Number Properties: Hard Practice Paper 1 Answers

Q#	Answer	Explanation
1	D	84 = 42 × 2 and 126 = 42 × 3, so 42 divides both. Nothing larger does, because 2 and 3 have no common factor left, so the HCF is 42.
2	B	60 ÷ 12 = 5, 60 ÷ 15 = 4 and 60 ÷ 20 = 3, so 60 is a multiple of all three. No smaller number works, as 30 is not a multiple of 20.
3	B	The factors of 12 are 1, 2, 3, 4, 6 and 12, which is 6 factors. The others have 4 (8), 4 (15), 5 (16) and 3 (25).
4	D	97 cannot be divided by 2, 3, 5 or 7, so it is prime. The others can: 91 = 7 × 13, 93 = 3 × 31, 95 = 5 × 19 and 99 = 9 × 11.
5	C	For any two numbers, HCF × LCM = the product of the numbers. So the product is 6 × 36 = 216, and the other number is 216 ÷ 12 = 18. Check: the HCF of 12 and 18 is 6 and the LCM is 36.
6	C	The square numbers up to 100 are 1, 4, 9, 16, 25, 36, 49, 64, 81 and 100, which is 10 cards (the squares of 1 to 10).
7	D	The multiples of 9 near 47 are 45 and 54. The next one above 47 is 54, and 54 − 47 = 7.
8	C	Subtracting a negative number is the same as adding: −7 − (−12) = −7 + 12 = 5.
9	D	Only square numbers have an odd number of factors. 81 = 9 × 9, and its factors are 1, 3, 9, 27 and 81, which is five factors.
10	C	This is the lowest common multiple of 9 and 12. Multiples of 9: 9, 18, 27, 36. Multiples of 12: 12, 24, 36. After 36 minutes it is 8:36.
11	B	Consecutive numbers are next to each other. Trying pairs: 11 × 12 = 132 and 12 × 13 = 156. So the smaller number is 12.
12	C	36 ÷ 6 = 6, so it is a multiple of 6, and 36 = 6 × 6, so it is a square number. 64 is a square number but is not a multiple of 6.

13	D	The number of rows must divide both 60 and 48, so it is their highest common factor. That is 12, giving 5 tulips and 4 roses in each row.
14	C	The primes between 20 and 30 are 23 and 29 (21, 25 and 27 all divide by 3 or 5). Adding them: 23 + 29 = 52.
15	C	Rising 11 degrees from −6°C gives 5°C at noon. Falling 4 degrees from 5°C gives 1°C in the evening.