Properties of Cost Functions

\[ C = C(q, r, w) \]

The higher the value of \( q \), the greater the total cost of production.

Ditto for \( r \) and \( w \).

I illustrate the problems with seven trick questions.

First Trick Question

• Acme Widgets’ costs are now $100. It doubles output.
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- Acme Widgets’ costs are now $100. It doubles output.
- Will costs double?
- They will surely go up but may or may not double.

Constant returns to scale (C= $200)
Increasing returns to scale (100<C<$200)
Decreasing returns to scale (C>$200)

Second Trick Question

- Acme Widgets’ costs are now $100; $50 of payments to workers and $50 of payments to capital.

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If wage rates increase by 100%, will total costs go from $100 to $150?
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If wage rates increase by 100%, will total costs go from $100 to $150?

No!

Third Trick Question

- Is it possible that higher wage rates will to enough substitution to lower total costs for the given level of output?

Assume a new solution of
- $60 of capital payments and $30 of labor costs

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At the old wage rate
- $60 of capital payments and $15 of labor costs
Third Trick Question

• Is it possible that higher wage rates will to enough substitution to lower total costs for the given level of output?

• Assume a new solution of $60 of capital payments and $30 of labor costs.

No! This could happen only if Acme were overpaying in the first place.

End