

Momina Atif Dar

P18-0030

Section: B

Possibilities: (2 dice)

	die1	die2
	↓	↓
(1, 1)	(1, 2)	(1, 3)
(1, 4)	(1, 5)	(1, 6)
(2, 1)	(2, 2)	(2, 3)
(2, 4)	(2, 5)	(2, 6)
(3, 1)	(3, 2)	(3, 3)
(3, 4)	(3, 5)	(3, 6)
(4, 1)	(4, 2)	(4, 3)
(4, 4)	(4, 5)	(4, 6)
(5, 1)	(5, 2)	(5, 3)
(5, 4)	(5, 5)	(5, 6)
(6, 1)	(6, 2)	(6, 3)
(6, 4)	(6, 5)	(6, 6)

Possibilities: (according to X and Y)

X = max Y = sum

(1, 2) (2, 3) (3, 4) (4, 5) (5, 6) (6, 7)
(2, 3) (2, 4) (3, 5) (4, 6) (5, 7) (6, 8)
(3, 4) (3, 5) (3, 6) (4, 7) (5, 8) (6, 9)
(4, 5) (4, 6) (4, 7) (4, 8) (5, 9) (6, 10)
(5, 6) (5, 7) (5, 8) (5, 9) (5, 10) (6, 11)
(6, 7) (6, 8) (6, 9) (6, 10) (6, 11) (6, 12)

Unique Cartesian:

(1, 2) (2, 4) (3, 6) (4, 8) (5, 10) (6, 12)

(all other pairs are repeating and have frequency $\frac{2}{36}$ each)

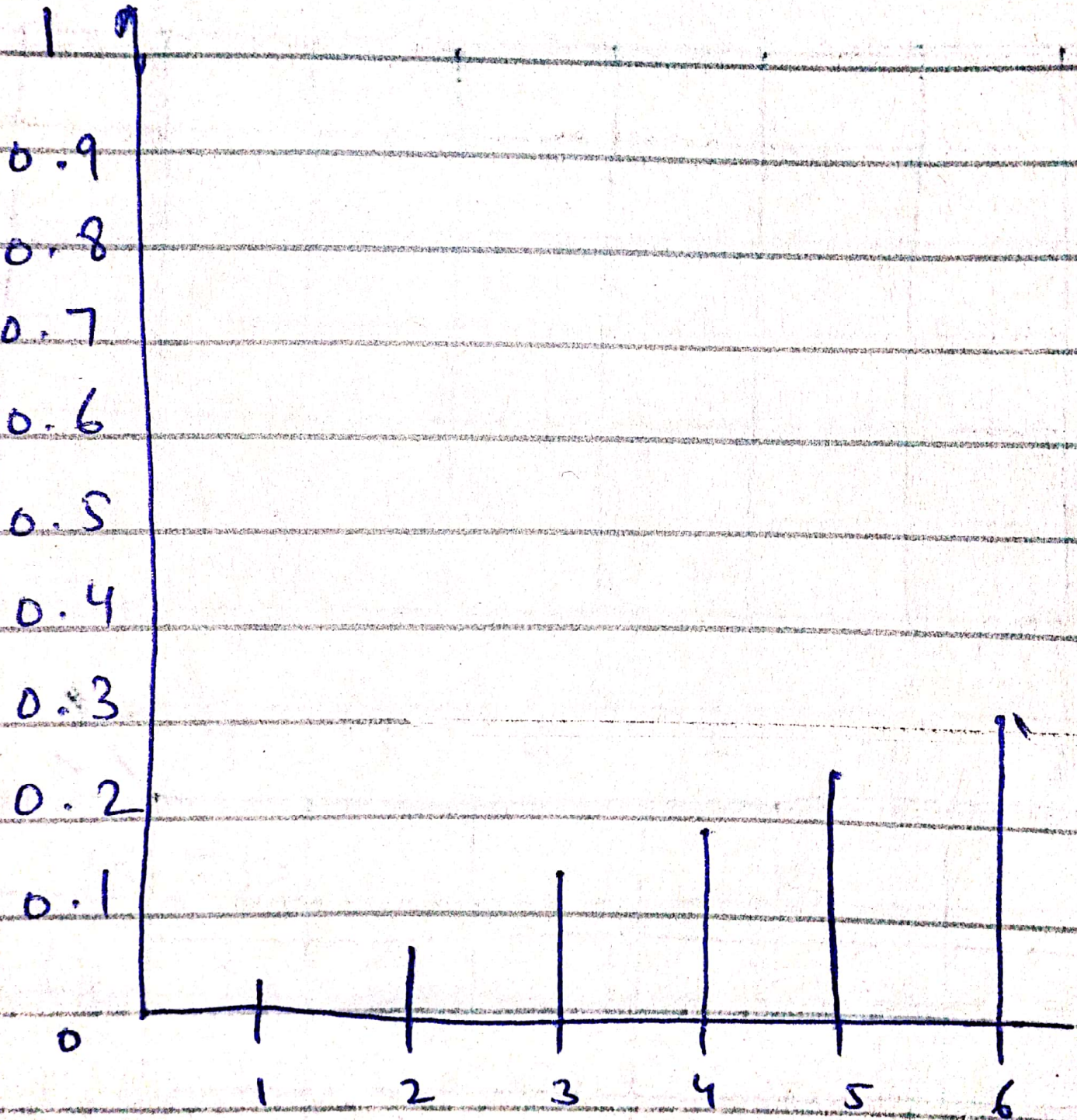
(unique pairs have frequency $\frac{1}{36}$ each)

