

Last admission date: Mar 31, 2025

Course Duration: Mar 23 - June 30, 2025

We only labor to stuff the memory,
and leave the conscience and the
understanding unfurnished and void.

- Michel De Montaigne



About this program

- Designed for students entering Class XI (appeared for Class X board exams).
- Targets 75% of the NEET/JEE syllabus within 3 months.
- Emphasizes deep conceptual understanding over rote memorization.
- Subjects: Physics, Chemistry, Mathematics, and Biology.



Course Schedule

- Start Date: March 23, 2025
- End Date: June 30, 2025
- Daily 1-hour live session
- Optional 30-minute support sessions





Course Highlights

- 100% Online program using our custom-built platform
- Batch size: Maximum 6 students
- Open-source books and learning materials
- Session recordings and digital notes provided
- Regular performance evaluation and feedback



What's Next After 3 Months?

- After syllabus completion, students may choose to continue in the next phase: a 2-year program focused on exam strategy and advanced practice.
- This extension is optional and designed for serious NEET/JEE aspirants.

We can rewrite

$$\sqrt[3]{261} = \sqrt[3]{(216 + 45)} \quad \text{where } x = 216 \text{ and}$$

$$f(\Delta x + x) = (\text{Value of function}) + (\text{Rate of change}) \cdot \Delta x$$

$$= f(x) + \left(\frac{d}{dx} f(x) \right) \cdot \Delta x$$

$$= f(x) + \left(\frac{d}{dx} \sqrt[3]{x} \right) \cdot \Delta x$$

$$= f(x) + \left(\frac{1}{3x^{2/3}} \right) \cdot \Delta x$$

$$= \sqrt[3]{216} + \left(\frac{216^{-2/3}}{3} \right) \cdot (45)$$

$$= 6 + \frac{5}{12}$$

$$= \frac{77}{12} \quad \text{actual value is } \sqrt[3]{261}$$

Solve $\frac{(4-5)}{6 \times 8 + \frac{(9-5)}{(\frac{5}{-8})+(5x-4)} \times (6-2)}$

Answer:

1485

31552

Solution:

$$\frac{(4-5)}{6 \times 8 + \frac{(9-5)}{(\frac{5}{-8})+(5x-4)} \times (6-2)}$$

$$= \frac{9}{6 \times 8 + \frac{(9-5)}{(\frac{5}{-8})+(5x-4)} \times (6-2)} \quad \text{as } (4-5) = -1$$

$$= \frac{9}{4 \times 6 \times 8 + \frac{(9-5)}{(\frac{5}{-8})+(5x-4)}} \quad \text{as } (6-2) = 4$$

Find relation between a , $v(s)$ and s

where:

a = acceleration

$v(s)$ = velocity

s = displacement

t = time

Answer:

$$v^2(s) = 2as + v^2(0)$$

Solution:

First Part:

$$a = \frac{d}{dt} v(s)$$

$$\Rightarrow a = \frac{d}{ds} v(s) \frac{d}{dt} s$$

$$\Rightarrow a = v(s) \frac{d}{ds} v(s)$$

$$\Rightarrow \int_0^s a ds = \int_0^s v(s) \frac{d}{ds} v(s) ds$$

$$\Rightarrow as = -\frac{v^2(0)}{2} + \frac{v^2(s)}{2}$$

$$\Rightarrow 2as = -v^2(0) + v^2(s)$$

Second Part:

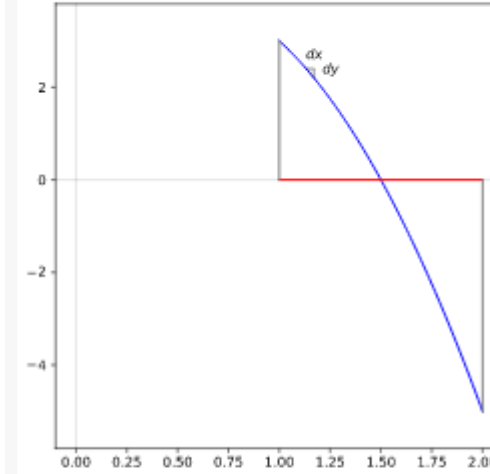
$$a = v(s) \frac{d}{ds} v(s)$$

Find length of the curve $f(x) = -4x^2 + 4x + 3$ between $x = 1$ and $x = 2$.

