إجابات كتاب التمارين

التكامل غير المحدود

أجد كلاً من التكاملات الآتية:

(4x+2)dx (1)∫

4x+2)dx=2x2+2x+C)∫

(2x−4dx (2∫

2x−4dx=−23x3+C∫

(6x2−4x)dx (3)∫

6x2−4x)dx=2x3−2x2+C)∫

(x−2x5)dx (4−3)∫

x−2x5)dx=3x−12x2−13x6+C−3)∫

(x−2+x5/2)dx (5)∫

x−2+x52)dx=−x−1+27x72+C)∫

(3x2−2x2)dx (6)∫

3x2−2x2)dx=x3+2x+C)∫

(3x−2+6x−1/2+x−4)dx (7)∫

3x−2+6x−12+x−4)dx=−3x−1+12x12+12x2−4x+C)∫

(10x4+8x−3)dx (8)∫

10x4+8x−3)dx=2x5−4x−2+C)∫

(2x3−3x)dx (9)∫

2x3−3x)dx=∫(2x−3−3x12)dx=−x−2−2x32+C=−1x2−2x3+C)∫

(8x3+6x−4x)dx (10)∫

8x3+6x−4x)dx=∫(8x3+6x−4x−12)dx=2x4+3x2−8x12+C=2x4+)∫
3x2−8x+C

(7x2+x43)dx (11)∫

7x2+x43)dx=∫(7x−2+x43)dx=−7x−1+37x73+C=−7x+37x73+C)∫

(x23+3x2)dx (12)∫

x23+3x2)dx=∫(13x2+3x−2)dx=19x3−3x−1+C=19x3−3x+C)∫

أجد كلاً من التكاملات الآتية:

(4+2xx2dx (13∫

4+2xx2dx=∫(4x2+2xx2)dx=∫(4x−2+2x−32)dx=−4x−1−4x−12+∫
C=−4x−4x+C

(x22+xdx (14−4∫

x22+xdx=∫(2−x)(2+x)2+xdx=∫(2−x)dx=2x−12x2+C−4∫

(x2−1x2dx (15∫

x2−1x2dx=∫(x2x2−1x2)dx=∫(1−x−2)dx=x+x−1+C=x+1x+C∫

(xxdx (16∫

xxdx=∫x32dx=25x52+C=25x5+C∫

(x2−1x−1dx (17∫

x2−1x−1dx=∫(x−1)(x+1)x−1dx=∫(x+1)dx=12x2+x+C∫

(x2(1−x3)dx (18∫

x2(1−x3)dx=∫(x2−x5)dx=13x3−16x6+C∫

(x+4)2dx(19)∫

x+4)2dx=∫(x2+8x+16)dx=13x3+4x2+16x+C)∫

(xx5dx(20−5∫

xx5dx=∫(5x5−xx5)dx=∫(5x−5−x−4)dx=−54x−4+13x−3+C=−−5∫54x4+13x3+C

(x2+2x+1x+1dx(21∫

x2+2x+1x+1dx=∫(x+1)(x+1)x+1dx=∫(x+1)dx=12x2+x+C∫

(x(x+1)2dx (22∫

x(x+1)2dx=∫x(x2+2x+1)dx=∫(x3+2x2+x)dx=14x4+23x3+12x2+∫C

(x+3)2xdx(23)∫

x+3)2xdx=∫x2+6x+9xdx=∫(x2x+6xx+9x)dx=∫(x32+6x12+9x12))∫dx=25x52+4x32+18x12+C

(x−5)(x+5)dx(24)∫

x−5)(x+5)dx=∫(x2−25)dx=13x3−25x+C)∫