30. First, we compute the conditional mean of Y given that $X = 1$:

$$E[Y \mid X = 1] = 2 \cdot 1/4 + 3 \cdot 3/4 = 11/4.$$

In addition, we compute the conditional mean of X given that $Y = 3$. The conditional distribution of X given $Y = 3$ is

$$p_{X|Y=3}(1) = 3/5; p_{X|Y=3}(2) = 2/5; p_{X|Y=3}(3) = 0.$$

Thus $E[X \mid Y = 3] = 1 \cdot 3/5 + 2 \cdot 2/5 = 7/5$.