Answer:

$$\frac{\sqrt{17}}{4} - \frac{\operatorname{asinh}(4)}{16} + \frac{\operatorname{asinh}(12)}{16} + \frac{3\sqrt{145}}{4}$$

Solution:



The length of curve

$$dL = \sqrt{dx^2 + dy^2}$$

$$= \sqrt{\left(\frac{d}{dx} f(x) \right)^2 + 1} dx$$

$$\rightarrow L = \int_1^2 \sqrt{\left(\frac{d}{dx} f(x) \right)^2 + 1} dx$$

$$= \int_1^2 \sqrt{\left(\frac{d}{dx} (-4x^2 + 4x + 3) \right)^2 + 1} dx$$

$$= \int_1^2 \sqrt{(-8x + 4)^2 + 1} dx$$

Find surface area of the cone whose base has radius 1 and height 3.

Answer:

$$\pi(1 + \sqrt{10})$$

Solution:

A cone has one circular base and slant surface area = area of circular base + slant surface area

$$= \pi r^2 + \pi r l$$

$$\text{where } l \text{ is slant length and is equal to } \sqrt{h^2 + r^2} = \sqrt{(3^2 + 1^2)} = \sqrt{10}$$

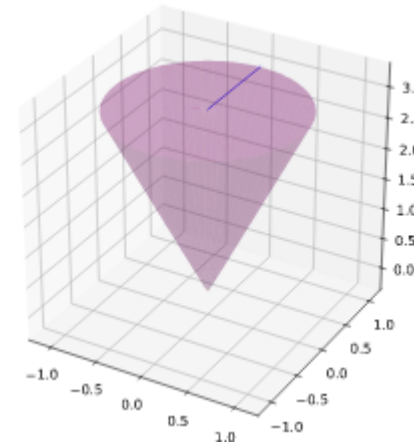
$$= \pi r(r + l)$$

$$= \pi \times 1(1 + \sqrt{10})$$

$$= \pi(1 + \sqrt{10})$$

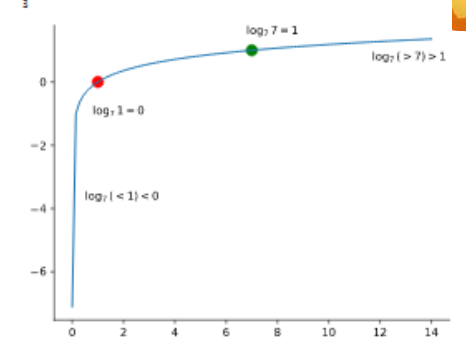
$$= \pi(1 + \sqrt{10})$$

Cone (radius: 1, length: 3, center: (0, 0, 0), theta: 2π)



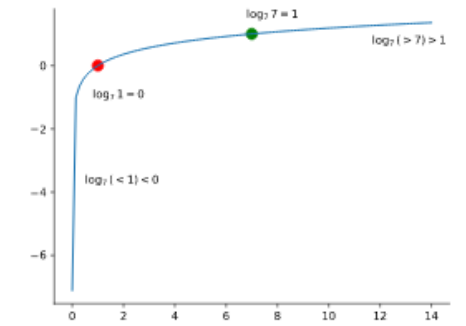
The value of $\log_7 343.1$ is: -0.2625, 0.04898, 1.007, 2, 3

Answer:



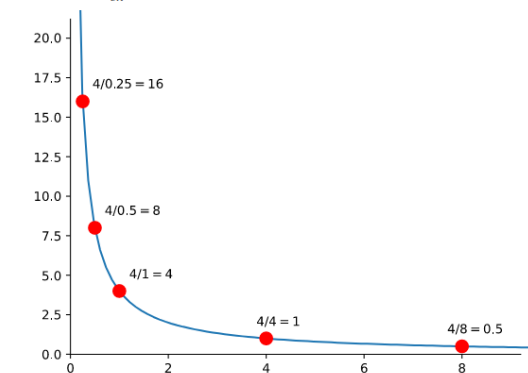
Solution:

$$\log_7 343.1 = 3$$



Import matplotlib.pyplot as plt
from matplotlib import pyplot as plt

The value of $\frac{4}{3!}$ is: 11.43, 6.667, 4.706, 3.636, 2.5, 1.905, 1.29



Answer:

