

Homework #3 Final Answers

$$1. \cos \theta = \frac{\sqrt{3}}{2}$$

↳ Show all work. These are just the final answers.

$$2. \tan \theta = \frac{\sqrt{21}}{2}$$

3.

Show work using Quotient Rule or other rules

4.

$$5. \theta = \frac{7\pi}{6} \text{ or } \theta = \frac{11\pi}{6}$$

$$6. \theta = \frac{4\pi}{3}, \frac{5\pi}{3}$$

$$7. \cos \frac{4\pi}{3} = -\frac{1}{2}$$

$$8. \sin \frac{4\pi}{3} = -\frac{\sqrt{3}}{2}$$

Justify Unit Circle (Trig Triangles/Symmetry)

$$9. y' = \cos(x^2 - 5x + 8) \cdot (2x - 5)$$

$$10. f'(x) = 2 \sin x \cdot \cos x$$

$$11. y' = 6(\cos(3x))^5 \cdot (-\sin(3x)) \cdot 3$$

$$12. y' = -\sin \sqrt{x} \cdot \left(\frac{1}{2\sqrt{x}}\right)$$

$$13. y' = \frac{1}{2\sqrt{\cos x}} \cdot (-\sin x)$$

$$14. f'(x) = \frac{\sin(4x)(-\sin(3x)) \cdot 3 - \cos(3x) \cdot \cos(4x) \cdot 4}{\sin^2(4x)}$$

$$15. y' = \sec^2\left(\frac{1}{x}\right) \cdot (-x^{-2}) \text{ or } \cdot \left(-\frac{1}{x^2}\right)$$

$$16. f'(x) = -(\tan x)^{-2} \cdot \sec^2 x$$

$$17. y' = 8 \left(\frac{\cos x}{x^2 - \sin x}\right)^7 \cdot \frac{(x^2 - \sin x)(-\sin x) - (\cos x)(2x - \cos x)}{(x^2 - \sin x)^2}$$

Recall: Don't Need to Simplify here

$$18. G'\left(\frac{\pi}{6}\right) = 4$$