

| | |
|---|--|
| <p>1. Given $f(x) = -\frac{ x }{2}$, find $f'(x)$.</p> | <p>2. Find $\frac{dy}{dx}$ for $y = (x+2)(x-1)$.</p> |
| <p>3. Find $\frac{d}{dx} 4x - x^2 - 5$.</p> | <p>4. Find $\frac{dy}{dx}$, where $y = \left \tan\left(x - \frac{\pi}{2}\right) \right$ and $x \in (0, \pi)$.</p> |
| <p>5. Differentiate $\frac{\sqrt{x-1}}{x+1}$ with respect to x.</p> | <p>6. Differentiate $\frac{\sqrt{x+1}}{x+1}$ with respect to x.</p> |
| <p>7. Evaluate $\frac{dy}{dx}$ for $y = -\log_e\left(\frac{\pi}{x}\right)$ at $x = 1$.</p> | <p>8. Evaluate $f'(e-1)$ for $f(x) = \frac{\log_e(x+1)}{x+1}$.</p> |
| <p>9. Find $f'(x)$ for $f(x) = \log_e x+1$.</p> | <p>10. Find $\frac{d}{dx} \left[\frac{(1-x)^2}{e^{x-1}} \right]$.</p> |
| <p>11. Differentiate $e^{2\cos\sqrt{x-b}}$ with respect to x.</p> | <p>Numerical, algebraic and worded answers.</p> <ol style="list-style-type: none"> 1. $-1/2$ for $x > 0$, $1/2$ for $x < 0$ 2. $-(2x+1)$ for $-2 < x < 1$, $2x+1$ for $x < -2$ or $x > 1$ 3. $2x-4$ 4. $-\sec^2(x-\pi/2)$ for $0 < x < \pi/2$, $\sec^2(x-\pi/2)$ for $\pi/2 < x < \pi$ 5. $(3-x)/[2(x+1)^2\sqrt{(x-1)}]$ 6. $-1/[2(x+1)^{3/2}]$ 7. 1 8. 0 9. $1/(x+1)$ for $x \neq -1$ 10. $(1-x)(x-3)e^{1-x}$ 11. $-e^{2\cos\sqrt{(x-b)}} \sin\sqrt{(x-b)} / \sqrt{(x-b)}$ |