5.8 p. 386 (5 - 15 odd, 41 - 49 odd)

5. $\arcsin\frac{1}{2} = \pi/6$

7. $\arccos\left(\frac{1}{2}\right) = \pi/3$

9. $\arctan\left(\frac{\sqrt{3}}{3}\right) = \pi/6$

11. $\operatorname{arccsc}(-\sqrt{2})$

$\arcsin\left(\frac{-1}{\sqrt{2}}\right)$

$\arcsin\left(\frac{-\sqrt{2}}{2}\right) = \boxed{\frac{-\pi}{4} \text{ or } \frac{7\pi}{4}}$

13. $\arccos(-0.8) \approx 2.498$

15. $\operatorname{arcsec}(1.269) \approx 0.663$

41. $f(x) = 2\arcsin(x-1)$

$f'(x) = 2 \cdot \frac{1}{\sqrt{1-(x-1)^2}} = \frac{2}{\sqrt{1-(x-1)^2}}$

$f'(x) = \frac{2}{\sqrt{1-(x^2-2x+1)}} = \boxed{\frac{2}{\sqrt{2x-x^2}}}$

43. $g(x) = 3\arccos\frac{x}{2}$

$g'(x) = 3 \cdot \frac{-1}{\sqrt{1-\left(\frac{x}{2}\right)^2}} \cdot \frac{1}{2}$

$g'(x) = \frac{-3}{2\sqrt{1-\frac{x^2}{4}}} = \frac{-3}{2\sqrt{\frac{4}{4}-\frac{x^2}{4}}}$

$g'(x) = \frac{-3}{\frac{2\sqrt{4-x^2}}{\sqrt{4}}} = \boxed{\frac{-3}{\sqrt{4-x^2}}}$

45. $f(x) = \arctan\frac{x}{a}$

$f'(x) = \frac{\frac{1}{a}}{1+\left(\frac{x}{a}\right)^2} = \frac{1}{a} \cdot \frac{1}{1+\frac{x^2}{a^2}} = \frac{1}{a} \cdot \frac{1}{\frac{a^2+x^2}{a^2}}$

$f'(x) = \frac{1}{\frac{a^2+x^2}{a}} = \boxed{\frac{a}{a^2+x^2}}$

47. $g(x) = \frac{\arcsin(3x)}{x}$

$g'(x) = \frac{x \cdot \frac{3}{\sqrt{1-9x^2}} - \arcsin(3x) \cdot 1}{x^2}$

$g'(x) = \left(\frac{3x}{\sqrt{1-9x^2}} - \arcsin(3x)\right) \cdot \frac{1}{x^2}$

$g'(x) = \frac{3x}{x^2\sqrt{1-9x^2}} - \frac{\arcsin(3x)}{x^2}$

$\boxed{g'(x) = \frac{3x - \sqrt{1-9x^2}\arcsin(3x)}{x^2\sqrt{1-9x^2}}}$

49. $h(t) = \sin(\arccos t)$

$h'(t) = \cos(\arccos t) \cdot \frac{-1}{\sqrt{1-t^2}}$

$\boxed{h'(t) = \frac{-t}{\sqrt{1-t^2}}}$