

Devonport High School for Boys
11+ Mathematics Familiarisation Paper
June 2022

Answers

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

1 **B** £76.30-£18.45. Write out as sum or take the 0.45 first giving £75.85 then take the £18 giving £57.85

2 **C** $65-30=35$

3 **C** 36×14 . Use written multiplication method to get 504

4 **E** Box plus 3 boxes makes 4 boxes, so 4 boxes equal 36 meaning box must be 9

5 **A** $248 / 12$ give 20 remainder 8 meaning 21 buses are needed

6 **A** There are 6 angles like x on the outside and they total 360 so each one must be 60

7 **B** 10 pupils like Red so there are certainly more than 10 students in the class

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

9 **C** The 5 is in the hundreds column

10 **B** If one fifth of a number is 8 then the number must be $5 \times 8 = 40$; therefore $1/10$ of the number is 4

11 **A** $855-143=712$, $712-143=569$, $569-143=426$, $426-143=283$, $283-143=140$ so 5 times.
Alternatively could guess 5 and use $5 \times 143=715$ and work from there

12 **C** 14 to -13 is a drop of 27; check with -13 to -40; also 27

13 **A** Split into 2 rectangles; 6×5 and 7×4 or 12×4 and 2×5 . Or large rectangle 12×6 take small rectangle 7×2

14 **B** 500g is 50×10 g so sugar is 50×6 g = 300g

15 **D** A 1 line of symmetry; B 3 lines of symmetry; C 1 line of symmetry; D 2 lines of symmetry; E 0 lines of symmetry

16 **D** $17+9 = 26$

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

18 **A** 951 to 828 is a drop of 123, $705-123 = 582$; $582-123=459$

19 **B** Has to be in the Dark haired circle and in the wears glasses circle but not in the blue-eyed circle

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

21 **A** $180 - 137 = 43$

22 **E** Brackets first $6.2+1.05=7.25$, then $7.25 \times 4=29$ (can double and double again for $\times 4$)

23 **C** $11 \times 38=418p$ $\pounds 10-\pounds 4.18=5.82$

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

25 **B** 21 not a multiple of 2; 42 works; 40, 36 & 44 not multiples of 7

26 **A** Left side $8 \times 7 - 11=45$. Right side $6 \times 4 + ?=24+?$ So $?=21$ to make sides equal

27 **C** Digits in size order 9987

28 **A** $24 \times 60=1440$; $1440 \times 60=86\,400$

29 **B** $1/7$ of 84 = $84/7=12$; so $5/7$ of 84 is $5 \times 12=60$

30 **D** 05:43 -> 06:00 is 17minutes. 06:00 -> 18:00 is 12h=720minutes; 18:00->18:05 is 5 minutes
Total $17+720+5=742$ minutes

31 **C** Six boys mean 5 means total = $6 \times 5 = 30$. $3+7+6+2+3=21$ so last boy must be 9

32 **A** 9 is not a prime number and so is in the wrong place

33 **E** 10% of 45,000 is 4500. 5% will be 2250 so 15% is 6750. $45000-6750=\pounds 38,250$

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

35 **B** $100 = 8 + 12t$; so $92=12t$; $t=7$ remainder 8 so 7 tickets. Alternatively use trial and improvement

36 **D** $\pounds 11.04/48 = \pounds 0.23$

37 **E** Total number of cards with one D taken = $1+2+4+3+3+2=15$. Probability of C is then $4/15$

38 **B** 12 hours in the day so each hour the hour hand moves through $360/12=30$; in 1.5h it will rotate through 45

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

40 **C** Could find $10\% = 115$ and $1\% = 11.5$ then $8\% = 115 - 2 \times 11.5 = 92$

41 **A** $450\text{mg} = 0.45\text{g}$; $90 \times 0.45 = 40.5\text{g}$ so jar weighs $165.5\text{g} - 40.5\text{g} = 125\text{g}$

42 **C** p22 represents half the pages in the book so 44 total

43 **B** Step up of 0.9. from 1st to 50th there are 49 steps so $49 \times 0.9 + 1.15 = 45.25$

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		