Rounding & Estimating: Hard Practice Paper 5 Answers

Q#	Answer	Explanation
1	C	The first three significant figures are 2, 9, and 9. The next digit is 5 (≥ 5), so we round up. The carry propagates through both 9s: 2,995,000 → 3,000,000.
2	D	The first three significant figures are 8, 4, and 8. The next digit is 5 (≥ 5), so we round up the third figure from 8 to 9. 8.4850 → 8.49.
3	C	5,847 rounds to 6,000 (1 s.f.) and 0.312 rounds to 0.3 (1 s.f.). 6,000 × 0.3 = 1,800. (The exact answer is approximately 1,824.)
4	B	For a number to round up to 12,400 (3 s.f.), its 4th significant digit must be 5 or more. The smallest such value is 12,350, because its next digit is 5 (≥ 5), so it rounds up to 12,400. 12,349 would round down to 12,300.
5	C	The first four significant figures are 5, 0, 0, and 5. The next digit is 5 (≥ 5), so we round up the fourth figure from 5 to 6. 0.50055 → 0.5006.
6	D	The first two significant figures are 1 and 4. The next digit is 7 (≥ 5), so we round up the 4 to 5. 1,473,200 → 1,500,000.
7	D	4.71 rounds to 5 and 3.82 rounds to 4. $5^2 + 4^2$ = 25 + 16 = 41. (The exact value is approximately 36.78.)
8	E	Numbers that round to 0.0093 (2 s.f.) must be from 0.00925 up to (but not including) 0.00935. At 0.00935, the digit after the 2nd significant figure is 5 (≥ 5), so it rounds up to 0.0094, not 0.0093.
9	C	3.97 rounds to 4, 4.98 rounds to 5, and 2.03 rounds to 2. 4 × 5 × 2 = 40. (The exact answer is approximately 40.17.)
10	C	The first three significant figures are 7, 0, and 0. The next digit is 5 (≥ 5), so we round up the third significant figure from 0 to 1. 70,050 → 70,100.

11	C	For a number to round to 15, it must be at least 14.5 (since 14.5 rounds up to 15). Any value below 14.5 would round down to 14.
12	D	1,980 rounds to 2,000 (1 s.f.) and 0.0397 rounds to 0.04 (1 s.f.). 2,000 ÷ 0.04 = 50,000. (The exact answer is approximately 49,874.)
13	D	The first three significant figures are 1, 4, and 1. The next digit is 5 (≥ 5), so we round up the third figure from 1 to 2. 0.14150 → 0.142.
14	C	4.9 rounds to 5 cm (nearest whole). Area = $\pi \times r^2 \approx 3 \times 5^2 = 3 \times 25 = 75$ cm². (The exact area using $\pi = 3.14159$ is approximately 75.43 cm².)
15	D	The first three significant figures are 1, 9, and 9. The next digit is 9 (≥ 5), so we round up. The carry propagates through both 9s and the 1: 19,995 → 20,000.