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1. Instructions for Using the Interactive Graphs

In order to use the interactive graphs, you must install either *Wolfram Player* or *Mathematica*. *Wolfram Player* is available for free from Wolfram Research at https://www.wolfram.com/player/. **Note:** The interactive graphs are still being developed and will likely contains bugs. Any feedback would be greatly appreciated.

1.1. The (Residual) Monopolist's Best Response. This graph shows the profits of a Cournot firm for a given production level of other firms. The market characterised by the inverse demand function

$$p = a - bq - q_j$$

where q is the quantity of the firm and q_j is the quantity produced by the firm's rivals. The firm has constant marginal cost c. The sliders control the demand and cost parameters of the firm (a, b, c) and the quantity q_j produced by other firms. The graph is useful to illustrate the point that the problem of a Cournot firm is similar in nature to that of a monopolist firm, except that the demand function that the firm faces is the residual demand function rather than the underlying one. By increasing the production q_j of other firms, we can see how the profit function of the Cournot firm shifts leftward (in the upper panel) and how that changes the optimal production level q of the firm. In the lower panel, the different combinations of q_j and the accompanying (privately) optimal production q are plotted. Thus the curve traces out the Cournot firm's best response (or reaction functions).

Experiments: Use the graph to understand the effect that an increase in rival's output has on the shape and location of the firm's profit function. Use the figure to explain why an increase in the rival's output causes the firm to decrease rather than decrease its output.

Controls	Description
a	Demand intercept
b	Demand slope
c	Marginal cost
q_j	Output of other firms
Bugs: None known.	