Practice worksheet | Integration

Accumulated change

Name: _____ Date: _____

6 questions | 18 marks

1. A tank starts with 20 L and fills at $4+2t$ L/min for 0 to 3 min. Find the final volume. [3 marks]

2. A machine uses power $P(t)=3t^2$ kW for 0 to 2 hours. Find the energy used. [3 marks]

3. A stock starts at 100 units and changes at $6-2t$ units/day for 0 to 4 days. Find its net change and final size. [3 marks]

4. An inflow is 10 L/min and an outflow is t L/min for 0 to 5 min. Find the total inflow and net change. [3 marks]

5. A population model has $N'(t) = 2e^t$ and $N(0) = 30$. Find $N(\ln 3)$. [3 marks]

6. A rate model predicts that a 200 L tank contains 230 L after 10 minutes. What needs checking before accepting that result? [3 marks]