Prime Vault Act 5 – Phi-nale

You've traversed the pathways of primes, sieved out the factors, uprooted trees and mastered the secrets of the circles. Now you face the phi-nal challenge. The answers here lie not in what numbers are, but in how they relate and stand in partnership. A chart will further enhance the beauty for those who dare, however you can make it through to vault by correctly completing this last trial.

Clue 5

For each of the following, determine the quantity of fractions that do not simplify. The first has been done for you.

a) $$\frac{\#}{12} = \frac{1}{12},\frac{2}{12},\frac{3}{12},\frac{4}{12},\frac{5}{12},\frac{6}{12},\frac{7}{12},\frac{8}{12},\frac{9}{12},\frac{10}{12},\frac{11}{12},\frac{12}{12}$$
$$= \frac{1}{12},\frac{1}{6},\frac{1}{4},\frac{1}{3},\frac{5}{12},\frac{1}{2},\frac{7}{12},\frac{2}{3},\frac{3}{4},\frac{5}{6},\frac{11}{12},1$$
$$\phi(12) = 4$$

b) $\dfrac{\#}{24} =$ $\phi(24) =$

c) $\dfrac{\#}{36} =$ $\phi(36) =$

d) $\dfrac{\#}{48} =$ $\phi(48) =$

e) $\dfrac{\#}{9} =$ $\phi(9) =$

f) $\dfrac{\#}{27} =$ $\phi(27) =$

g) $\dfrac{\#}{81} =$ $\phi(81) =$

h) $\dfrac{\#}{45} =$ $\phi(45) =$

i) $\dfrac{\#}{2} =$ $\phi(2) =$

j) $\dfrac{\#}{4} =$ $\phi(4) =$

k) $\dfrac{\#}{11} =$ $\phi(11) =$

l) $\dfrac{\#}{23} =$ $\phi(23) =$

m) $\dfrac{\#}{29} =$ $\phi(29) =$

n) $\dfrac{\#}{97} =$ $\phi(97) =$

o) $\dfrac{n}{37} =$ $\phi(37) =$

p) $\dfrac{\#}{41} =$ $\phi(41) =$

q) $\dfrac{\#}{43} =$ $\phi(43) =$

r) $\dfrac{\#}{47} =$ $\phi(47) =$

s) $\dfrac{\#}{53} =$ $\phi(53) =$

t) $\dfrac{\#}{61} =$ $\phi(61) =$

u) $\dfrac{\#}{64} =$ $\phi(64) =$

v) $\dfrac{\#}{79} =$ $\phi(79) =$

w) $\dfrac{\#}{71} =$ $\phi(71) =$

x) $\dfrac{\#}{91} =$ $\phi(91) =$

y) $\dfrac{\#}{87} =$ $\phi(87) =$

z) $\dfrac{\#}{101} =$ $\phi(101) =$

Use the results from the Venn diagrams to populate the table.

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
4	8	12	16	6	18	54	24	1	2	10	22	28	96	36

p	q	r	s	t	u	v	w	x	y	z
40	42	46	52	60	32	78	70	72	56	100

Use the previous table to decrypt the code below and **complete** the link for the next video: https://youtu.be/

16	12	32		32	18	78		4		4
D	c	u	4	U	f	v	5	A	2	A

Final Video: https://youtu.be/Dcu4UfV5A2A

Note: There are no more riddles to solve. The final video is the vault that contains the 'magic' formula.