

Readiness Assurance Test

Choose the most appropriate response for each question.

11) Compute $\int xe^{x^2+1} dx$.

- (a) $e^{x^2+1} + C$ (b) $xe^{x^2+1} + C$ (c) $\frac{1}{2}e^{x^2+1} + C$ (d) $2e^{x^2+1} + C$

12) Compute $\int x^2e^x dx$.

- (a) $x^2e^x + C$ (b) $2xe^x + C$ (c) $(x^2 - 2x + 2)e^x + C$ (d) $(x^2 - 2)e^x + C$

13) Which of the following sets describes where the polynomial $f(x) = x^3(x-1)^2(x+1)$ is **negative**?

- (a) $(-1, 0)$ (b) $(0, 1)$ (c) $(-1, 0) \cup (1, \infty)$ (d) $(-\infty, -1) \cup (0, 1)$

14) Exactly one of the four vector fields below is conservative. Identify which one is conservative.

- (a) $\langle 2xy, y^2 \rangle$ (b) $\langle x^2, 2xy \rangle$ (c) $\langle y^2, 2xy \rangle$ (d) $\langle 2xy, 2xy \rangle$

15)

16)

17)

18)

19)

20)