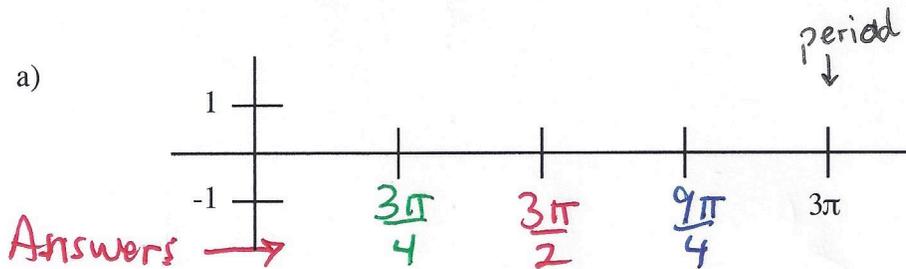


In-Class Example 7: Given the period, as shown on the graph, use the “half-and-half” technique to find the featured x -values: the half-period, quarter-period, and three-quarter-period. Simplify whenever possible.

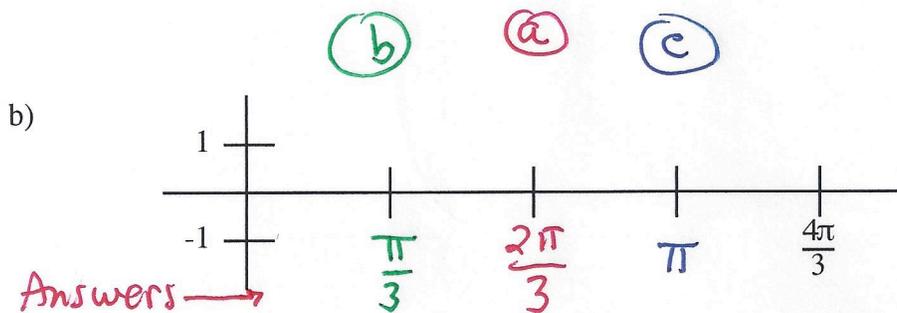
(b) qtr.-per (a) half-per (c) 3-qtr.per.



(a) half of 3π is $\left(\frac{3\pi}{2}\right)$

(b) half of $\frac{3\pi}{2}$ is $\frac{1}{2} \cdot \frac{3\pi}{2} = \left(\frac{3\pi}{4}\right)$

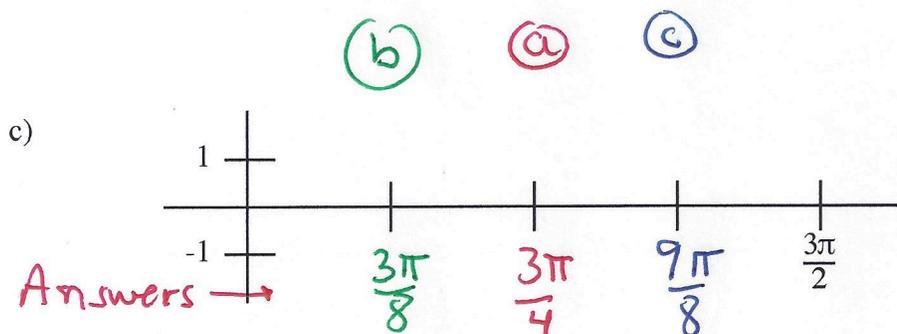
(c) three-quarter-period means 3 times the qtr.-period:
 $\frac{3}{1} \times \frac{3\pi}{4} = \left(\frac{9\pi}{4}\right)$



(a) half-per: $\frac{1}{2} \cdot \frac{4\pi}{3} = \left(\frac{2\pi}{3}\right)$

(b) qtr.-per: $\frac{1}{2} \cdot \frac{2\pi}{3} = \left(\frac{\pi}{3}\right)$

(c) 3-qtr.per: $\frac{3}{1} \cdot \frac{\pi}{3} = \left(\pi\right)$



(a) $\frac{1}{2}$ -per: $\frac{1}{2} \cdot \frac{3\pi}{2} = \left(\frac{3\pi}{4}\right)$

(b) $\frac{1}{4}$ -per: $\frac{1}{2} \cdot \frac{3\pi}{4} = \left(\frac{3\pi}{8}\right)$

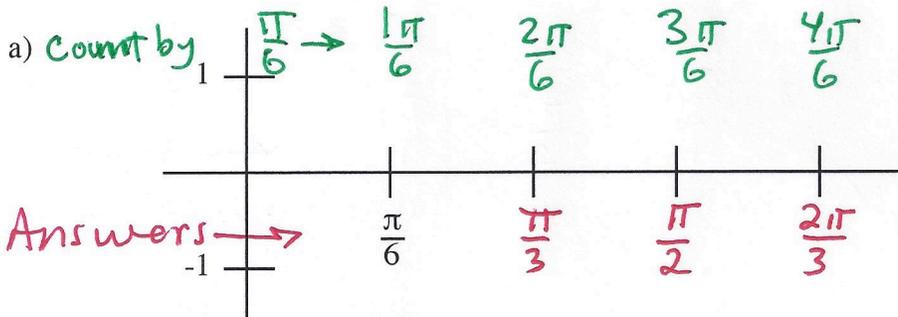
(c) $\frac{3}{4}$ -per: $\frac{3}{1} \cdot \frac{3\pi}{8} = \left(\frac{9\pi}{8}\right)$

In-Class Example 8: Given the quarter-period (s.c.u.), as shown on the graph, label the three other featured x -axis marks. Simplify whenever possible.

