

HW #2 Final Answers

$$1. f'(x) = -20x^{-6} + \frac{5}{4}x^{-2} - \frac{1}{8}x^{-\frac{3}{2}}$$

$$17. y' = -\frac{1}{x^2} + 2\sin x - \cos x$$

$$2. y' = 4(x^2+5x)^3(2x+5)$$

$$18. f'(x) = \sqrt{x} \cdot \cos x + \sin x \cdot \frac{1}{2\sqrt{x}}$$

$$3. y' = -4(x^2+5x)^{-5}(2x+5)$$

$$19. f'(x) = \cos^2 x - \sin^2 x$$

$$4. y' = -\frac{1}{2}(x^3-9x+3)^{-\frac{3}{2}} \cdot (3x^2-9)$$

$$20. f'(x) = \frac{(x^2+3)(-\sin x) - \cos x(2x)}{(x^2+3)^2}$$

$$5. y' = \left(\frac{1}{x^3} + 7x\right)^{\frac{5}{7}} (-5) \left(x^4 - \frac{1}{x^7}\right)^{-6} \cdot (4x^3 + 7x^{-8}) + \left(x^4 - \frac{1}{x^7}\right)^{-5} \cdot \frac{5}{7} \left(\frac{1}{x^3} + 7x\right)^{-\frac{2}{7}} \cdot (-3x^{-4} + 7)$$

$$6. y = 2x + 16$$

7. See Lecture Notes

8. See Lecture Notes

9. Make Chart

$$10. \cos\left(\frac{2\pi}{3}\right) = -\frac{1}{2}$$

$$11. \sin\left(\frac{5\pi}{3}\right) = -\frac{\sqrt{3}}{2}$$

$$12. \sin\frac{7\pi}{6} = -\frac{1}{2}$$

$$13. \cos\frac{5\pi}{4} = -\frac{\sqrt{2}}{2}$$

$$14. \sin\frac{5\pi}{6} = \frac{1}{2}$$

$$15. y = x$$

$$16. y = -\frac{x}{2} + \frac{\pi}{12} + \frac{\sqrt{3}}{2}$$