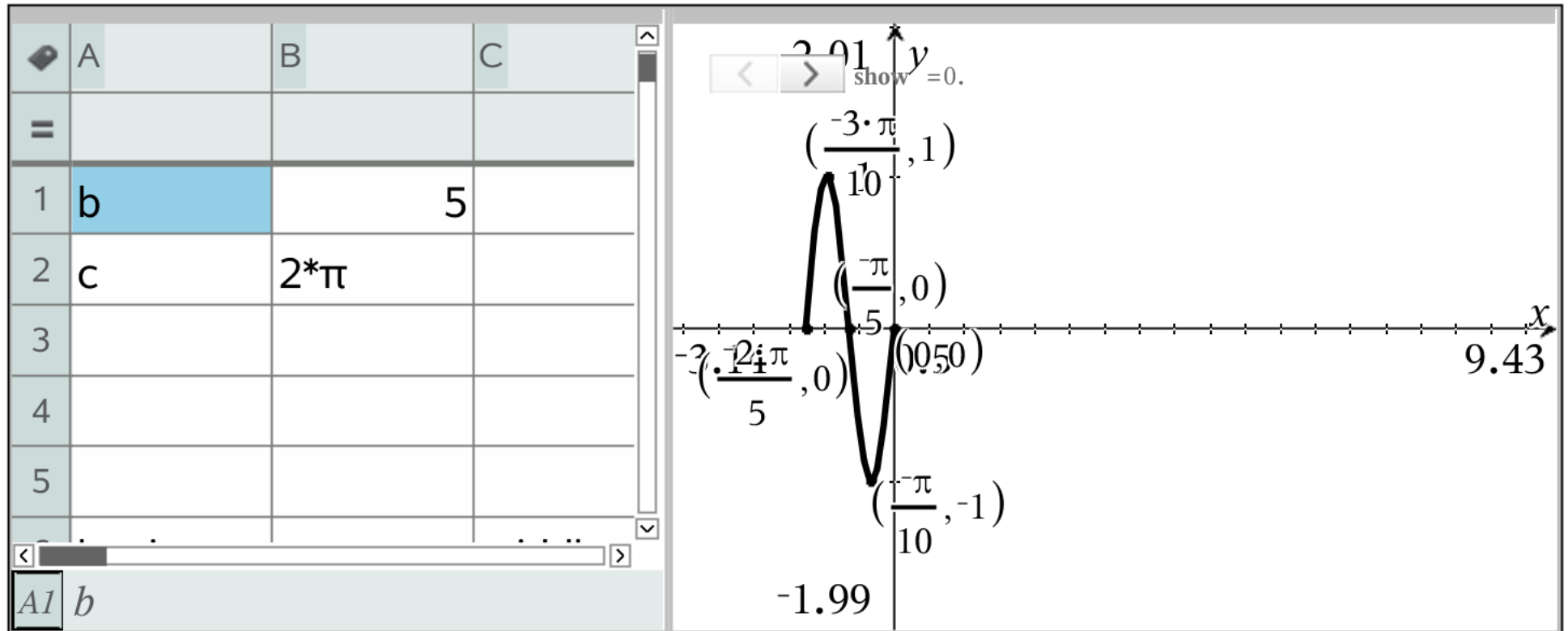


Problem 1

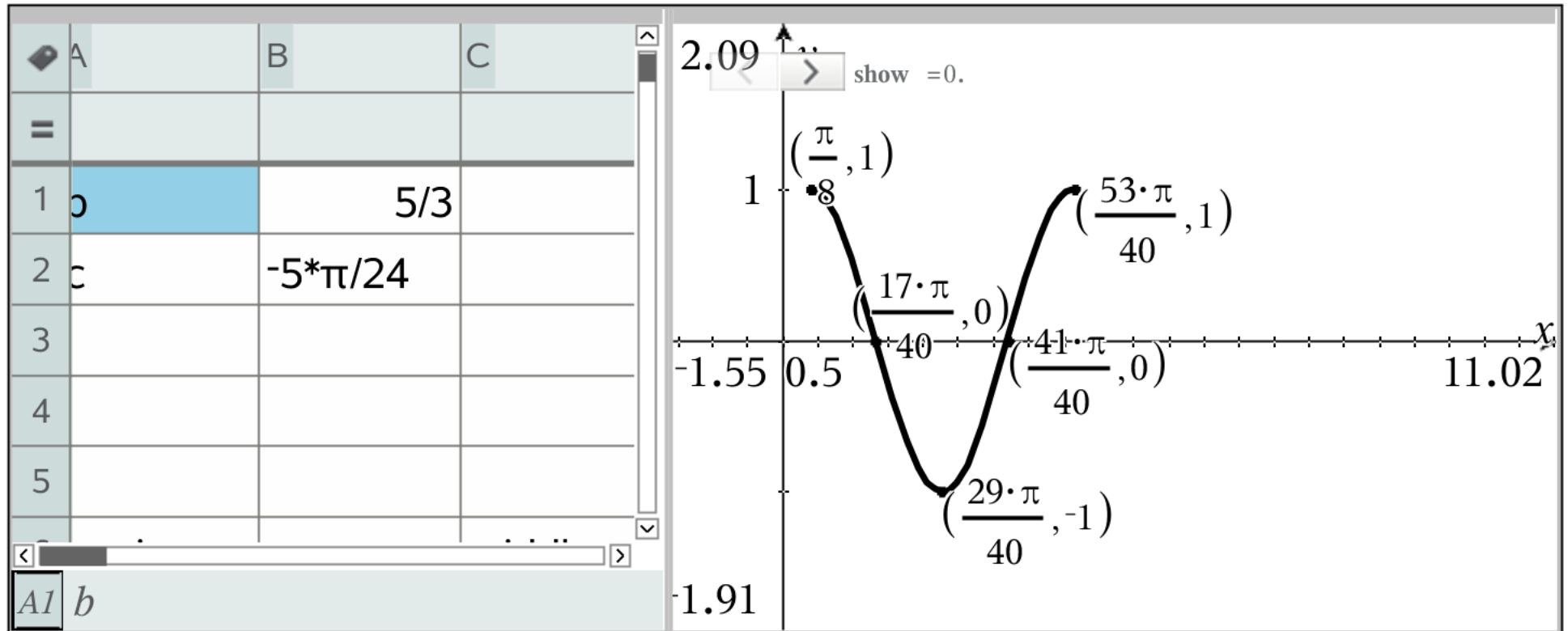


$y = \sin(5 \cdot x + 2 \cdot \pi)$ This is a **compression** PHASE SHIFT $\frac{2 \cdot \pi}{5}$ radians to **left**

Period length = $\frac{2 \cdot \pi}{5}$ One of the Periods $[-\frac{2 \cdot \pi}{5}, 0)$

Other Periods $[-\frac{6 \cdot \pi}{5}, -\frac{4 \cdot \pi}{5})$ $[-\frac{4 \cdot \pi}{5}, -\frac{2 \cdot \pi}{5})$ $[0, \frac{2 \cdot \pi}{5})$ $[\frac{2 \cdot \pi}{5}, \frac{4 \cdot \pi}{5})$