1.29





```
1 ke.getRandomProblem(problem_type = 18)
```

Simplify the followings:

$$\frac{8.0 + 0.4}{40.0} * \frac{1}{6.0}$$

```
1 ke.printAnswer()
```

$$\frac{7}{200} \quad \text{or}$$

0.035

```
1 ke.printSolution()
```

$$\frac{8.0 + 0.4}{40.0} * \frac{1}{6.0}$$

$$= \frac{8.4}{40.0} * \frac{1}{6}$$

$$= \frac{42}{40} * \frac{1}{6}$$

$$= \frac{42 * 1}{40 * 5} * \frac{1}{6}$$

$$= \frac{42 * 1 * 1}{40 * 5 * 6}$$

$$= \frac{42}{1200}$$

$$= \frac{7}{200}$$

Write arithmetic series of z^k terms, with first term (t_0) as $\sqrt[k]{x}$ and the common difference as $-y$

Answer:
 $((\sqrt[k]{x}) + (-y) \cdot 0) + ((\sqrt[k]{x}) + (-y) \cdot 1) + ((\sqrt[k]{x}) + (-y) \cdot 2) + \dots + ((\sqrt[k]{x}) + (-y) \cdot (z^6 - 2)) + ((\sqrt[k]{x}) + (-y) \cdot (z^6 - 1))$

It can also be written as $\sum_{k=0}^{z^6-1} ((\sqrt[k]{x}) + (-y) \cdot k)$

Solution:
next term = (previous term) + (common difference)
 $t_n = t_0 + n * \text{common difference}$

Please note that we start count of terms from 0.

$$t_0 = \sqrt[k]{x} = ((\sqrt[k]{x}) + (-y) \cdot 0)$$

$$t_1 = t_0 + (-y) = ((\sqrt[k]{x}) + (-y) \cdot 0) + (-y) = ((\sqrt[k]{x}) + (-y) \cdot 1)$$

$$t_2 = t_1 + (-y) = ((\sqrt[k]{x}) + (-y) \cdot 1) + (-y) = ((\sqrt[k]{x}) + (-y) \cdot 2)$$

...

$$t_{z^6-1} = t_{z^6-2} + (-y) = ((\sqrt[k]{x}) + (-y) \cdot (z^6 - 2)) + (-y) = ((\sqrt[k]{x}) + (-y) \cdot (z^6 - 1))$$

$$t_{z^6} = t_{z^6-1} + (-y) = ((\sqrt[k]{x}) + (-y) \cdot (z^6 - 1)) + (-y) = ((\sqrt[k]{x}) + (-y) \cdot (z^6))$$

Therefore, the series is $((\sqrt[k]{x}) + (-y) \cdot 0) + ((\sqrt[k]{x}) + (-y) \cdot 1) + ((\sqrt[k]{x}) + (-y) \cdot 2) + \dots + ((\sqrt[k]{x}) + (-y) \cdot (z^6 - 2)) + ((\sqrt[k]{x}) + (-y) \cdot (z^6 - 1))$

$$= x * *(1/9) + x * *(1/9) - y + x * *(1/9) - 2 * y + \dots + x * *(1/9) - y * (z * *6 - 2) + x * *(1/9) - y * (z * *6 - 1)$$

It can also be written as $\sum_{k=0}^{z^6-1} ((\sqrt[k]{x}) + (-y) \cdot k)$

```
1 ke.getRandomProblem(problem_type = 19)
```

Prove that

$$\frac{2}{5} < \log_{10} 3 < \frac{1}{2}$$

```
1 ke.printAnswer()
```

$$\frac{2}{5} < \log_{10} 3 < \frac{1}{2}$$

```
1  
2  
3 ke.printSolution()  
4
```

$$\log_{10} 3 \quad ? \quad \frac{2}{5}$$

$$\Rightarrow 3 \quad ? \quad 10^{\frac{2}{5}}$$

$$\Rightarrow 3^5 > 10^2,$$

Now $\log_{10} 3 \quad ? \quad \frac{1}{2}$

$$\Rightarrow 3 \quad ? \quad 10^{\frac{1}{2}}$$

$$\Rightarrow 3^2 < 10, \text{ which is true}$$

Hence $\frac{2}{5} < \log_{10} 3 < \frac{1}{2}$

Solve the followings:

