GETTING PRIMED FOR 1967

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(A)
$$1967 = 7(281) = 7(17 + 67 + 197)$$
$$= (2 + 5)(2 + 19 + 17 + 67 + 79 + 97)$$
$$= (2 + 5)(5 + 107 + 109)$$

(B)
$$1967 = 7 + 977 + 983$$
$$= 11 + 479 + 487 + 491 + 499$$
$$= 11 + 311 + 313 + 317 + 331 + 337 + 347$$
$$= 67 + 223 + 227 + 229 + 233 + 239 + 241 + 251 + 257$$
$$= 53 + 167 + 173 + 179 + 181 + 191 + 193 + 197 + 199 + 211 + 223$$
$$= 11 + 83 + 89 + 97 + 101 + 103 + 107 + 109 + 113 + 127 + 131$$
$$+ 137 + 139 + 149 + 151 + 157 + 163$$
$$= 19 + 53 + 59 + 61 + 67 + 71 + 73 + 79 + 83 + 89 + 97 + 101$$
$$+ 103 + 107 + 109 + 113 + 127 + 131 + 137 + 139 + 149$$
$$= 7 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$$
$$+ 61 + 67 + 71 + 73 + 79 + 83 + 89 + 97 + 101 + 103 + 107$$
$$+ 109 + 113 + 127 + 131 + 137 .$$

(C)
$$1 + 9 + 6 + 7 = 23$$
$$1^2 + 9^2 + 6^2 + 7^2 = 167$$
$$1^3 + 9^3 + 6^3 + 7^3 = 1289$$
$$1^4 + 9^4 + 6^4 + 7^4 = 10259$$
$$1^1 + 9^2 + 6^3 + 7^4 = 2669$$
$$1^4 + 9^1 + 6^2 + 7^3 = 389$$
$$1^4 + 9^3 + 6^2 + 7^1 = 773$$
$$1^1 + 9^4 + 6^3 + 7^2 = 6827$$
$$76^2 + 91^2 = 14057$$

(D)
$$2 = (\sqrt{196})/7$$
$$3 = -1 + \sqrt{9} - 6 + 7$$
$$5 = 1 - 9 + 6 + 7$$

$$7 = -1 + 9 + 6 - 7$$
$$11 = 1 + 9 - 6 + 7$$
$$13 = 1^9(6 + 7)$$
$$17 = 1 + \sqrt{9} + 6 + 7$$
$$19 = 19(-6 + 7)$$
$$23 = 1 + 9 + 6 + 7$$
$$29 = 1(\sqrt{9!})(6) - 7$$
$$31 = (1 + 9 - 6)! + 7$$
$$37 = 1 - (\sqrt{9})! + 6(7)$$
$$41 = -1^9 + 6(7)$$
$$43 = 1(\sqrt{9!})(6) + 7$$
$$47 = 1(9)(6) - 7$$
$$53 = (1 + 9)(6) - 7$$
$$59 = 1 - 9 + 67$$
$$61 = 1(9)(6) + 7$$
$$67 = (1 + 9)(6) + 7$$
$$71 = 1 + \sqrt{9} + 67$$
$$73 = 1(9!) + 67$$
$$79 = 1 + (\sqrt{9!})(6 + 7)$$
$$83 = -1 + (\sqrt{9!} + 6)(7)$$
$$89 = 1(96) - 7$$

In every case above, the expression for the prime has the digits of 1967 in that order.

(E) Of the twelve two-digit numbers that can be written with the digits of 1967, there are seven primes, including two palindromic pairs:

$$17, \quad 71; \quad 79, \quad 97; \quad 19, \quad 61, \quad \text{and} \quad 67.$$

Of the twenty-four three-digit numbers that can be written with the digits of 1967, eleven are prime; including three palindromic pairs:

$$167, \quad 761; \quad 179, \quad 971; \quad 769, \quad 967; \quad 197, \quad 617, \quad 619, \quad 691, \quad \text{and} \quad 719.$$