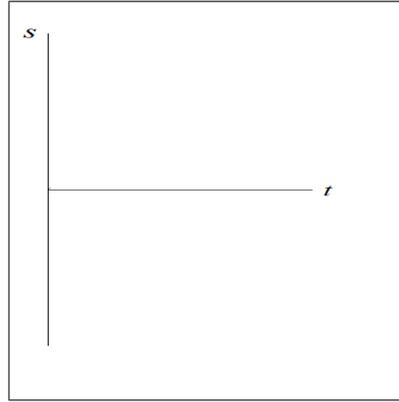
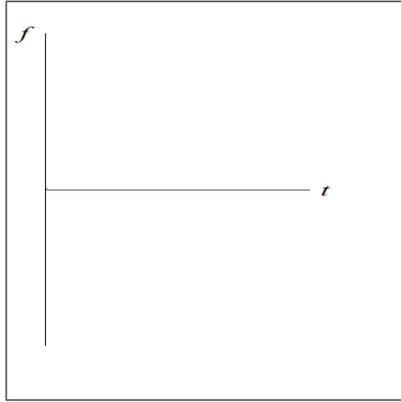


Practice Questions

1. Draw a graph of $f(t)$ that goes up and down and up again.
Then draw a reasonable graph of its slope.



2. The world population $f(t)$ increased slowly at first, now quickly, later slowly again (we hope and expect). Maybe a limit ≈ 12 or 14 billion.

Draw a graph for $f(t)$ and its slope $s(t) = \frac{df}{dt}$

3. Suppose $f(t) = 2t$ for $t \leq 1$ and then $f(t) = 3t + 2$ for $t \geq 1$

Describe the slope graph $s(t)$. Compare its area out to $t = 3$ with $f(3)$

4. Draw a graph of $f(t) = \cos t$. Then sketch a graph of its slope. At what angles t is the slope zero (slope = 0 when $f(t)$ is “flat”).

5. The graph of $f(t)$ is shaped like the capital letter **W**. Describe the graph of $s(t) = \frac{df}{dt}$. What is the total area “under” the graph of s ?

6. A train goes a distance f at constant speed s . Inside the train, a passenger walks forward a distance F at walking speed S .

What distance does the passenger go? At what speed? (Measure from train station).

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Resource: Highlights of Calculus
Gilbert Strang

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