

Devonport High School for Boys
11+ Mathematics Familiarisation Paper
10 June 2017

Answers

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

1 **A** £156.20-15.65. Write out as sum or take the 0.65 first giving £155.55 then take the £15 giving £140.55

2 **D** $14-7=7$

3 **B** 24×16 . Use written multiplication method to get 384

4 **B** Box plus 2 boxes makes 3 boxes, so 3 boxes equal 27 meaning box must be 9

5 **E** $300 / 14$ give 21 remainder 6 meaning 22 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 **D** Mode is the one which appears most often in the list

9 **B** The 6 is in the tens column

10 **B** If one quarter of a number is 5 then the number must be $4 \times 5 = 20$; therefore $1/10$ of the number is 2

11 **C** Use repeated subtraction so 7 times. Alternatively could guess 7 and use $7 \times 137 = 959$ and work from there

12 **E** -14 to -33 is a drop of 19; check with -33 to -52; also 19

13 **C** Split into 2 rectangles; 2×11 and 2×6 or 6×4 and 5×2 . Or large rectangle 11×6 take small rectangle 5×2

14 **E** 500g is 60×10 g so sugar is 60×5.5 g = 330g

15 **E** 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** $23+35 = 58$

17 **A** Converting all to mm 420, 400, 147, 351, 330 so A is largest

18 **B** 991 to 864 is a drop of 127, $737-127 = 610$; $610-127=483$

19 **A** Has to be in the Dark haired circle and in the Blue-eyed circle

20 **E** Needs to be a volume unit, a litre is too big so millilitres is appropriate

21 **D** $180 - 49 = 131$

22 **B** Brackets first $4.1+1.07=5.17$, then $5.17 \times 8=41.36$ (can double, double and double again for x8)

23 **D** $11 \times 27=297p$ $£5-£2.97=£2.03$

24 **C** $5/60 = 1/12$

25 **B** 21 not a multiple of 2; 84 works; 40, 36 & 44 not multiples of 7

26 **A** Left side $8 \times 6-9=39$. Right side $6 \times 5+?=30+?$ So $?=9$ to make sides equal

27 **E** Digits in size order 9870

28 **C** $12 \times 60=720$; $720 \times 60=43\ 200$

29 **C** $1/7$ of 63 = $63/7=9$; so $3/7$ of 63 is $3 \times 9=27$

30 **E** 05:34 -> 06:00 is 26minutes. 06:00 ->21:00 is 15h=900minutes; 21:00->21:15 is 15 minutes
Total $26+900+15=941$ minutes

31 **D** Six boys mean 5 means total = $6 \times 5 = 30$. $4+5+6+6+3=24$ so last boy must be 6

32 **A** 1 is not a prime number and so is in the wrong place

33 **B** 10% of 50,000 is 5000. 30% will be 15000. 5% will be 2500 so 35% is 17500. $50000-17500=£32,500$

34 **D** $22.82/5=4.564$ so nearest 4.565 short division

35 **B** $100 = 6 + 12t$; so $94=12t$; $t=7$ remainder 10 so 7 tickets. Alternatively use trial and improvement

36 **E** $£7.92/36 = £0.22$

37 **B** Total number of cards with one D taken = $1+2+4+4+2+2=15$. Probability of F is then $2/15$

38 **C** 12 hours in the day so each hour the hour hand moves through $360/12=30$; in 5.5h it will rotate through 165

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

42 **B** p34 represents half the pages in the book so 68 total

43 **C** Step up of 0.95. from 1st to 50th there are 49 steps so $49 \times 0.95 + 1.15 = 47.7$

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		