Number Properties: Hard Practice Paper 2 Answers

Q#	Answer	Explanation
1	D	96 = 48 × 2 and 144 = 48 × 3, so 48 divides both. Nothing larger works, because 96 is not a factor of 144, so the HCF is 48.
2	C	72 ÷ 6 = 12, 72 ÷ 8 = 9 and 72 ÷ 9 = 8, so 72 is a multiple of all three. 36 fails because 36 ÷ 8 is not a whole number.
3	C	The factors of 25 are 1, 5 and 25. A number has exactly three factors only when it is a prime multiplied by itself. The others each have 4 factors.
4	B	The primes between 50 and 70 are 53, 59, 61 and 67, which is 4 numbers.
5	C	HCF × LCM gives the product of the two numbers: 8 × 48 = 384. So the other number is 384 ÷ 16 = 24. Check: the HCF of 16 and 24 is 8 and the LCM is 48.
6	A	The multiples of 7 near 100 are 98 and 105. The largest one below 100 is 98, and 100 − 98 = 2.
7	B	First multiply: 9 × 16 = 144. The square root of 144 is 12, because 12 × 12 = 144.
8	C	Subtracting a negative is the same as adding, so this is −15 + 8 + 4. Working left to right: −15 + 8 = −7, then −7 + 4 = −3.
9	C	The number must be 2 more than a multiple of both 4 and 6. The lowest common multiple of 4 and 6 is 12, so the smallest number is 12 + 2 = 14.
10	E	66 ÷ 3 = 22, so it is a multiple of 3, but 66 ÷ 9 is not a whole number. All the others divide exactly by 9.
11	E	72 ÷ 6 = 12 and 72 ÷ 8 = 9, so both work. A number divisible by 6 and 8 must be a multiple of 24, and 72 = 24 × 3.
12	A	The volume of a cube is edge × edge × edge. Since 4 × 4 × 4 = 64, each edge is 4 cm long.

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13	C	A multiple of both 4 and 6 must be a multiple of 12. Up to 60 these are 12, 24, 36, 48 and 60, which is 5 numbers.
14	C	The first six primes are 2, 3, 5, 7, 11 and 13. Adding them: 2 + 3 + 5 + 7 + 11 + 13 = 41.
15	D	Correct answers give 8 × 5 = 40 points. Wrong answers lose 6 × 2 = 12 points. Her score is 40 − 12 = 28.

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