



Cultivating curves

We in the sciences use mathematics,
 our alternate language of choice,
 When words from the dictionary only provide
 a most imprecise version of voice.
 And those dense equations explain in detail
 how things we study behave.
 They are filled with the symbols that never will fail
 to reveal a gravitational wave,
 Or other phantasms concealed but
 then over whose ken we rejoice.

But the math is so dry and the symbols remote,
 their full meaning remains out of reach
 Until we devise a much better way both
 to learn for ourselves and to teach.
 Oh the curve, the curve, the wonderful curve,
 is as useful as it's elegant.
 It shows us the essence of all it plots out;
 do without it?—in fact we just can't.

$$G_{\mu\nu} = 8\pi G(T_{\mu\nu} + \rho\Lambda g_{\mu\nu})$$

Oscillations harmonic control many things
 That require engineering designs.
 To account for the frequencies nature oft brings,
 Monsieur Fourier suggests we sum sines.

Parabolic trajectories are the outcome
 When balls are tossed in the air.
 When a comet swings by with enough energy,
 It's a stunning hyperbolic affair.

Thanks to Herr Kepler, our space probes and ships
 Will know what to expect in the cosmos.
 They know that their orbits will trace an ellipse
 When to planets or stars they come too close.

For these symbols of science on TV and logos,
 We are indebted to Monsieur Lissajous.
 The gist of our message in simplest of prose
 Is a hearty "merci beaucoup."

An orchestra's timpani along with its snare
 Are where rhythmic patterns are found.
 Would their music have filled as much of the air
 Had Bessel not figured the source of their sound?

The perennial battle twixt Gauss and Lorentz
 Cannot be resolved by statistics.
 We must rely on the elements
 Of the spectral line's characteristics.

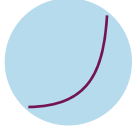
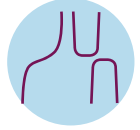
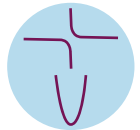
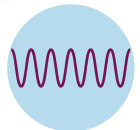
According to every biologist's oath,
 A precipitate rise of whatever's essential
 Is always accompanied by unbounded growth,
 And must be exposed by a pure exponential.

Going off on a tangent is just a cliché
 Unless sine over cosine is nigh.
 And if one over cosine is play of the day,
 Then the secant is here to apply.

Probes after light years will find on arrival
 Halos of dark matter in ample supply,
 But only 'round galaxies known to be spiral
 Where stars move more slowly when they fly by.

It traces the rim of a rolling wheel
 And this curve is one to avoid,
 For it stops for no soul despite an appeal
 In the path of the pointed cycloid.

If ever advised in a classroom one day
 That "grading will be on a curve,"
 Suggest that all students and you choose the curve
 That is used to determine your fate.
 Expect that the Gaussian will still be preserved
 But it should make for a thrilling debate.



E.N. Kaufmann