Q1. $-- -9$

Q2. $-- 9$

Q3. $9 * 9$

Q4. $-9 * 9$

Q5. $9 * -9$

Q6. $-9 * -9$

Q7. $-- 9 * 9$

Q8. $9 * -- 9$

Q9. $-- 9 * -- 9$

Q10. $-9 * -- 9$

Q11. $-- 9 * -9$

Solution 28.

$$(-2)(-10) = \frac{1}{5}$$

Solution 29.

$$10^2 = 100$$

Solution 30.

$$2^{10} = 1024$$

Solution 31.

$$10^{-2} = \frac{1}{100}$$

Solution 32.

$$2^{-10} = \frac{1}{1024}$$

Solution 33.

$$(-10)^2 = -100$$

Solution 34.

$$(-2)^{10} = -1024$$

Solution 35.

$$(-10)^{-2} = -\frac{1}{100}$$

Solution 36.

$$(-2)^{-10} = -\frac{1}{1024}$$

Solution 37.

$$\log_2 10 = \frac{10}{3}$$

Solution 38.

$$\log_{10} 2 = \frac{3}{11}$$

```
1 from xv.math.basicmaths import NumberUnitManager
```

```
1 ke = NumberUnitManager()
```

```
1 ke.getRandomProblem(problem_type = 4)
```

Convert 9 oz to ounce.

Note: You may use the following table:

1 ounce = 28.35 gram

1 pound = 16 oz

1 kilo-gram = 2.205 pound

1 pound = 0.0005 short-ton

1 metric-ton = 1.12 short-ton

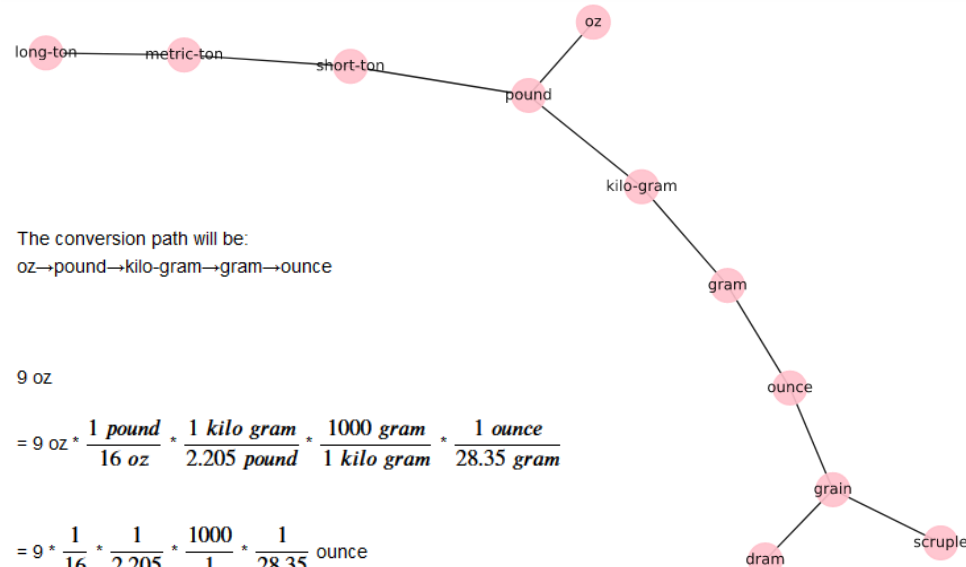
1 long-ton = 1.016 metric-ton

1 grain = 0.05 scruple

1 grain = 0.01667 dram

1 grain = 0.00208 ounce

1 kilo-gram = 1000 gram



The conversion path will be:

oz → pound → kilo-gram → gram → ounce

9 oz

$$= 9 \text{ oz} * \frac{1 \text{ pound}}{16 \text{ oz}} * \frac{1 \text{ kilo gram}}{2.205 \text{ pound}} * \frac{1000 \text{ gram}}{1 \text{ kilo gram}} * \frac{1 \text{ ounce}}{28.35 \text{ gram}}$$

$$= 9 * \frac{1}{16} * \frac{1}{2.205} * \frac{1000}{1} * \frac{1}{28.35} \text{ ounce}$$

$$= 9 * 0.9998120353373564 \text{ ounce}$$

$$= 8.998308318036207 \text{ ounce}$$



```
1 ke.getRandomProblem(problem_type = 11)
2
```

