Out[34]=

Probabilites are $\log_b$ of the fractions

Digits:	1	2	3	4	5	6	7	8	9	10	11
Base $b = 2$	2										
Base $b = 3$	$\frac{9}{5}$	$\frac{5}{3}$									
Base $b = 4$	$\frac{12}{7}$	$\frac{5}{3}$	$\frac{7}{5}$								
Base $b = 5$	$\frac{5}{3}$	$\frac{5}{3}$	$\frac{7}{5}$	$\frac{9}{7}$							
Base $b = 6$	$\frac{18}{11}$	$\frac{5}{3}$	$\frac{7}{5}$	$\frac{9}{7}$	$\frac{11}{9}$						
Base $b = 7$	$\frac{21}{13}$	$\frac{5}{3}$	$\frac{7}{5}$	$\frac{9}{7}$	$\frac{11}{9}$	$\frac{13}{11}$					
Base $b = 8$	$\frac{8}{5}$	$\frac{5}{3}$	$\frac{7}{5}$	$\frac{9}{7}$	$\frac{11}{9}$	$\frac{13}{11}$	$\frac{15}{13}$				
Base $b = 9$	$\frac{27}{17}$	$\frac{5}{3}$	$\frac{7}{5}$	$\frac{9}{7}$	$\frac{11}{9}$	$\frac{13}{11}$	$\frac{15}{13}$	$\frac{17}{15}$			
Base $b = 10$	$\frac{\mathbf{30}}{\mathbf{19}}$	$\frac{5}{3}$	$\frac{7}{5}$	$\frac{9}{7}$	$\frac{11}{9}$	$\frac{13}{11}$	$\frac{15}{13}$	$\frac{17}{15}$	$\frac{19}{17}$		
Base $b = 11$	$\frac{11}{7}$	$\frac{5}{3}$	$\frac{7}{5}$	$\frac{9}{7}$	$\frac{11}{9}$	$\frac{13}{11}$	$\frac{15}{13}$	$\frac{17}{15}$	$\frac{19}{17}$	$\frac{21}{19}$	
Base $b = 12$	$\frac{36}{23}$	$\frac{5}{3}$	$\frac{7}{5}$	$\frac{9}{7}$	$\frac{11}{9}$	$\frac{13}{11}$	$\frac{15}{13}$	$\frac{17}{15}$	$\frac{19}{17}$	$\frac{21}{19}$	$\frac{23}{21}$