```
ClearAll["Global`*"]
A[r_, p_] = (1 / 2) * p * r^2;
grad = D[A[r, p], {{r, p}}];
agrad = Abs[grad];
errorRP = {dr, dp};
errorA = Simplify[agrad.errorRP]
deltaR = Solve[errorA == dA, dr]
deltaR /. {dA → (1 / 2), dp → (1 / 100) * (2 * Pi / 360)};
Expand[%];
Simplify[%]
deltaR /. {dA → (1 / 2), r → 50, p → 2 * Pi / 3,
    dp → (1 / 100) * (2 * Pi / 360)};
Simplify[%]
N[%]
```

Out[•]= $\frac{1}{2}\,dp\,\text{Abs}[r]^2 + dr\,\text{Abs}[p\,r]$

Out[•]= $\left\{\left\{dr \to \frac{2\,dA - dp\,\text{Abs}[r]^2}{2\,\text{Abs}[p\,r]}\right\}\right\}$

Out[•]= $\left\{\left\{dr \to \frac{18\,000 - \pi\,\text{Abs}[r]^2}{36\,000\,\text{Abs}[p\,r]}\right\}\right\}$

Out[•]= $\left\{\left\{dr \to -\frac{1}{480} + \frac{3}{200\,\pi}\right\}\right\}$

Out[•]= $\{\{dr \to 0.00269131\}\}$