Form 2-letter words from letters r, k, v, g, f, u, x. The words need not be meaningful

```
1 ke.printAnswer()
2
```

84

```
1 ke.printSolution()
2
```

ways of selecting 3 from 9 items

$$= \binom{9}{3}$$

$$= \frac{9!}{(9-3)! 3!}$$

$$= \frac{9!}{6! 3!}$$

$$= \frac{362880}{720 * 6}$$

= 84

```
1 ke.getRandomProblem(problem_type= 2)
2
```

Find the ratio of numbers 0.014, 0.031 and 0.58

```
1 ke.printAnswer()
2
```

14 : 31 : 580

```
1 ke.printSolution()
2
```

The greatest common divisor (GCD) of the numbers 27, 12 and 3 = :

To get ratio, we have to divide the numbers by the GCD.

Ratio of numbers 27, 12 and 3

$$= \frac{27}{3} : \frac{12}{3} : \frac{3}{3}$$

= 9 : 4 : 1

```
ke.printSolution()
```

Numbers:

$$\frac{1}{2}, -\frac{2}{7}, \frac{6}{1}, \frac{1}{1}, \frac{1}{2}, -\frac{2}{1}$$

Common Denominators:

Let us make all denominators equal to their LCM = 14

$$= \frac{1 * 7}{2 * 7}, -\frac{2 * 2}{7 * 2}, \frac{6 * 14}{1 * 14}, \frac{1 * 14}{1 * 14}, \frac{1 * 7}{2 * 7}, -\frac{2 * 14}{1 * 14}$$

$$= \frac{7}{14}, -\frac{4}{14}, \frac{84}{14}, \frac{14}{14}, \frac{7}{14}, -\frac{28}{14}$$

Sum:

As we have common denom

$$= \frac{80}{14}$$

$$= \frac{80 / 2}{14 / 2}$$

$$= \frac{40}{7}$$

$$= \frac{40}{7}$$

Average:

Average of numbers

$$= \frac{40}{7}$$

$$= \frac{1}{6} * \frac{40}{7}$$

$$= \frac{20}{21}$$

Sorted Numbers:

$$-\frac{28}{14}, -\frac{4}{14}, \frac{7}{14}, \frac{7}{14}, \frac{14}{14}, \frac{84}{14}$$

$$= -\frac{2}{1}, -\frac{2}{7}, \frac{1}{2}, \frac{1}{2}, 1, 6$$

Median:

The number of fractions is 6, an even number.

The middle term is, $\frac{6+1}{2} = \frac{7}{2}$ th term.

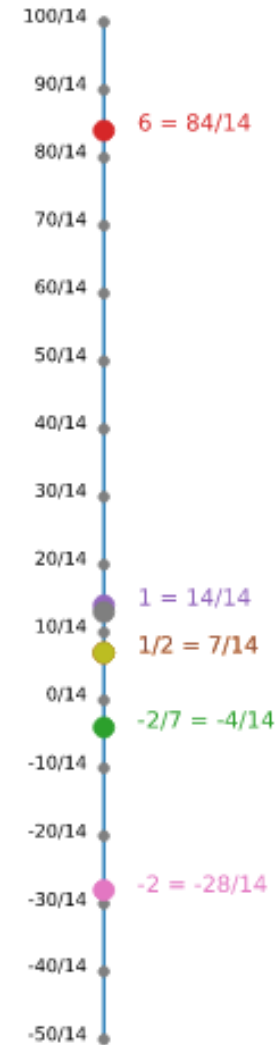
Hence, the median will be average of 3rd and 4th terms.