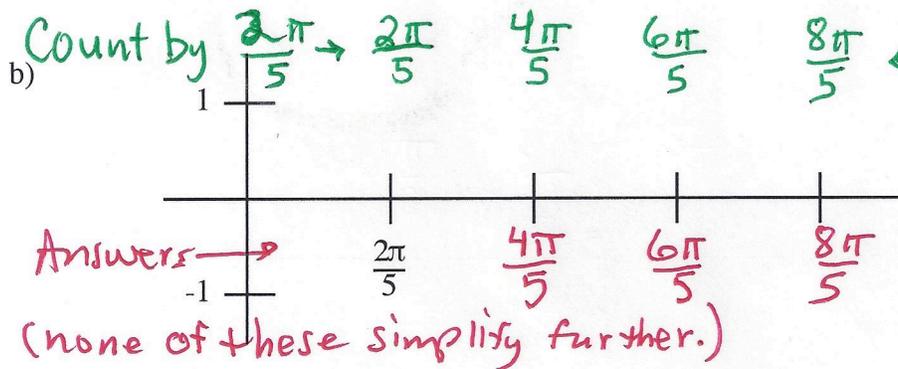
Hint 1: For some of these, it might be helpful to write the multiples of the s.c.u. above the x -axis and then write the simplified form below.

Hint 2: When adding multiples of the s.c.u., the denominator and π -value stay the same; it is only the numerator value (coefficient of π) that is multiplied.

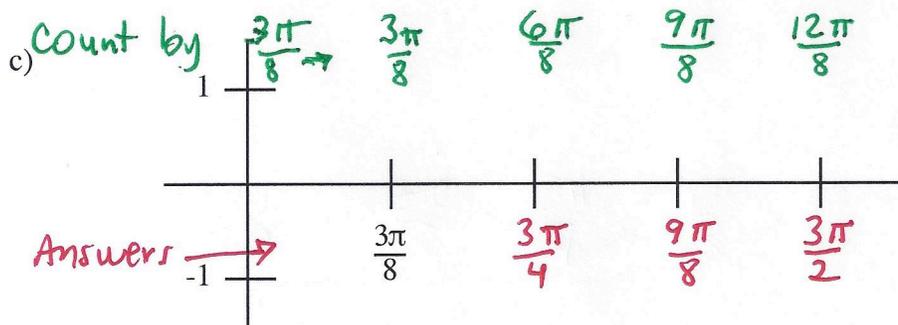
For each, count by the quarter-period (standard counting unit, SCU)



simplified form of each green fraction.

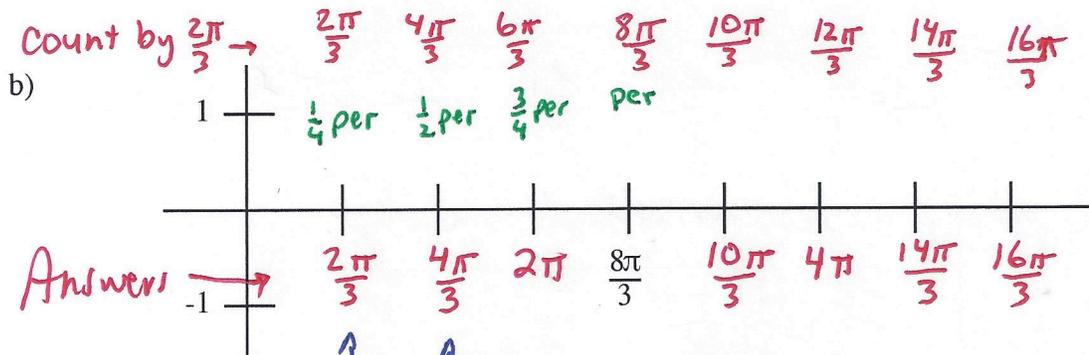
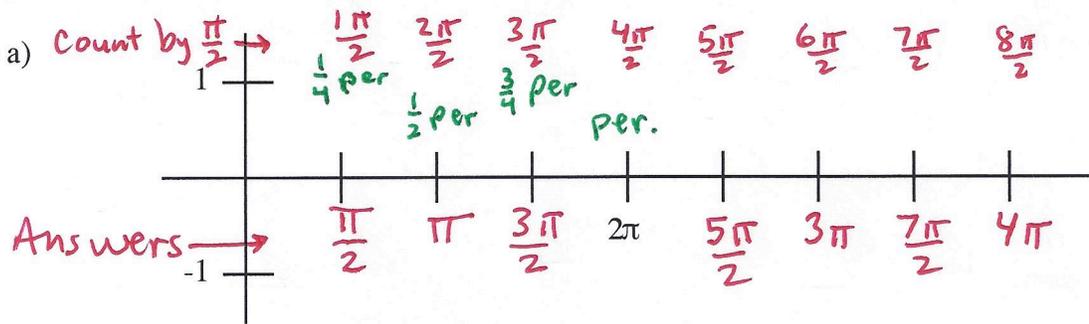


When counting by $\frac{2\pi}{5}$, notice the numerator always contains π , and the denominator is always 5. We are really just counting by 2 in the numerator.



In-Class Example 9: Given the period, as shown on the graph, label the first three x -axis marks and identify (circle) the standard counting unit. Then, use the s.c.u. to label the last four marks. Simplify whenever possible.

- Ⓐ Notice the period is in the middle of the axis.
- Ⓑ On the left of the period, use the half-half technique; identify the s.c.u. (quarter period)
- Ⓒ Use the s.c.u. to count and find the x -values to the right of the period.



(half of $\frac{8\pi}{3}$ is $\frac{4\pi}{3}$ b/c half of 8 is 4.)
 (half of $\frac{4\pi}{3}$ is $\frac{2\pi}{3}$ b/c half of 4 is 2.)

