1.

1. (A) Basis for the Revenue model is a simple multiplication:

Revenue = Price×Quantity = $(-\frac{9}{8}r+402) \times r = 402\,r - \frac{9\,r^2}{8}$

Notice the latter is a quadratic:
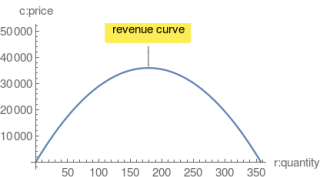
(B) Domain starts at 0 USDollars revenue up to r-intercept coordinate equal to twice the value of vertex of the Parabola:

$\frac{1072}{3}$

(D) The maximum occurs at the vertex r-intercept coordinate:

$\frac{536}{3}$

or the amount 35912. USDollars .