

Homework Set 3

Notation and Basic Derivatives

(sect 2.3, 3.3, 3.5)

Compute the derivatives of the following functions.

1. $f(x) = -235$

6. $z(a) = e^a$

2. $q(x) = \sin x$

7. $h(s) = \frac{1}{s^4}$

3. $y = \sqrt{x}$

8. $y = \tan x$

4. $y = x^5$

9. $k(t) = 7t$

5. $g(t) = -\cos t$

10. $p(x) = -3 \sec x$

Perform the indicated operation.

11. $\frac{d}{dt}(2t^{1/4} - 5t^{2/5})$

14. $\frac{d}{dx}[2 \log_5 x - \arcsin x]$

12. $D(\ln|x|)$

15. $\frac{d}{dr}\left(3^r - \frac{2}{\sqrt{r}}\right)$

13. $\frac{d}{dx} \arctan x$

16. $D_y(2xy - x^2 + y^2)$

17. Find $f'(\theta)$ where $f(\theta) = a\theta^2 + 5 \sin \theta$

18. $\frac{d^4}{dt^4} \cos t$

19. Find $f''(x)$ where $f(x) = e^x - 2x + 1$.

20. $\frac{d^3}{dx^3}(x^3 - 2x + \sin x)$