Median

$$= \frac{\frac{1}{2} + \frac{1}{2}}{2}$$

$$= \frac{1}{2}$$

$$= \frac{1}{2}$$



20/21 = 13/14 (Avg)

1/2 = 7/14 (Med)

```
1 ke.getRandomProblem(problem_type = 7)
2
```

Marium has 7 farm. Each farm has 2 garden. Each garden has 60 tree. Each tree has 10 fruit cost of maintaining each tree is \$0.5. Answer the following questions:

1. What is the total number of farm?
2. What is the total number of garden?
3. What is the total number of tree?
4. What is the total number of fruit?
5. What is the total number of box?
6. What is the total sales value?
7. What is the total cost?
8. What is the net profit?

```
1 ke.printSolution()
```

The equation of the question are as follows:

- 1 Mary = 8 garden
- 1 garden = 20 tree
- 1 tree = 20 fruit
- 1 fruit = $\frac{1}{12}$ box
- 1 box = \$800/3 [sell price]
- 1 garden = \$200 [cost price]

Let us do calculations:

Total sales revenue

$$= 8 \text{ garden}$$

$$= 8 \text{ garden} * \frac{20 \text{ tree}}{\text{garden}} \quad \text{So, 160 tree}$$

$$= 8 \text{ garden} * \frac{20 \text{ tree}}{\text{garden}} * \frac{20 \text{ fruit}}{\text{tree}} \quad \text{So, 3200 fruit}$$

$$= 8 \text{ garden} * \frac{20 \text{ tree}}{\text{garden}} * \frac{20 \text{ fruit}}{\text{tree}} * \frac{\text{box}}{12 \text{ fruit}} \quad \text{So, 800/3 box}$$

$$= 8 \text{ garden} * \frac{20 \text{ tree}}{\text{garden}} * \frac{20 \text{ fruit}}{\text{tree}} * \frac{\text{box}}{12 \text{ fruit}} * \frac{\$8}{\text{box}}$$

$$= 8 * 20 * 20 * \frac{1}{12} * \$8$$

$$= \$6400/3$$

Cost

$$= \frac{\$200}{\text{garden}}$$

$$= \frac{\$200}{\text{garden}} * 8 \text{ garden}$$

$$= \$1600$$

Net Profit

$$= \text{Total Cost} - \text{Total Revenue}$$

$$= \$6400/3 - \$1600$$

$$= \$1600/3$$

$$5. z = 3 - 3i$$

$$\text{modulus of } z = r = |z| = \sqrt{(3)^2 + (-3)^2} = 4.24$$

$$\text{argument or phase of } z = \phi(z) = \tan^{-1}\left(\frac{-3}{3}\right) = \tan^{-1}\left(\frac{-3}{3}\right) = -0.785 = -45^\circ$$

Now,

$$(3 - 3i)^4$$

$$= (re^{i(2n\pi + \phi)})^4$$

$$= r^4 e^{4(2n\pi + \phi)}$$

4(2nπ + φ) can be solved for n = 0, 1, 2, 3, ...

The distinct values are:

$$\theta_0 = (2 * 0 * \pi + -45^\circ) * 4 = 180^\circ$$

Expansio

$$\left(\frac{x}{3y} + xy\right)^4$$

Answer:

$$= x^4 y^4 + \frac{4x^4 y^2}{3} + \frac{2x^4}{3} + \frac{4x^4}{27y^2} + \frac{x^4}{81y^4} + \dots$$

Solution:

$$\left(\frac{x}{3y} + xy\right)^4$$

$$= \sum_{k=0}^4 \binom{4}{k} \left(\frac{x}{3y}\right)^{4-k} (xy)^k$$

$$= \binom{4}{0} \cdot \left(\frac{x}{3y}\right)^4 \cdot (xy)^0 + \binom{4}{1} \cdot \left(\frac{x}{3y}\right)^3 \cdot (xy)^1 + \binom{4}{2} \cdot \left(\frac{x}{3y}\right)^2 \cdot (xy)^2 + \dots$$

$$= 1 \cdot \frac{x^4}{81y^4} \cdot 1 + 4 \cdot \frac{x^3}{27y^3} \cdot xy + 6 \cdot \frac{x^2}{9y^2} \cdot x^2 y^2 + 4 \cdot \frac{x}{3y} \cdot x^3 y^3 + 1 \cdot x^4 y^4 + \dots$$

$$= \frac{x^4}{81y^4} + \frac{4x^4}{27y^2} + \frac{2x^4}{3} + \frac{4x^4 y^2}{3} + x^4 y^4 + \dots$$

$$= x^4 y^4 + \frac{4x^4 y^2}{3} + \frac{2x^4}{3} + \frac{4x^4}{27y^2} + \frac{x^4}{81y^4} + \dots$$

+91 75699 33343

Write expression for arranging k items from a collection of n items

$$P_k^n$$

Note: P_k^n is read as n permutation k.

