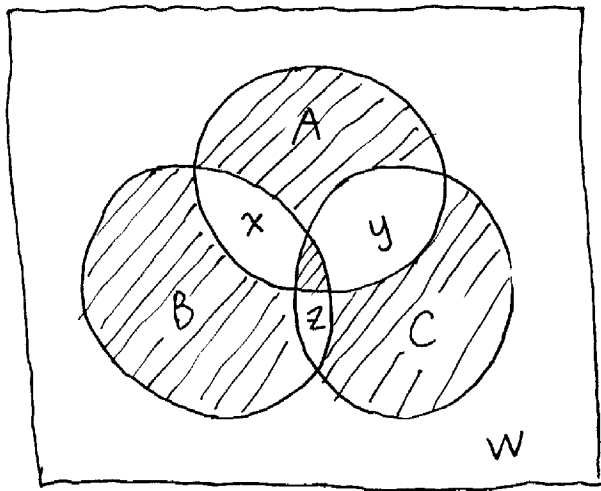


# Exam P Problem 15



\* Each circle represents one supplementary coverage plan.

\*  $x \sim$  area of the intersection of A & B  
 $y \sim$  area of the intersection of A & C

$z \sim$  area of the intersection of B & C

\* Grey  $\sim$  areas of probability equals to 0

$$1 = x + y + z + w$$

$$\begin{cases} \Pr(A) = x + y = \frac{1}{4} = \frac{3}{12} \\ \Pr(B) = x + z = \frac{1}{3} = \frac{4}{12} \\ \Pr(C) = y + z = \frac{5}{12} \end{cases}$$

Rearrange and solve the equation above

$$x = \frac{1}{12}$$

$$y = \frac{2}{12}$$

$$z = \frac{3}{12}$$

$$1 = x + y + z + w = \frac{1}{12} + \frac{2}{12} + \frac{3}{12} + w$$

$$w = \frac{6}{12} = \frac{1}{2}$$

