

d) we use Baye's theorem:

$$P(Y=+1|X) = \frac{f(X|Y=+1) \pi(Y=+1)}{P(X)}$$

$$\Leftrightarrow f(X|Y=+1) = \frac{P(Y=+1|X) P(X)}{\pi(Y=+1)}$$

$$= \frac{\frac{x_1 + x_2}{2} \cdot 3x_2^2}{\text{divides } 5/8}$$

$$= \boxed{\frac{12}{5} (x_1 + x_2) x_2^2}$$