

Answers

- (1) $-\frac{247}{2} = -123.5$; (2) $-3(3-2x)^{5/3}(80x^2+90x+81)+C$; (3) $5(6x-5)^{5/2}(3x+1)+C$; (4) -76 ; (5) -14
(6) $-2(1-2x)^{3/4}(21x^2+12x+8)+C$; (7) 2 ; (8) $\frac{1}{2}(8x-1)\sin 2x+2\cos 2x+C$; (9) $-e^{-x}(x^2+2x+6)+C$
(10) $6x^3\ln(2x)-2x^3+C$; (11) $(3x^2-5x)\ln(2x)-\frac{3}{2}x^2+5x+C$
(12) $\frac{3}{4}(1+x^{2/3})^2-3(1+x^{2/3})+\frac{3}{2}\ln(1+x^{2/3})+C$; (13) $(\sqrt{x}-6)^2+24(\sqrt{x}-6)+72\ln|\sqrt{x}-6|+C$
(14) $4\sqrt{x+2}(3x^2-8x+32)+C$; (15) $36\sqrt{x}-180\ln(3+\sqrt{x})+C$
(16) $3(1-x^2)\cos 2x+3x\sin 2x+\frac{3}{2}\cos 2x+C$; (17) $-2\sqrt{2-x}(5x^3+12x^2+32x+128)+C$
(18) $\frac{1}{105}(2x-3)^{3/2}(60x^2+492x+1367)+C$; (19) $-\frac{3}{140}(3-x)^{4/3}(14x^2-44x-99)+C$
(20) $\frac{1}{3}x^3+\frac{8}{5}x^{5/2}+2x^2+C$; (21) $-\frac{\ln(4x)}{3x^3}-\frac{1}{9x^3}+C$; (22) $-\frac{1}{420}(1-4x)^{3/2}(30x^2-246x-41)+C$
(23) $\frac{e^{3x}}{27}(9x^2+30x+26)+C$; (24) $-\frac{2}{315}(x+2)^{3/2}(35x^3-195x^2+501x-773)+C$
(25) $\frac{2}{15}\sqrt{x+2}(3x^2-8x+92)+C$; (26) $\frac{2}{5}\sqrt{x-2}(x^2+6x+29)+C$
(27) $-\frac{1}{3}(x^3+x)\cos 3x+\frac{1}{27}(9x^2+1)\sin 3x+\frac{2}{9}x\cos 3x+C$; (28) $\frac{2}{2835}(3x-1)^{3/2}(135x^2+603x+134)+C$
(29) $\frac{3}{5}(x+2)^{2/3}(x-3)+C$; (30) $(8x^3-36x^2)\ln(3x)-\frac{8}{3}x^3+18x^2+C$; (31) $\frac{4}{21}(x-1)^{3/4}(3x-10)+C$
(32) $\frac{2}{5}(x+3)^{3/2}(12-x)+C$; (33) $-\frac{1}{4}(2x+3)\cot 4x+\frac{1}{8}\ln|\sin 4x|+C$; (34) $\frac{e^{-2x}}{2}(x^2-2x-1)+C$
(35) $\frac{1}{5}(5x-4)\sin 5x+\frac{1}{5}\cos 5x+C$; (36) $\frac{5}{2}\ln|2x+3|-4\ln|x+1|+3\ln|x-1|+C$
(37) $\frac{1}{2}x^2+5\ln|x|-4\ln|x-3|+C$; (38) $2\ln|x-2|+5\ln|x|-\frac{1}{x}+C$; (39) $4\ln|x+3|-5\ln|x+5|+C$
(40) $\frac{1}{2}x^2+3\ln|2x+1|-4\ln|x|+C$; (41) $2x^3-\frac{9}{2}x^2+6x+5\ln|x|-12\ln|2x+1|+C$
(42) $x^2+\frac{3}{2}\ln|x-4|-\frac{1}{2}\ln|x+2|+C$; (43) $\frac{1}{x}+\ln|x^4+x^3|+C$; (44) $\frac{x^2}{2}+3x+6\ln|x-1|-\frac{4}{x-1}-\frac{1}{2(x-1)^2}+C$
(45) $3\ln|x-3|-\frac{9}{x-3}+C$; (46) $2x-\ln|x|-\frac{4}{x}-2\ln|x+1|+C$; (47) $\frac{3-5x}{18x(5x-6)}+\frac{5}{108}\ln\left|\frac{5x-6}{x}\right|+C$
(48) $\frac{1-4x}{2x(5x-4)}+\frac{1}{2}\ln\left|\frac{x}{5x-4}\right|+C$; (49) $\frac{2(4x-7)}{169(5-x)(2x+3)}+\frac{8}{2197}\ln\left|\frac{2x+3}{x-5}\right|+C$; (50) $\frac{1}{6}\ln\left|\frac{x-1}{x+5}\right|+C$
(51) $\frac{1}{4\sqrt{3}}\ln\left|\frac{2x-1-\sqrt{3}}{2x-1+\sqrt{3}}\right|+C$; (52) $-\frac{1}{2\sqrt{3}}\ln\left|\frac{x-3-3\sqrt{3}}{x-3+3\sqrt{3}}\right|+C$; (53) $-\frac{2\sqrt{2}}{35}(5x^2+62x+209)(-x-2)^{3/2}+C$
(54) $\frac{2}{15}(3x^2+2x+167)\sqrt{x-8}+C$; (55) $\frac{2}{5}(x^2-8x+36)\sqrt{x+1}+C$; (56) $\frac{2}{15}(4x^2-12x+29)\sqrt{x+1}+C$
(57) $2\ln|x+3|+\frac{4}{x}+C$; (58) $2x^2-3\ln|x+1|+\ln|x+4|+C$; (59) $6\ln|x+3|-2\ln|x+1|-\frac{3}{x+1}+C$
(60) $6\ln|x-1|-\frac{1}{x-1}-2\ln|x+4|+C$; (61) $2x^3+2\ln|x-1|-\frac{3}{x-1}+C$; (62) $9\ln|x-3|-\frac{5}{x+3}+C$
(63) $\frac{1}{3}x^3+5\ln|x|-6\ln|x+4|+C$; (64) $x^2-\frac{4}{x}+3\ln|x+4|+C$; (65) $\frac{3}{2}x^2-2\ln|x+2|+\ln|x-2|+C$
(66) $-\frac{1}{60}(18x^2-26x+13)\sqrt{4x+1}+C$; (67) $-\frac{1}{2}x\sqrt{x^2+4}+6\ln|x+\sqrt{x^2+4}|+C$
(68) $\frac{-2x}{\sqrt{x^2-1}}-\ln|x+\sqrt{x^2-1}|+C$; (69) $\frac{1}{5}(5x+1)(\ln(5x+1))^3-\frac{3}{5}(5x+1)(\ln(5x+1))^2+\frac{6}{5}(5x+1)\ln(5x+1)-6x+C$

