

Name _____

- You have 15 minutes
- No calculators
- Show sufficient work

1. (3 points) The following curves intersect. Find the x -value for each point of intersection.

$$y = 42 - \ln(5 + x)$$

$$y = 42 + \ln(5 - x)$$

2. (3 points) Given that $w(x) = \frac{3 + 2x^3}{5 - 4x^3}$, find a formula for $w^{-1}(x)$.

3. (4 points) A bacterial culture starts with 300 bacteria and doubles in size every 5 hours.

(a) Find a formula for the number of bacteria as a function of the number of hours since its population was 300.

(b) At what time is the population equal to 2500 ?