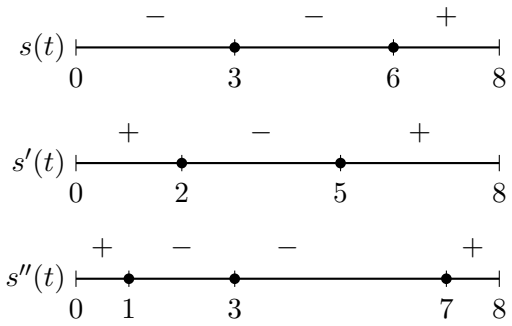
Math 1300 **Name:** _____
Fall 2025
Quiz 8

1. (2 points) If an initial population of 150 bacteria triples in size every hour, what is the rate, in bacteria per hour, at which the population is growing after three hours?
   (a) $150 \cdot e^3$
   (b) $150 \cdot 27$
   (c) $150 \cdot \ln(27)$
   (d) $150 \cdot 3\ln(3)$
   (e) $150 \cdot 27\ln(3)$

2. (2 points) Find the derivative of $f(x) = \arcsin(8x^3)$.

Answer:

3. (2 points) In the chart, $s(t)$ is the position function of a particle. The dots are where the respective functions are equal to 0 and the sign of the functions is indicated by "+" and "−" above the number lines. According to the sign chart, list the interval(s) on which the particle is *speeding up*.



Answer:

4. (2 points) Find the derivative of $y = \dfrac{(x^2+1)^5\, x^{1/2}}{(x-1)^3\,(3x+2)^{1/4}}$.

Answer:

5. (2 points) Do you have any questions or comments about the course so far? What has been the most helpful? What would you like to see more of?