- (70) $\frac{1}{20}x^4 - \frac{1}{60}\ln\left|5 - 2e^{3x^4}\right| + C$; (71) $-\frac{1}{2}(x^3 + 2x)\cos 2x + \frac{1}{4}(3x^2 + 2)\sin 2x + \frac{3}{4}x\cos 2x - \frac{3}{8}\sin 2x + C$
- (72) $\frac{1}{105}(2x - 1)^{3/2}(15x^2 - 78x - 26) + C$; (73) $\frac{3}{10}(x + 1)^{2/3}(2x - 3) + C$; (74) $(4x^3 - 18x^2)\ln(2x) - \frac{4}{3}x^3 + 9x^2 + C$
- (75) $\frac{4}{21}(x + 1)^{3/4}(3x - 11) + C$; (76) $4x^2 + \frac{4}{x} + 3\ln|x| - 6\ln|x + 2| + C$; (77) $\frac{5}{2}x^2 - 3\ln|x - 4| + 4\ln|x + 4| + C$
- (78) $-\frac{1}{15}(6x^2 - 19x + 19)\sqrt{2x + 1} + C$; (79) $-\frac{x}{2}\sqrt{x^2 + 9} + \frac{27}{2}\ln|x + \sqrt{x^2 + 9}| + C$
- (80) $\frac{-13x}{9\sqrt{x^2 - 9}} + \ln|x + \sqrt{x^2 - 9}| + C$; (81) $-\frac{2}{405}(27x^2 + 114x + 287)\sqrt{2 - 3x} + C$
- (82) $\sqrt{8 + 2x - x^2} - 3\ln\left|\frac{3 + \sqrt{8 + 2x - x^2}}{x - 1}\right| + C$; (83) $\frac{1}{3}x^3(\ln x)^3 - \frac{1}{3}x^3(\ln x)^2 + \frac{2}{9}x^3\ln x - \frac{2}{27}x^3 + C$
- (84) $-3x - 10\ln|4 - x| + C$; (85) $-\frac{3}{14}\ln\left|\frac{2 - x^2}{5 + x^2}\right| + C$; (86) $2\sqrt{4x + 9} + \ln\left|\frac{\sqrt{4x + 9} - 1}{\sqrt{4x + 9} + 1}\right| + C$
- (87) $\frac{1}{27}\left[\frac{-1}{2(3x - 5)^2} + \frac{-10}{3(3x - 5)^3} - \frac{25}{4(3x - 5)^4}\right] + C$; (88) $\frac{1}{105}(15x^2 - 228x + 1103)(3 + 2x)^{3/2} + C$
- (89) $\frac{x-2}{4}(x^2 - 4x + 2)\sqrt{x^2 - 4x} - 2\ln|x - 2 + \sqrt{x^2 - 4x}| + C$
- (90) $\frac{3}{2}\sqrt{(x^2 - 3)(x^2 + 5)} - 12\ln(\sqrt{x^2 - 3} + \sqrt{x^2 + 5}) + C$; (91) $\frac{1}{2}\ln\left|-\frac{3}{2} + x^2 + \sqrt{(x^2 + 2)(x^2 - 5)}\right| + C$
- (92) $\frac{5}{4}x^3e^{4x} - \frac{15}{16}x^2e^{4x} + \frac{15}{32}xe^{4x} - \frac{15}{128}e^{4x} + C = \frac{5}{128}e^{4x}(32x^3 - 24x^2 + 12x - 3) + C$
- (93) $\frac{3 - x}{4\sqrt{x^2 - 6x + 5}} + C$; (94) $\frac{1}{2}\ln\left|\frac{\sqrt{x^2 + 6x + 13} - 2}{x + 3}\right| + C$; (95) $-\frac{3}{4}\ln\left|\frac{4 + \sqrt{7 - 6x - x^2}}{x + 3}\right| + C$
- (96) $\frac{12}{95}\ln|3 - 5x| - \frac{10}{19}\ln|2x - 5| + C$; (97) $-2\ln|x| + \frac{1}{3}\ln|1 - 3x| + C$
- (98) $\frac{1}{9}(x - 4) - \frac{196}{27(2 + 3x)} - \frac{28}{27}\ln|2 + 3x| + C$; (99) $\frac{x^2 - 2x - 15}{8(x - 1)} + C$
- (100) $2\sqrt{5x + 11} + \ln\left|\frac{\sqrt{5x + 11} - 1}{\sqrt{5x + 11} + 1}\right| + C$