16. Solution: D
Let \( N_1 \) and \( N_2 \) denote the number of claims during weeks one and two, respectively. Then since \( N_1 \) and \( N_2 \) are independent,
\[
\Pr[N_1 + N_2 = 7] = \sum_{n=0}^{7} \Pr[N_1 = n] \Pr[N_2 = 7 - n] \\
= \sum_{n=0}^{7} \left( \frac{1}{2^{n+1}} \right) \left( \frac{1}{2^{8-n}} \right) \\
= \sum_{n=0}^{7} \frac{1}{2^n} \\
= \frac{8}{2^9} = \frac{1}{64}
\]

17. Solution: D
Let
\( O \) = Event of operating room charges
\( E \) = Event of emergency room charges
Then
\[
0.85 = \Pr(O \cup E) = \Pr(O) + \Pr(E) - \Pr(O \cap E) \\
= \Pr(O) + \Pr(E) - \Pr(O) \Pr(E) \quad (\text{Independence})
\]
Since \( \Pr(E^c) = 0.25 = 1 - \Pr(E) \), it follows \( \Pr(E) = 0.75 \).
So
\[
0.85 = \Pr(O) + 0.75 - \Pr(O)(0.75) \\
\Pr(O)(1 - 0.75) = 0.10 \\
\Pr(O) = 0.40
\]

18. Solution: D
Let \( X_1 \) and \( X_2 \) denote the measurement errors of the less and more accurate instruments, respectively. If \( N(\mu, \sigma) \) denotes a normal random variable with mean \( \mu \) and standard deviation \( \sigma \), then we are given \( X_1 \) is \( N(0, 0.0056h) \), \( X_2 \) is \( N(0, 0.0044h) \) and \( X_1, X_2 \) are independent. It follows that \( Y = \frac{X_1 + X_2}{2} \) is \( N(0, \sqrt{\frac{0.0056^2h^2 + 0.0044^2h^2}{4}}) = N(0, 0.00356h) \). Therefore,
\[
P[-0.005h \leq Y \leq 0.005h] = P[Y \leq 0.005h] - P[Y \leq -0.005h] = P[Y \leq 0.005h] - P[Y \geq 0.005h] \\
= 2P[Y \leq 0.005h] - 1 = 2P\left[Z \leq \frac{0.005h}{0.00356h}\right] - 1 = 2P[Z \leq 1.4] - 1 = 2(0.9192) - 1 = 0.84.
\]