Answer:

$$\frac{n!}{(n-k)!}$$

Solution:

Arranging k out of n things.

As we start with n things and r places:

1. For first place, we can choose any item from n things, so we have n choices.
 2. For second place, we can choose any item from remainder n - 1 things, so we have n - 1 choices.
 3. For third place, we can choose any item from remainder n - 2 things, so we have n - 2 choices.
- Thus, for kth place, the choice will be n - (k - 1) = n - k + 1

Now, all choices are dependent on each other, so will get a product to get the result.

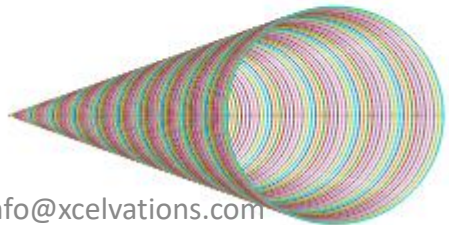
$$\Rightarrow P_k^n = n(n-1)(n-2) \dots (n-k+2)(n-k+1)$$

$$\Rightarrow P_k^n = \frac{n(n-1)(n-2) \dots (n-k+2)(n-k+1)(n-k)(n-k-1) \dots * 3 * 2 * 1}{(n-k)(n-k-1) \dots * 3 * 2 * 1}$$

$$\Rightarrow P_k^n = \frac{n!}{(n-k)!}$$

```
for i in range(1, n+1):
    for j in range(1, n+1):
        x = i * cos(theta) + j * move_left_right
        y = i * sin(theta) + j * move_up_down
        plt.plot(x,y)

#optional code
plt.gca().set_aspect('equal')
plt.axis('off')
plt.show()
```



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```
plt.plot(theta, sin(theta), marker = 'o', color = 'blue', markersize = 10)
plt.gca().annotate('B (cos(theta), sin(theta))', xy=(cos(theta), sin(theta)), xycoords='data', color='blue', fontweight='bold')

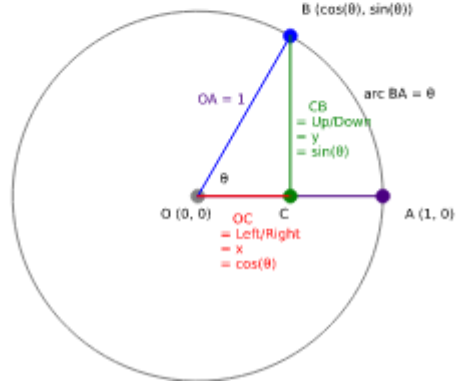
#plot radius 0e
plt.plot((0, cos(theta)), (0, sin(theta)), color = 'blue')

#plot point C
plt.plot(cos(theta), 0, marker = 'o', color = 'green', markersize = 10)
plt.gca().annotate('C', xy=(cos(theta), 0), xycoords='data', color='green', fontweight='bold')

#plot line OC
label = f''' OC
= Left/Right
= x
= cos(theta)'''
plt.plot((0, cos(theta)), (0, 0), color = 'red')
plt.gca().annotate(label, xy=(0.12, -0.39), xycoords='data', color='red', fontweight='bold')

#plot line CB
label = f''' CB
= Up/Down
= y
= sin(theta)'''
plt.plot((cos(theta), cos(theta)), (0, sin(theta)), color = 'green')
plt.gca().annotate(label, xy=(cos(theta)+0.03, sin(theta)/4), xycoords='data', color='green', fontweight='bold')

