ES5 - N5 Applications of Maths (Numeracy)
Probability

Worked Solutions Courtesy of Mr R. Milton

$$\text{PROBABILITY} = \frac{\text{N° OF FAVOURABLE OUTCOMES}}{\text{TOTAL N° OF FAVOURABLE OUTCOMES}}$$

① $P(\text{RED QUEEN}) = \frac{2}{52}$ ← 2 RED QUEENS ← 52 CARDS

$= \frac{1}{26}$ ✓

② $P(<3) = \frac{2}{6}$ ← N°s 1 AND 2 ← 6 N°s TOTAL

$= \frac{1}{3}$ ✓

③ $P(\text{PRIME N°}) = \frac{5}{12}$ ← 2, 3, 5, 7, 11 PRIME N°s

✓

④ $P(\text{SQUARE NO}) = \frac{6}{37}$ ✓ ← 1, 4, 9, 16, 25, 36

SQUARE NUMBERS

⑤

D2 \ D1	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

15 NUMBERS >7

36 TOTAL NUMBERS

$P(>7) = \frac{15}{36}$ ✓

⑥

D2 \ D1	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9	10
2	3	4	5	6	7	8	9	10	11
3	4	5	6	7	8	9	10	11	12
4	5	6	7	8	9	10	11	12	13
5	6	7	8	9	10	11	12	13	14
6	7	8	9	10	11	12	13	14	15
7	8	9	10	11	12	13	14	15	16
8	9	10	11	12	13	14	15	16	17
9	10	11	12	13	14	15	16	17	18

$P(<10) = \frac{36}{81} = \frac{4}{9}$ ✓

(7)

D2 \ D1	1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8	9
2	3	4	5	6	7	8	9	10
3	4	5	6	7	8	9	10	11
4	5	6	7	8	9	10	11	12
5	6	7	8	9	10	11	12	13
6	7	8	9	10	11	12	13	14
7	8	9	10	11	12	13	14	15
8	9	10	11	12	13	14	15	16

$$P(>9) = \frac{28}{64} = \frac{7}{16}$$ ✓

(8)

S2 \ S1	A ✓	B	C	D	E ✓
○ 1	1A	1B	1C	1D	1E
2	2A	2B	2C	2D	2E
○ 3	3A	3B	3C	3D	3E
4	4A	4B	4C	4D	4E
○ 5	5A	5B	5C	5D	5E

$$P(\text{ODD a VOWEL}) = \frac{6}{25}$$ ✓

(9)

S2 \ S1	A	B	C	D	E
1	1A	1B	1C	1D	1E
E 2	2A	2B	2C	2D	2E
3	3A	3B	3C	3D	3E
E 4	4A	4B	4C	4D	4E
5	5A	5B	5C	5D	5E

C C C

$P(\text{EVEN \& CONSONANT}) = \frac{6}{25}$ ✓

(10)

S2 \ S1	A	B	C	D	E
1	1A	1B	1C	1D	1E
2	2A	2B	2C	2D	2E
3	3A	3B	3C	3D	3E
4	4A	4B	4C	4D	4E
5	5A	5B	5C	5D	5E

$P(\text{A or B \& 4 OR LESS}) = \frac{8}{25}$ ✓

AQ

(1)

S1 / S2	4	G	W	BLA	R	BLU
0 → 1	14	(1G)	(1W)	1BLA	1R	1BLU
2	24	2G	2W	2BLA	2R	2BL
0 → 3	34	(3G)	(3W)	3BLA	3R	3BL
4	44	4G	4W	4BLA	4R	4BL
0 → 5	54	(5G)	(5W)	5BL	5R	5BL
6	64	6G	~~5~~W	6BL	6R	6BL

$$P(\text{ODD AND GREEN OR WHITE}) = \frac{6}{36} = \frac{1}{6}$$ ✓

(2) PRIZE TOMBOLA

DIGITS ADDING UP TO 9 OR MORE ARE

9 18 19 27 28 29 36 37
38 39 45 46 47 48 49 54
55 56 57 58 59 63 64 65
66 67 68 69 72 73 74 75
76 77 78 79 81 82 83 84
85 86 87 88 89 90 91 92
93 94 95 96 97 98 99

$$P(9 \text{ OR MORE}) = \frac{55}{100} = \frac{11}{20}$$

DICE

D_2 \ D_1	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

$$P(7 \text{ or more}) = \frac{21}{36} = \frac{7}{12}$$

$$\frac{11}{20} = \frac{33}{60}$$

$$\frac{7}{12} = \frac{35}{60}$$

DICE GAME HAS MORE CHANCE AS $\frac{35}{60} > \frac{33}{60}$