

1 (a).  $-xe^{-x} - e^{-x} + C$

1 (b).  $2\sqrt{x} \ln x - 4\sqrt{x} + C$

1 (c).  $\frac{\pi^2}{4} - 2$

2 (a).  $1/2$

2 (b).  $0$

2 (c).  $0$

2 (d).  $e$