Problem 2

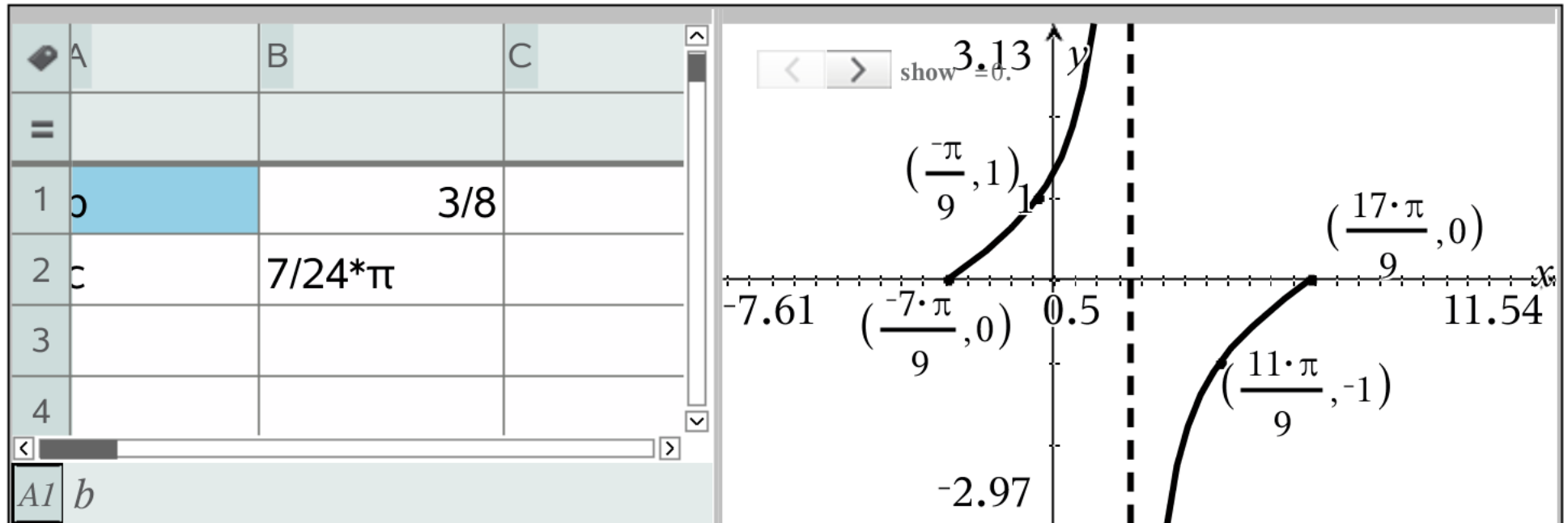


$y = \cos\left(\frac{5 \cdot x}{3} - \frac{5 \cdot \pi}{24}\right)$ This is a **compression** PHASE SHIFT $\frac{\pi}{8}$ radians to **right**

Period length = $\frac{6 \cdot \pi}{5}$ One of the Periods $\left[\frac{\pi}{8}, \frac{53 \cdot \pi}{40}\right)$

Other Periods $\left[\frac{-91 \cdot \pi}{40}, \frac{-43 \cdot \pi}{40}\right)$ $\left[\frac{-43 \cdot \pi}{40}, \frac{\pi}{8}\right)$ $\left[\frac{53 \cdot \pi}{40}, \frac{101 \cdot \pi}{40}\right)$ $\left[\frac{101 \cdot \pi}{40}, \frac{149 \cdot \pi}{40}\right)$

