Warm-Up 1 — Before We Start

Intermediate Macroeconomics · Tuesday, September 1

1. Solve for Y: $Y = 40 + 0.5\,Y$

$$0.5Y = 40$$
$$Y = \frac{40}{0.5} = 80$$

2. If $I = 500 - 20\,i$, does investment rise or fall when i rises? Write the sign of the relationship using a derivative.

$$\frac{\partial I}{\partial i} = -20 < 0$$

When i goes up I comes down.

3. A quantity grows from 250 to 275. By what percent did it grow?

$$\frac{275 - 250}{250} \times 100 = \frac{25}{250} \times 100 = 25\%$$

4. The unemployment rate rises from 4% to 5%. Fill in both blanks.

That is a rise of One percentage point(s), and a rise of 25 percent.

5. A line is drawn on a graph with P on the vertical axis and Q on the horizontal axis. What is the difference between *moving along* the line and the line *shifting*?

- Moving along = a change in a variable on the axes
- Shifting = a change in something held constant when the line was drawn

6. What is $1 + 0.5 + 0.25 + 0.125 + \cdots$ (continuing forever)?

$$x = 0.5$$

I can rewrite the equation above as:

$$0.5^0 + 0.5^1 + 0.5^2 \cdots$$

An infinite GP sum is:

$$\frac{1}{1 - 0.5} = 2$$