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5.1 Calculating probabilities

1 a. 2 N = $\frac{2}{13}$

b. 6 vowels = $\frac{6}{13}$

c. 10 letters = $\frac{10}{13}$

2.

×	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24

a. $\frac{1}{24}$

b. $\frac{18}{24} = \frac{3}{4}$

c. $\frac{8}{24} = \frac{1}{3}$

3 a. less than 180cm = 7 + 22 + 35 = 64

Total frequency = 7 + 22 + 35 + 16 + 9 = 89

$= \frac{64}{89}$

b. each interval is 3.5 as 35 ÷ (180 - 170) = 3.5

(3.5 × 2) + 16 + 9 = 32

$= \frac{32}{89}$

c. assumed the heights are equally distributed across each interval

4. Frequency = Frequency density × Class width

20 × 0.35 = 7

10 × 0.6 = 6

10 × 0.8 = 8

5 × 1.8 = 9

15 × 1 = 15

30 × 0.5 = 15

Total = 60

4 a. Less than 90kg = 7 + 6 = $\frac{13}{60}$

b. 120 - 105 = 15

10 × 1 = 10

10 + 15 = $\frac{25}{60} = \frac{5}{12}$

c. assumed the heights are equally distributed across each interval

5 a. B4, B5, B6, B7, E4, E5, E6, E7, O4, O5, O6, O7

bi. 3 × 4 = 12

$= \frac{1}{12}$

bii. E4, E6, O4, O6

$= \frac{4}{12} = \frac{1}{3}$

c. 45, 46, 47, 54, 56, 57, 64, 65, 67, 74, 75, 76

di. 57, 77 = $\frac{2}{12} = \frac{1}{6}$

dii. 45, 46, 47, 54, 56, 57, 64, 65 = $\frac{8}{12} = \frac{2}{3}$