P188

10	$= \lim_{b\to\infty}\left[-e^{-x}\right]_0^b = 0-(-1) = 1$	11	$= \lim_{b\to\infty}\left[-\cos x\right]_0^b =$ 答え無し
12	$= \lim_{b\to-\infty}\left[\tan^{-1}x\right]_0^b = -\frac{\pi}{2} - 0 = -\frac{\pi}{2}$	13	$= \lim_{\substack{b\to\infty \\ a\to-\infty}}\left[\tan^{-1}x\right]_a^b = \frac{\pi}{2} - \left(-\frac{\pi}{2}\right) = \pi$
14		15	$= \lim_{b\to1}\left[\sin^{-1}x\right]_0^b = \frac{\pi}{2} - 0 = \frac{\pi}{2}$
16	$= \lim_{a\to0}\left[-\frac{1}{x}\right]_a^1 = -1 + \frac{1}{a} = \infty$		
17	$= \frac{1}{2}\int_0^1\left(\frac{1}{1+x} - \frac{-1}{1-x}\right)dx = \frac{1}{2}\lim_{b\to1}\left[\log\frac{1+x}{1-x}\right]_0^b = \infty - 0 = \infty$		
18	$= \left[\log x\right]_{-1}^{1}$ なし	19	

P193

1	$= \frac{1}{2}\int_0^\infty \frac{2x+4}{1+x^2}dx = \frac{1}{2}\int_0^\infty\left(\frac{2x}{1+x^2} + \frac{4}{1+x^2}\right)dx = \left[\frac{1}{2}\log(1+x^2) + 2\tan^{-1}x\right]_0^\infty = \infty$ なし		
2	$= \lim_{b\to\infty}\left[-\frac{1}{3x^2}\right]_1^\infty = 0 - \left(-\frac{1}{3}\right) = \frac{1}{3}$	3	$= \lim_{b\to\infty}\left[-\frac{1}{a}e^{-ax}\right]_0^b = 0 - \left(-\frac{1}{a}\right) = \frac{1}{a}$
4	$= \lim_{a\to-\infty}\left[e^x\right]_a^1 = e - 0 = e$		
5	$\sqrt{x} = t$ とおくと $dx = 2tdt$ $= \int_1^\infty \frac{2t}{t^3}dt = 2\int_1^\infty \frac{1}{t^2}dt = 2\lim_{b\to\infty}\left[-\frac{1}{t}\right]_1^b = 0 - (-2) = 2$		
6	$= \int_{-\infty}^\infty \frac{dx}{(x+1)^2+1} = \lim_{\substack{b\to\infty \\ a\to-\infty}}\left[\tan^{-1}(x+1)\right]_a^b = \frac{\pi}{2} - \left(-\frac{\pi}{2}\right) = \pi$		
7	$= \left[\log\left(x + \sqrt{x^2-a^2}\right)\right]_a^b = \log\left(b + \sqrt{b^2-a^2}\right) - \log a = \log\frac{b + \sqrt{b^2-a^2}}{a}$		
8	$= -\frac{1}{2}\int_0^a(-2x)\sqrt{a^2-x^2}dx = \left[-\frac{1}{2}\cdot\frac{2}{3}(a^2-x^2)^{\frac{3}{2}}\right]_0^a = -\left(-\frac{1}{2}\cdot\frac{2}{3}\cdot a^{2\frac{3}{2}}\right) = \frac{a^3}{3}$		
9	$= -\int_0^2 \frac{-1}{(1-x)^2}dx = \left[\frac{1}{1-x}\right]_0^2 = -1 - 1 = -2$		
10	$= \left[-\frac{1}{x-a}\right]_0^{2a} = -\frac{1}{a} - \left(\frac{1}{a}\right) = -\frac{2}{a}$		
11	$= \int_{-2}^2(x^5 - 5x^3 + 4x + 2)dx = \left[\frac{x^6}{6} - \frac{5}{4}x^4 + 2x^2 + 2x\right]_{-2}^2$ $= \frac{64-64}{6} - \frac{5}{4}(16-16) + 2(4-4) + 4 - (-4) = 8$		