Recap solution by characteristics of $u_t+c_0*u_x = 0$ [linearized traffic flow] and $u_t+c_0*u_x = a*u$.
Examples: Linear problems with constant or simple variable coefficients, where all the calculations can be done exactly. In each example:

- Write characteristics in parametric form.
- Solve and draw the characteristics.
- Eliminate the characteristic variables and find the solution.
- Show where the solution is defined.

Example 1: $u_t+c_0*u_x = a*u$. IVP problem on $-\infty< x < \infty$, $t > 0$.
Example 2: $x*u_x + y*u_y = y$, $u(x, 1) = g(x)$ for $-\infty < x < \infty$, $y > 0$.
Example 3: $u_x + x^2*u_y = y$, with $u(x, 0) = g(x)$ for $x > 0$.
Show that this defines the solution to the right of $y = x^3/3$.

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