Probability of Mutually Exclusive Events

Name ______________________________

Date _________________ Period ______

Event X and Event Y are considered mutually exclusive events if they are disjoint events so that $X \cap Y = \varnothing$

If X and Y are mutually exclusive ($X \cap Y = \varnothing$) then...

$$P(X \cup Y) =$$

If X and Y are not mutually exclusive ($X \cap Y \neq \varnothing$) then...

$$P(X \cup Y) =$$

X and Y
Mutually Exclusive ($X \cap Y = \varnothing$)
$P(X \cup Y) = P(X) + P(Y)$

X and Y
Not Mutually Exclusive ($X \cap Y \neq \varnothing$)
$P(X \cup Y) = P(X) + P(Y) - P(X \cap Y)$

Let $S = \{a, b, c, d, e, f, g, h\}$ and event $X = \{a, b, h\}$ and $Y = \{g, h\}$ and $Z = \{a, b, c, d, e, f\}$

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$P(Y \cup Z) =$

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$$P(X \cup Y) = P(X) + P(Y) - P(X \cap Y)$$