Homework #2

Review all Trigonometry Notes from class

Goal: Review More Derivatives, Trigonometry, Angles & Trigonometric Derivatives.

For each HW, **match** your final answers to the posted Answer Key.

For #1 − 5, compute the Derivative of each of the following functions. Do **Not** Simplify.

1. $f(x) = \dfrac{4}{x^5} - \dfrac{5}{4x} - \dfrac{4}{5} + \dfrac{1}{4\sqrt{x}}$ 2. $y = (x^2 + 5x)^4$ 3. $y = \dfrac{1}{(x^2 + 5x)^4}$

4. $y = \dfrac{1}{\sqrt{x^3 - 9x + 3}}$ 5. $y = \left(\dfrac{1}{x^3} + 7x\right)^{\frac{5}{7}} \left(x^4 - \dfrac{1}{x^7}\right)^{-5}$

6. Compute the equation of the Tangent Line to $y = 6\sqrt{2x + 7}$ at the point where $x = 1$. Simplify.

7. Graph the function $y = \sin x$ on the interval $[0, 2\pi]$. Determine the following values:

$\sin 0 \quad \sin \dfrac{\pi}{2} \quad \sin \pi \quad \sin \dfrac{3\pi}{2} \quad \sin 2\pi$

8. Graph the function $f(x) = \cos x$ on the interval $[0, 2\pi]$. Determine the following values:

$\cos 0 \quad \cos \dfrac{\pi}{2} \quad \cos \pi \quad \cos \dfrac{3\pi}{2} \quad \cos 2\pi$

9. Make a chart of the Trig. Values for sine, cosine and tangent for all angles $\theta = 0, \dfrac{\pi}{6}, \dfrac{\pi}{4}, \dfrac{\pi}{3}, \dfrac{\pi}{2}, \pi, \dfrac{3\pi}{2}, 2\pi$

For #10 − 15, compute the following values. Justify. Show work using Unit Circle and Trig Triangles.

10. $\cos \dfrac{2\pi}{3}$ 11. $\sin \dfrac{5\pi}{3}$ 12. $\sin \dfrac{7\pi}{6}$ 13. $\cos \dfrac{5\pi}{4}$ 14. $\sin \dfrac{5\pi}{6}$

For #15 − 16, find the equation of the tangent line to $f(x)$ at the given x-value. Simplify.

15. $f(x) = \sin x$ at $x = 0$ 16. $f(x) = \cos x$ at $x = \dfrac{\pi}{6}$

For #17 − 20, compute the Derivative for the following functions. Do **Not** Simplify.

17. $y = \dfrac{1}{x} - 2\cos x - \sin x$ 18. $f(x) = \sqrt{x} \cdot \sin x$

19. $f(x) = \cos x \cdot \sin x$ 20. $f(x) = \dfrac{\cos x}{x^2 + 3}$

REGULAR OFFICE HOURS

Monday: 12:00–3:00 pm

Tuesday: 1:00–4:00 pm

Wednesday: 1:00-3:00 pm

Friday: 12:00–2:00 pm

Math Fellow evening TA Help Hours TBD soon

- Please take the time to read over your class notes this week.

- Work towards full understanding of the Trig concepts and not just the numbers and formulas.