

## Readiness Assurance Test

Choose the most appropriate response for each question.

31) Solve  $y' = 2xy$ .

- (a)  $y = ke^{x^2}$                       (b)  $y = e^{x^2} + C$                       (c)  $y = ke^{2x}$                       (d)  $y = e^{2x} + C$

32) Solve  $y' = 3y^2$ .

- (a)  $y = -\frac{1}{3x} + C$                       (b)  $y = -\frac{1}{3x+C}$                       (c)  $y = x^3 + C$                       (d)  $y = x^{\frac{1}{3}} + C$

33) If  $f(x, y) = \frac{x}{y}$ , compute  $\frac{\partial f}{\partial y}$ .

- (a)  $\frac{-x}{y}$                       (b)  $\frac{-x}{y^2}$                       (c)  $\frac{1}{y^2}$                       (d)  $\frac{1}{y}$

34) If  $f(x, y) = e^{x^2+y^2}$ , compute  $\frac{\partial f}{\partial x}$ .

- (a)  $e^{x^2}$                       (b)  $e^{x^2+y^2}$                       (c)  $2xe^{x^2}$                       (d)  $2xe^{x^2+y^2}$

35) If  $f(x, y) = \sin(xy^2)$ , compute  $\frac{\partial f}{\partial y}$ .

- (a)  $\cos(xy^2)$                       (b)  $2y \cos(xy^2)$                       (c)  $2xy \cos(xy^2)$                       (d)  $xy^2 \cos(xy^2)$

36) At how many points does the function  $f(x, y) = \sqrt{x^2 + y^2}$  fail to be continuous?

- (a) Infinitely many                      (b) 2                      (c) 1                      (d) 0

37) At how many points does the function  $f(x, y) = \frac{1}{\sqrt{x^2+y^2}}$  fail to be continuous?

- (a) 0                      (b) 1                      (c) 2                      (d) Infinitely many

38) At how many points does the function  $f(x, y) = \sqrt{x^2 - y^2}$  fail to be continuous?

- (a) 0                      (b) 1                      (c) 2                      (d) Infinitely many

39) Let  $f(x)$  be a function with  $f(3) = 2$  and  $f'(3) = -1$ . Use a linear approximation to estimate  $f(3.2)$ .

- (a) 2.2                      (b) 2.1                      (c) 1.9                      (d) 1.8

40) Let  $f(x)$  be a function with  $f(0) = 3$  and  $f'(x) = e^{x^2}$ . Use a linear approximation to estimate  $f(0.3)$ .

- (a) 1                      (b) 1.09                      (c) 3.3                      (d) 3.9