solve the following equations

$$u_t + 5u_x = 0 \quad u(x,0) = e^x$$
$$u_t + 2u_x = 0 \quad u(x,0) = \sin(3x)$$

$$u_t + t^2 u_x = t \quad u(x,0) = x$$
$$u_t + t^2 u_x = u \quad u(x,0) = x^2 + 1$$
$$u_t + (x^2+1)u_x = 0 \quad u(x,0) = x$$
$$u_t + \frac{t}{x} u_x = 0 \quad u(x,0) = x - 2$$

$$u_t - 3tu_x = 2 \quad u(x,0) = 4x^3$$
$$u_t + (2t-1)u_x = 3u \quad u(x,0) = \cos(x)$$
$$u_t + (t+3)u_x = u + 2 \quad u(x,0) = x + 1$$
$$u_t + xu_x = t \quad u(x,0) = x - 1$$
$$u_t + (2x-1)u_x = 3t - 1 \quad u(x,0) = x^2$$

$$u_x + 3u_y = u \quad u(x,y) = 2x - y \text{ on the line } x + y = 1$$
$$u_x + yu_y = 3u \quad u(x,y) = x + 4y \text{ on the line } x + 2y = 1$$
$$u_x + xu_y = y \quad u(x,y) = 6x - y \text{ on the line } 2x - y = 2$$
$$3u_x + u_y = x \quad u(x,y) = 2x + 3y \text{ on the line } x + 2y = 1$$
$$2u_x + 3u_y = x \quad u(x,y) = 3x + y \text{ on the line } x - 5y = 1$$

$$u_t + uu_x = 0 \quad u(x,0) = 4 \text{ se } x < 1 \quad u(x,0) = 1 \text{ se } x > 1$$
$$u_t + uu_x = 0 \quad u(x,0) = 6 \text{ se } x < 0 \quad u(x,0) = 0 \text{ se } x > 0$$
$$u_t + u^2 u_x = 0 \quad u(x,0) = 3 \text{ se } x < 2 \quad u(x,0) = 1 \text{ se } x > 2$$
$$u_t + u^2 u_x = 0 \quad u(x,0) = 2 \text{ se } x < 1 \quad u(x,0) = 0 \text{ se } x > 1$$