#optional code
plt.xlim(-1.2, 1.2)
plt.ylim(-1.2, 1.2)
plt.gca().set_aspect('equal')
plt.axis('off')
plt.show()
```





Find formula of $\cos(A - B)$ and $\sin(A - B)$

Answer:

$$\cos(A - B) = \sin(A) \sin(B) + \cos(A) \cos(B)$$

$$\sin(A - B) = \sin(A) \cos(B) - \sin(B) \cos(A)$$

Solution:

$$e^{i(A-B)} = e^{iA} e^{-iB}$$

$$\implies i \sin(A - B) + \cos(A - B) = (i \sin(A) + \cos(A)) (-i \sin(B) + \cos(B))$$

$$\implies i \sin(A - B) + \cos(A - B) = \sin(A) \sin(B) + i \sin(A) \cos(B) - \cos(A) \sin(B) + \cos(A) \cos(B)$$

Taking real terms of both sides:

$$\implies \cos(A - B) = \sin(A) \sin(B) + \cos(A) \cos(B)$$

Taking imaginary terms of both sides:

$$\implies \sin(A - B) = \sin(A) \cos(B) - \sin(B) \cos(A)$$

Prove

$$e^{i\theta} = \cos(\theta) + i \sin(\theta)$$

Answer:

$$e^{i\theta} = 1 + i\theta - \frac{\theta^2}{2} - \frac{i\theta^3}{6} + \frac{\theta^4}{24} + \frac{i\theta^5}{120} + O(\theta^6)$$

$$\cos(\theta) = 1 - \frac{\theta^2}{2} + \frac{\theta^4}{24} + O(\theta^6)$$

$$\sin(\theta) = \theta - \frac{\theta^3}{6} + \frac{\theta^5}{120} + O(\theta^6)$$

$$\implies e^{i\theta} = \cos(\theta) + i \sin(\theta)$$

Solution:

$$e^{i\theta} = 1 + i\theta - \frac{\theta^2}{2} - \frac{i\theta^3}{6} + \frac{\theta^4}{24} + \frac{i\theta^5}{120} + O(\theta^6)$$

$$\cos(\theta) = 1 - \frac{\theta^2}{2} + \frac{\theta^4}{24} + O(\theta^6)$$

$$\sin(\theta) = \theta - \frac{\theta^3}{6} + \frac{\theta^5}{120} + O(\theta^6)$$

$$\implies e^{i\theta} = \cos(\theta) + i \sin(\theta)$$

Find approximate value of the square root of 1030.

```
ke.printAnswer()
```

10.10

```
ke.printSolution()
```

$$(a + b)^{\frac{1}{3}} = a^{\frac{1}{3}} + \frac{1}{3} a^{\frac{1}{3}-1} \cdot b^1 + \dots$$

$$= a^{\frac{1}{3}} + \frac{1}{3} a^{-\frac{2}{3}} \cdot b + \dots$$

$$\text{Let } x = a^{\frac{1}{3}}$$

$$\implies x^3 = a$$

$$\implies \frac{1}{x^2} = a^{-\frac{2}{3}}$$

$$\implies (a + b)^{\frac{1}{3}} \approx x + \frac{1}{3} \frac{1}{x^2} \cdot b$$

The closest perfect 3 power of a number is $1000 = 10^3$.

Therefore,

$$1030 = 1000 + 30$$

$$\implies a = 1000$$

$$b = 30$$

$$x = 1000^{\frac{1}{3}} = 10$$

$$(1030)^{\frac{1}{3}} = (1000 + 30)^{\frac{1}{3}}$$

$$= x + \frac{1}{3} \frac{1}{x^2} \cdot b$$

$$= 10 + \frac{1}{3} \cdot \frac{1}{10^2} \cdot 30$$

$$= 10 + \frac{30}{300}$$

$$= 10 + 0.1$$

$$= 10.1 \quad +91.75699\ 33343$$

Please note that the actual root is **10.10**.

0. `_problem_traditional_division`

1. `_problem_divisible_by_multiples_of_10`

2. `_problem_divisible_by_4_8`

3. `_problem_divisible_by_2_5`

4. `_problem_divisible_by_3_9`

5. `_problem_divisible_by_6`

6. `_problem_divisible_by_7_13_17_19_29`

7. `problem_divisible_by_11`

Is 733100 divisible by 7?

Answer:

False

Solution:

We will apply last digit reduction meth

The reduction factor for 7 is -2.

Step 1: Number = 733100

-2 times of the last digit of 733100

$$= -2 * 0 = 0$$

Remove the last digit from 733100

$$= 73310$$

Add 0 from 73310

$$= 73310 + 0 = 73310$$

Step 2: Number = 73310

-2 times of the last digit of 73310

$$= -2 * 0 = 0$$

Remove the last digit from 73310

$$= 7331$$

Add 0 from 7331

$$= 7331 + 0 = 7331$$

Step 3: Number = 7331

-2 times of the last digit of 7331

$$= -2 * 1 = -2$$

Remove the last digit from 7331

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