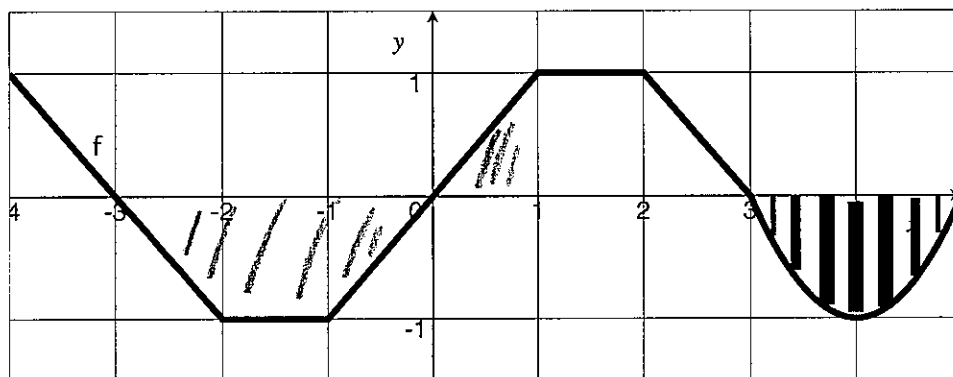


Quiz 7

TQS 211

Show *all* your work (algebraically or geometrically) for each and simplify. No credit is given without supporting work.

1. (§5.3 #21) The figure below is the graph of f .



- (a) [2] Find $\int_{-3}^1 f(x) dx$. (No estimations.)

$$-.5 - 1 - .5 + .5 = -1.5$$

- (b) [2] If the area shaded in the graph above (yes, that is shading) is A , estimate

$$\int_{-3}^4 f(x) dx$$

$$-2 + 2 + \frac{1}{2}A$$

$$\frac{1}{2}A$$

2. (§5.5 #3) [2] Find $\int_0^{50} -q + 56 dq$

$$\begin{aligned} & \left. -\frac{1}{2} q^2 + 56q \right|_0^{50} \\ & \left[-\frac{1}{2} (50)^2 + 56(50) \right] - \left[-\frac{1}{2} \cdot 0^2 + 56 \cdot 0 \right] \\ & -\frac{1}{2} 2500 + 2800 \\ & 1250 + 2800 = 4050 \end{aligned}$$

3. (§7.3 #23) [4] Find $\int_0^1 2te^{-t^2} dt$.

$$\begin{aligned} u &= -t^2 \\ du &= -2t dt \\ -du &= 2t dt \end{aligned}$$

$$\begin{aligned} \int_0^1 e^{-t^2} dt &= \int_0^{-1} e^u du \\ &= \int_0^{-1} -e^u du \\ &= -e^u \Big|_0^{-1} \\ &= -e^{-1} - (-e^0) \\ &= -\frac{1}{e} + 1 \end{aligned}$$