Derivative Review

Find the first derivative for each. Use proper notation and simplify.

1. $f(x) = \dfrac{x^2 + bx + c}{a}$

2. $y(t) = \dfrac{3}{\sqrt{t} + 2}$

3. $f(x) = x^2 \cos(x) + \sec(x)$

4. $v = \sqrt[3]{\tan(5t)}$

5. $z(t) = e^3$

6. $w(r) = \pi^r r^\pi$

7. $y = \ln\sqrt{5 + x^2}$

8. $t(y) = \left(\dfrac{y-5}{y+1}\right)^3$

9. $f(\Gamma) = \dfrac{\beta\Gamma + \Gamma^6}{1 - \beta}$

10. $f(t) = e^{1/t}$

11. $z = \log\left(10^{2x}\right)$

12. $f(m) = \arcsin\left(m^2\right)$

13. $f(\theta) = e^{-\theta} \sin(b\theta)$

14. $s = \dfrac{\ln t}{1 + \ln t}$

15. $f(x) = \dfrac{\sqrt{x} + 4}{x}$

16. $p = \dfrac{1}{\arctan x}$

17. $y = \dfrac{x^3}{(1-x)^2}$