Assume either $e = 1$ or some $a_i = 1$. Following the argument when P was 3 and using (21), we conclude that neither 5 nor P_i divides the constant term of $N_m(x)$. We have already shown that D divides every nonconstant coefficient of every polynomial $N_m(x)$ so that either 5 or P_i divides every nonconstant coefficient of every polynomial $N_m(x)$.

By Theorems 1 and 2 together with (24), we now know that the polynomials $N_m(x)$ are irreducible whenever 5 or P_i does not divide $P - 1$. However, it is a trivial matter to show that neither 5 nor P_i can divide both $P - 1$ and $P^2 - P - 1 = D$. Hence, $N_m(x)$ is irreducible for all $m \geq 3$ provided $e = 1$ or $a_i = 1$ for some i.

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METRIC PAPER TO FALL SHORT OF "GOLDEN MEAN"

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If the Greeks were right that the most pleasing of rectangles were those having their sides in medial section ratio, $\sqrt{5} + 1 : 2$, the classic "Golden Mean," then the world is missing a golden opportunity in standardizing its paper sizes for the anticipated metric conversion.

Metric paper sizes have their dimensions in the ratio $1 : \sqrt{2}$, an ingenious arrangement that permits repeated halvings without altering the ratio. But the 1.414 ratio of length to width falls perceptively short of the "golden" 1.612, as have most paper sizes with which North Americans are familiar. Thus, 8½ × 11 inch typing paper has the ratio 1.294. Popular sizes for photographic paper include 5 × 7 inches (1.400), 8 × 10 inches (1.250), and 11 × 14 inches (1.283). Closest to the Golden Mean, perhaps, was "legal" size typing paper, 8½ × 14 inches (1.647).

With a number of countries, including the United Kingdom, South Africa, Canada, Australia, and New Zealand, making marked strides into "metrication," office typing paper now is being seen that is a little narrower, a little longer, and notably closer to what the Greeks might have chosen.

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