St Paul's Girls School Sample paper 2 2017

Section A

1)   156
2)   22
3)   3586
4)   1.023, 1.032, 1.2, 1.203, 1.23, 1.302, 1.32
5)   08:19
6)   6.51, 7.49, 6.9
7)   19,23,27
     31,28,26
     16,32,64
8)   68%
9)   5.7
10) 38
11) 11
12) 7+18=25
     25x3=75
13) 12
14) 14
15) 84
16) 15
17) 12m
18) The fourth one

Section B
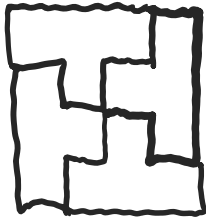
1)   25
2)   64
3)   £48
4)   4m
5)   Different, same (assuming the original cube has a 3 on it), same (assuming the original cube has a 3 on it
6)   £6
7) a) 11am
   b) 13:35
8) a) $\frac{7}{24}$
   b) $2500cm^2$
   c) $17,500cm^2$
9) a) 6667 x 6667
   b) 44444444448888888889
   c) 6666666667
10) 51
11)a) 2127
   b) 7 chains, 3 yards, 1 foot
12) 16

Section C

1)

Medal	France	Italy	Japan	Total
Gold	7	8	9	24
Silver	16	9	6	31
Bronze	18	10	10	38
Total	41	27	25	93

2)   We can make a 4x4 rectangle. To make a 4a x 4b rectangle just do 'a' copies of the below per row and 'b' copies of the below per column.

3) a) 6 days
   b) 36 days
   c) 12 days
   d) 3.6 days
   e) 0.6x days
   f) $\frac{6x}{y}$

4) a) 64,256,1024,4096,16384
      ACE because they don't end with 4 or 6. B because it's smaller than 16384 and isn't yet included in the sequence.
   b) (2,4,)6,12,24,48,96,(192,384,768,1536)
      B,E can't be in because they don't end with 2,4,8 or 6

5) a) 11
   b) 22
   c) 192
   d) 2893

6) a)

Number of rows	Number of columns	Number of white tiles	Number of black tiles
4	5	14	6
4	6	16	8
8	12	36	60
3	7	16	5

   b)

Number of rows	Number of columns	Number of white tiles	Number of black tiles
3	26	54	1x24=24
4	14	32	2x12=24
5	10	26	3x8=24
6	8	**24**	4x6=24

That's all the factor pairs of 24. So the answer is 24.

7)   0 red faces: 1
1 red face: 1
2 red faces: 1 option when they are opposite, 1 option when they adjoin: 2
3 red faces: 1 option when they share a common corner, one option when two are opposite and one is 'in between them': 2
4 red faces: same as '2 blue faces': 2
5 red faces: same as '1 blue face': 1
6 red faces: 1
Total – 10 options.