

Devonport High School for Boys
11+ Mathematics Familiarisation Paper
June 2019

Answers

1	C	2	A	3	E	4	C	5	C	6	C	7	A
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8	B	9	B	10	B	11	E	12	A	13	B	14	C
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15	B	16	C	17	A	18	C	19	D	20	E	21	C
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22	C	23	B	24	C	25	C	26	A	27	C	28	A
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29	B	30	C	31	B	32	D	33	D	34	D	35	B
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36	C	37	B	38	B	39	B	40	A	41	C	42	C	43	E
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Notes

1 **C** £176.10-14.75. Write out as sum or take the 0.75 first giving £175.35 then take the £14 giving £161.35

2 **A** $14-8 = 6$

3 **E** 12×16 . Use written multiplication method to get 192

4 **C** Box plus 4 boxes makes 5 boxes, so 5 boxes equal 40 meaning box must be 8

5 **C** $300 / 16$ give 18 remainder 12 meaning 19 buses are needed

6 **C** Outside angles 60 so inside 120. Or sum is 720 so each is $720/6$

7 **A** It is 7 more

8 **B** Mode is the one which appears most often in the list

9 **B** The 2 is in the tenths column

10 **B** If one fifth of a number is 6 then the number must be $5 \times 6 = 30$; therefore $1/2$ of the number is 15

11 **E** Use repeated subtraction so 10 times. Or spot 10×117 and check 11×117

12 **A** -14 to -31 is a drop of 17; check with -31 to -48; also 17

13 **B** Split into 2 rectangles; 2×9 and 2×4 or 4×4 and 5×2 . Or large rectangle 9×4 take small rectangle 5×2

14 **C** 600g is 60×10 g so sugar is 60×5.5 g = 330g

- 15 **B** A line of symmetry; B 3 lines of symmetry; C 1 line of symmetry; D 2 lines of symmetry; E 0 lines of symmetry
- 16 **C** $17 + 9 = 26$
- 17 **A** Converting all to mm 420, 400, 147, 351, 330 so A is largest
- 18 **C** 991 to 864 is a drop of 77, $717 - 77 = 640$; $640 - 77 = 563$
- 19 **D** Has to not be in the Dark haired circle and in the Blue-eyed circle and wear glasses circle
- 20 **E** Needs to be a volume unit, a litre is too big so millilitres is appropriate
- 21 **C** $180 - 89 = 91$
- 22 **C** Brackets first $4.1 + 1.07 = 5.17$, then $5.17 \times 6 = 31.02$ (can double then triple for $\times 6$)
- 23 **B** $13 \times 23 = 299$ p $\pounds 5 - \pounds 2.99 = \pounds 2.01$
- 24 **C** $4/60 = 1/15$
- 25 **C** 124, 144, not a multiple of 11; 2311, 123 odd; 132 works
- 26 **A** Left side $8 \times 5 - 9 = 31$. Right side $6 \times 5 + ? = 30 + ?$ So $? = 1$ to make sides equal
- 27 **C** Digits in size order 9760
- 28 **A** $12 \times 60 = 720$; $720 \times 60 = 43\ 200$; $2 \times 43\ 200 = 86\ 400$
- 29 **B** $1/9$ of 63 = $63/9 = 7$; so $5/9$ of 63 is $5 \times 7 = 35$
- 30 **C** 05:37 \rightarrow 06:00 is 23 minutes. 06:00 \rightarrow 21:00 is 15h = 900 minutes; 21:00 \rightarrow 21:10 is 10 minutes
Total $23 + 900 + 10 = 933$ minutes
- 31 **B** Six boys mean 5 means total = $6 \times 5 = 30$. $4 + 5 + 6 + 7 + 4 = 26$ so last boy must be 4
- 32 **D** 1 is not a prime number and so is in the wrong place
- 33 **D** 10% of 50,000 is 5000. 5% will be 2500 so 15% is 7500. $50000 - 7500 = \pounds 42\ 500$
- 34 **D** $22.82/5 = 4.564$ so nearest 4.565 short division
- 35 **B** $50 = 6 + 10t$; so $50 - 6 = 10t$; $t = 4$ remainder 4 so 4 tickets. Alternatively use trial and improvement
- 36 **C** $\pounds 7.92/36 = \pounds 0.22$
- 37 **B** Total number of cards with one D taken = $1 + 2 + 4 + 4 + 2 + 2 = 15$. Probability of F is then $3/15 = 1/5$
- 38 **B** 12 hours in the day so each hour the hour hand moves through $360/12 = 30$; in 8.5h it will rotate through 255

39 **B** $28/35 = 4/5$ (divide top and bottom by 7). Cancelling down $40/50$ also gives $4/5$

40 **A** Could find $10\% = 145$ and $1\% = 14.5$ then $6\% = 145 - 4 \times 14.5 = 87$

41 **C** $450\text{mg} = 0.45\text{g}$; $120 \times 0.45 = 54\text{g}$ so jar weighs $180.5\text{g} - 54\text{g} = 126.5\text{g}$

42 **C** p28 represents half the pages in the book so 56 total

43 **E** Step up of 0.95. from 1st to 100th there are 99 steps so $99 \times 0.95 + 1.15 = 95.2$

Approximate equivalent percentage

Score	%	Score	%	Score	%	Score	%
1	2	12	28	23	53	34	79
2	5	13	30	24	56	35	81
3	7	14	33	25	58	36	84
4	9	15	35	26	60	37	86
5	12	16	37	27	63	38	88
6	14	17	40	28	65	39	91
7	16	18	42	29	67	40	93
8	19	19	44	30	70	41	95
9	21	20	47	31	72	42	98
10	23	21	49	32	74	43	100
11	26	22	51	33	77		