151. Key: C

The ratio of the probability that one of the damaged pieces is insured to the probability that none of the damaged pieces are insured is $\dfrac{\dfrac{\binom{r}{1}\binom{27-r}{3}}{\binom{27}{4}}}{\dfrac{\binom{r}{0}\binom{27-r}{4}}{\binom{27}{4}}} = \dfrac{4r}{24-r}$, where r is the total number of pieces insured. Setting this ratio equal to 2 and solving yields $r = 8$.

The probability that two of the damaged pieces are insured is

$$\frac{\binom{r}{2}\binom{27-r}{2}}{\binom{27}{4}} = \frac{\binom{8}{2}\binom{19}{2}}{\binom{27}{4}} = \frac{(8)(7)(19)(18)(4)(3)(2)(1)}{(27)(26)(25)(24)(2)(1)(2)(1)} = \frac{266}{975} = 0.27 .$$