Problem 3



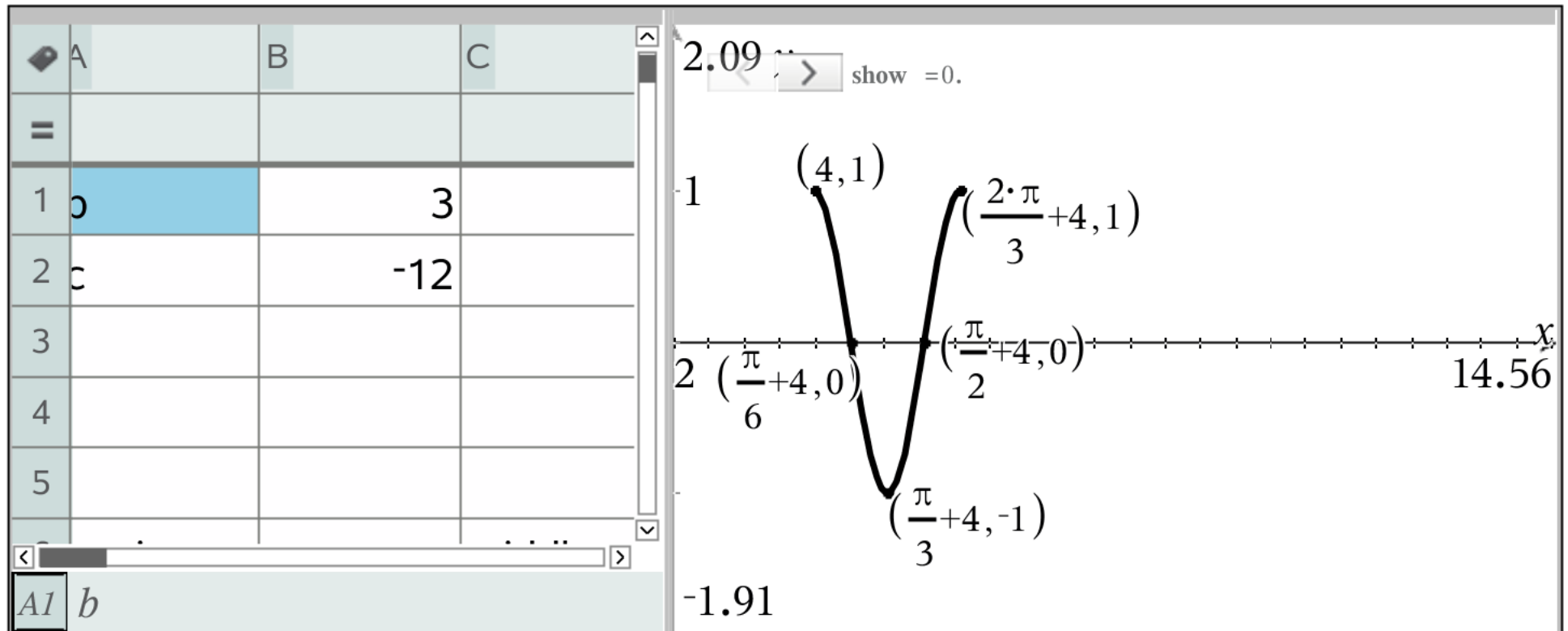
$y = \tan\left(\frac{3 \cdot x}{8} + \frac{7 \cdot \pi}{24}\right)$ This is a stretch PHASE SHIFT $\frac{7 \cdot \pi}{9}$ radians to left

Period length = $\frac{8 \cdot \pi}{3}$ One of the Periods $\left[\frac{-7 \cdot \pi}{9}, \frac{17 \cdot \pi}{9}\right)$ Related Asymptote $x = \frac{5 \cdot \pi}{9}$

Other Periods $\left[\frac{-55 \cdot \pi}{9}, \frac{-31 \cdot \pi}{9}\right)$ $\left[\frac{-31 \cdot \pi}{9}, \frac{-7 \cdot \pi}{9}\right)$ $\left[\frac{17 \cdot \pi}{9}, \frac{41 \cdot \pi}{9}\right)$ $\left[\frac{41 \cdot \pi}{9}, \frac{65 \cdot \pi}{9}\right)$

Asymptotes $x = \frac{-43 \cdot \pi}{9}$ $x = \frac{-19 \cdot \pi}{9}$ $x = \frac{29 \cdot \pi}{9}$ $x = \frac{53 \cdot \pi}{9}$

Problem 4



$y = \cos(3 \cdot x - 12)$ This is a **compression** PHASE SHIFT 4 radians to **right**

Period length = $\frac{2 \cdot \pi}{3}$ One of the Periods $[4, \frac{2 \cdot \pi}{3} + 4)$

Other Periods $[4 - \frac{4 \cdot \pi}{3}, 4 - \frac{2 \cdot \pi}{3})$ $[4 - \frac{2 \cdot \pi}{3}, 4)$ $[\frac{2 \cdot \pi}{3} + 4, \frac{4 \cdot \pi}{3} + 4)$ $[\frac{4 \cdot \pi}{3} + 4, 2 \cdot \pi + 4)$