Number Properties: Hard Practice Paper 3 Answers

Q#	Answer	Explanation
1	D	45 = 15 × 3 and 75 = 15 × 5, so 15 divides both. Nothing larger does, since 3 and 5 have no common factor, so the HCF is 15.
2	C	60 ÷ 10 = 6, 60 ÷ 12 = 5 and 60 ÷ 15 = 4, so 60 is a multiple of all three. 30 fails because 30 ÷ 12 is not a whole number.
3	C	24 has the factors 1, 2, 3, 4, 6, 8, 12 and 24, which is 8. The others have fewer: 16 has 5, 21 has 4, 25 has 3 and 35 has 4.
4	D	69 = 3 × 23, so it has more than two factors and is not prime. Its digits add to 15, which is a multiple of 3. All the others are prime.
5	C	A multiple of both 7 and 9 must be a multiple of 63: 63, 126, 189, ... Only 126 lies between 100 and 150.
6	B	The multiples of 12 near 200 are 192 and 204. The next one above 200 is 204, and 204 − 200 = 4.
7	B	Since 19 × 19 = 361, the square root of 361 is 19. Checking nearby: 17 × 17 = 289 and 21 × 21 = 441.
8	B	Falling 7 degrees from −4°C gives −11°C. Rising 3 degrees from −11°C gives −8°C.
9	C	64 = 8 × 8, so it is a square number, and it ends in 4, so it is even. All the other options are square numbers but odd.
10	D	The total must be a multiple of both 10 and 6, so it is their lowest common multiple. That is 30, which is 3 packs of pencils and 5 packs of rubbers.
11	D	The factors of 90 are 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45 and 90. Counting them gives 12 factors.
12	B	125 = 5 × 5 × 5, so it is a cube number greater than 100. The other options are square numbers, not cube numbers.
13	C	The primes up to 40 are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31 and 37, which is 12 cards.

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14	C	For any two numbers, HCF × LCM = the product of the numbers. So the LCM is 240 ÷ 4 = 60.
15	B	Starting at −18 m and rising 7 m gives −11 m. Descending 4 m gives −15 m, which is 15 metres below sea level.

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