

**Exercise 2.1.2**

In the next three exercises, interpret  $\dot{x} = \sin x$  as a flow on the line.

At which points  $x$  does the flow have greatest velocity to the right?

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**Solution**

The greatest velocity to the right occurs where  $\dot{x}$  is maximum (and positive), that is, where  $\sin x = 1$ :

$$x = \frac{\pi}{2} + 2n\pi, \quad n = 0, \pm 1, \pm 2, \dots$$