Practice worksheet | Integration techniques and applications

Interpreting a result in context

Name: _____ Date: _____

6 questions | 12 marks

1. Water enters at $2t+3$ litres/minute for $0 \le t \le 4$. Initially there are 10 litres. Find the final amount. [2 marks]

2. Find the average temperature $20+2t$ degrees C over $0 \le t \le 4$ hours. [2 marks]

3. Velocity is $v = t-2$ m/s for $0 \le t \le 4$. Find displacement and total distance. [2 marks]

4. A population increases at $100e^{0.1t}$ people/year for $0 \le t \le 10$. Find the increase. [2 marks]

5. Marginal cost is $6q + 10$ dollars/unit. Find the cost increase when output rises from $q = 0$ to 5. [2 marks]

6. A solid has cross-section area $\pi(1 + x)^2$ for $0 \le x \le 2$ metres. Find its volume. [2 marks]