

Worksheet 17
 Answer Key_114

If there are two answers either one is fine. One is simplified slightly differently.
 If you think there is an error, please let me know. I could have typed it wrong.

$$1. f'(t) = \frac{(2-t^3)}{2(t^3+1)^{3/2}} = \frac{(2-t^3)(\sqrt{t^3+1})}{2(t^3+1)^2}$$

$$11. \frac{dz}{dm} = 2$$

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

$$12. f'(x) = 2x \cosh(x^2 + 1)$$

$$3. \frac{dz}{dx} = (x+1)^2 (5-x)^3 (11-7x)$$

$$13. f'(t) = \frac{-2}{t\sqrt{t^2-4}}$$

$$4. f'(m) = -2 \sin(2m)$$

$$14. g'(\theta) = \frac{1}{2\sqrt{3\theta + \tan^2(4\theta)}} \left(3 + \frac{8 \sin(4\theta)}{\cos^3(4\theta)} \right)$$

$$5. f''(x) = 15 \ln 2 (2^{5x}) (2 + 5x \ln 2)$$

$$15. f'(x) = \cos(\sqrt[3]{x} + 1) - \frac{\sqrt[3]{x} \sin(\sqrt[3]{x} + 1)}{3}$$

$$6. f'(\Gamma) = \frac{\beta + 6\Gamma^5}{1 - \beta}$$

$$16. \frac{dy}{du} = -\pi \left(\cot(1) + \frac{1}{\tan u} \right)^{\pi-1} (\csc^2 u)$$

$$7. \frac{dy}{dt} = \frac{3}{t \ln(2t^3)}$$

$$17. g'(z) = \frac{e^{az} (a^3 + az^2 - 2z)}{(a^2 + z^2)^2}$$

$$8. g'(x) = \begin{cases} -e^x(1+x) & x < 0 \\ \text{DNE} & x = 0 \\ e^x(1+x) & x > 0 \end{cases}$$

$$18. f'(x) = \frac{ax(4+x)}{(2-x)^4}$$

$$9. x'(r) = \frac{1}{2\sqrt{r}} \left(\sqrt{3} + 3 + \frac{\sqrt{3}}{r} \right)$$

$$19. a'(t) = \frac{8}{\sin t}$$

$$10. h'(y) = \frac{1}{y(1 - \ln y)^2}$$