X \ Y	2	3	4	5	6	7	8	9	10	11	12	
1	$\frac{1}{36}$											$\frac{1}{36}$
2		$\frac{2}{36}$	$\frac{1}{36}$									$\frac{3}{36}$
3			$\frac{2}{36}$	$\frac{2}{36}$	$\frac{1}{36}$							$\frac{5}{36}$
4				$\frac{2}{36}$	$\frac{2}{36}$	$\frac{2}{36}$	$\frac{1}{36}$					$\frac{7}{36}$
5					$\frac{2}{36}$	$\frac{2}{36}$	$\frac{2}{36}$	$\frac{2}{36}$	$\frac{1}{36}$			$\frac{9}{36}$
6						$\frac{2}{36}$	$\frac{2}{36}$	$\frac{2}{36}$	$\frac{2}{36}$	$\frac{2}{36}$	$\frac{1}{36}$	$\frac{11}{36}$
	$\frac{1}{36}$	$\frac{2}{36}$	$\frac{3}{36}$	$\frac{4}{36}$	$\frac{5}{36}$	$\frac{6}{36}$	$\frac{5}{36}$	$\frac{4}{36}$	$\frac{3}{36}$	$\frac{2}{36}$	$\frac{1}{36}$	1

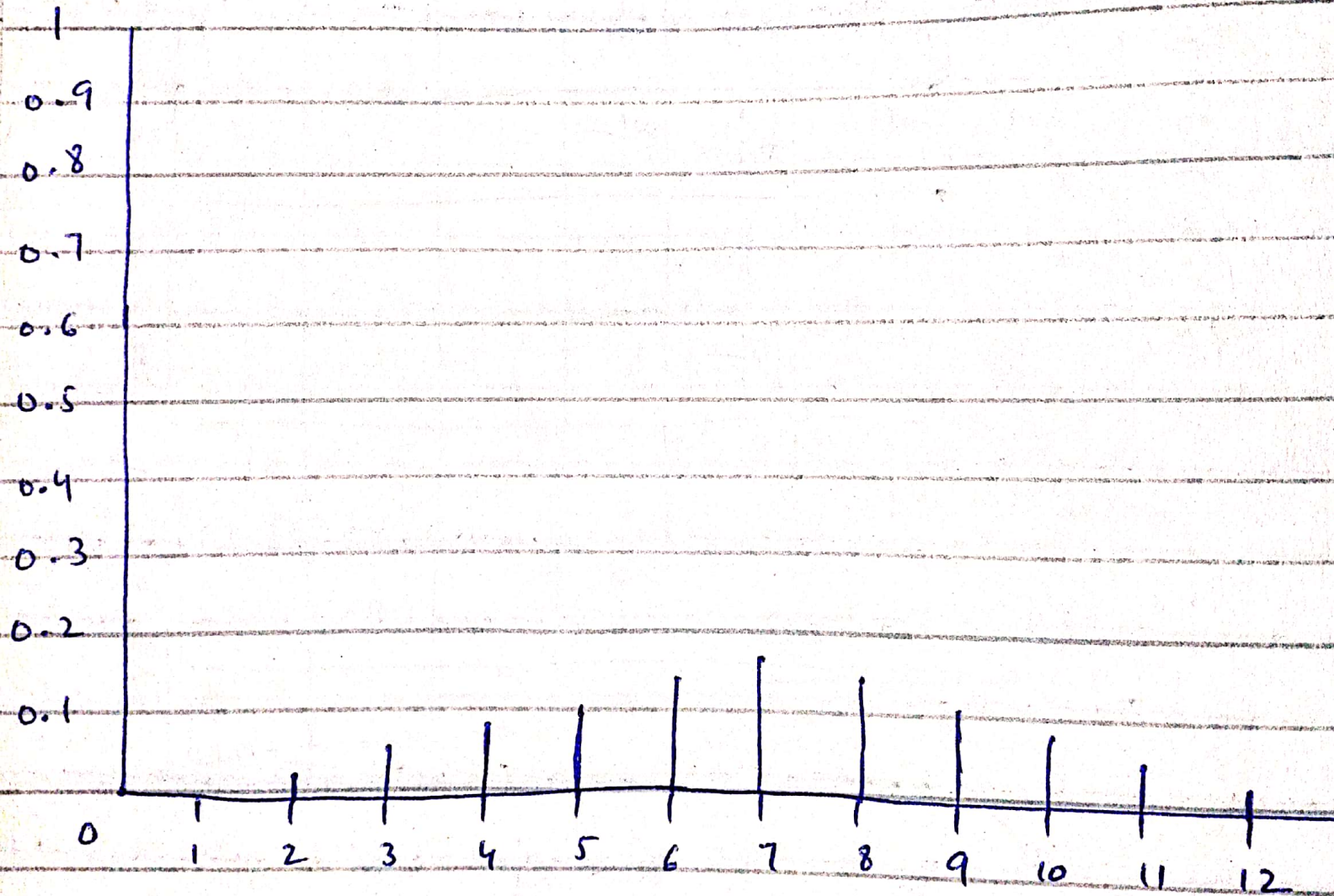
marginal probabilities of X

marginal probabilities of Y

Probability



Probability



X