

Answers

1. $\frac{25}{36}$

2. $\frac{mh}{m-1}$

3. (a) $7(5x^2 + 4x)^6(10x + 4)$ (b) $e^{x^2} + 2x^2 e^{x^2}$ (c) $\frac{2x}{x^2 + 1} - 5 \sec^2(5x)$

4. -2

5. $y = 2x + 11$

6. (a) $\frac{3x^4}{4} - \frac{4x^3}{3} + 3x^2 - 11x + C$

(b) $-\frac{\sqrt{2}}{6}$

(c) $-\frac{1}{2} \cos(x^2) + C$

7. $8/3$

8. (a) If $f(x)$ is continuous on $[a, b]$ and $a < x < b$, then

$$\frac{d}{dx} \int_a^x f(t) dt = f(x).$$

(b) Let $f(x)$ be continuous on $[a, b]$ and let $G(x)$ be any function such that $G'(x) = f(x)$ on $[a, b]$.
Then

$$\int_a^b f(x) dx = G(b) - G(a).$$

9. Step 5, dividing by 0

10. Step 4, $\sqrt{x^2} \neq x$ when $x < 0$

11. All