

A HOSPITAL HAS RATE 19 BIRTHS
PER 24 HOURS.

→ WHAT IS PROB THAT 4 GIRLS AND 3 BOYS
ARE BORN DURING AN 8 HOUR SHIFT?

SOLUTION $P(N_{1/3}^{\text{girls}} = 4, N_{1/3}^{\text{boys}} = 3)$

$$= P(N_{1/3}^{\text{girls}} = 4) P(N_{1/3}^{\text{boys}} = 3)$$

$$= \text{poisson}(4; 19 \cdot 0.48 \cdot \frac{1}{3}) \cdot \text{poisson}(3; 19 \cdot 0.52 \cdot \frac{1}{3})$$

→ GIVEN THAT 7 CHILDREN ARE BORN
DURING 8 HOURS, WHAT IS THE PROB THAT 3 ARE BOYS? $= 0.0376$

$$P(C_{\text{boys}} = 3) = \text{BINOMIAL}(3; 7, 0.52) = \underline{0.2612}$$