
เฉลยแบบฝึกหัดท้ายบทที่ 1

1.1 -3

1.3 3

1.5 $b^4 + 3b^2 - 1$

1.7 $3x - 3h - 2$

1.9 $6x + 1$

1.2 -1

1.4 $a^2 + 3a - 1$

1.6 $a^2 + 2ab + b^2 + 3a + 3b - 1$

1.8 $3x - 5$

1.10 3

2.1 0

2.3 0

2.5 1

2.7 2

2.9 1

2.2 3

2.4 5

2.6 1

2.8 0

2.10 1

3.1 $x^2 + x - 3$

3.3 $x^3 - 4x^2 + x - 4$

3.5 $-\frac{9}{4}$

3.7 -4

3.2 $x^2 - x + 5$

3.4 $\frac{x^2 + 1}{x - 4} ; x - 4 \neq 0$

3.6 11

3.8 26

4.1 2^{x^2}

4.2 $4\sqrt{x-2} - 3$

4.3 x

4.4 x

4.5 $\frac{1-2x}{x}$

4.6 $|x|$

2^{2x}

$\sqrt{4x-5}$

$4 - \sqrt{4-x}$

$|x|$

$\frac{1-x}{-1-2x}$

x

$$4.7 \quad \frac{1}{|x+1|} \qquad \left| \frac{1}{x} + 1 \right|$$

$$5. \quad \frac{1}{(x^2+1)^2+2} \qquad \frac{1}{4}$$

$$6.1 \quad f(x) = x^3 \qquad 6.2 \quad 27 \text{ ลูกบาศก์หน่วย}$$

$$7.1 \quad f(x) = \frac{x-32}{1.8} \qquad 7.2 \quad 22.22 \text{ องศาเซลเซียส}$$

$$8.1 \quad f(x) = 70x + 800,000 \qquad 8.2 \quad R(x) = 300x$$

$$8.3 \quad P(x) = 230x - 800,000 \qquad 8.4 \quad 580,000 \text{ บาท}$$

$$9.1 \quad -1 \qquad 9.2 \quad -1$$

$$9.3 \quad 3 \qquad 9.4 \quad \frac{1}{2}$$

$$9.5 \quad \frac{2}{5} \qquad 9.6 \quad -6$$

$$9.7 \quad 5 \qquad 9.8 \quad -2$$

$$9.9 \quad -1 \qquad 9.10 \quad \frac{5}{6}$$

$$9.11 \quad 3 \qquad 9.12 \quad 0$$

$$9.13 \quad -4b \qquad 9.14 \quad 0$$

$$9.15 \quad \frac{7}{8} \qquad 9.16 \quad 6$$

$$9.17 \quad 0 \qquad 9.18 \quad 0$$

$$9.19 \quad \text{หาค่าไม่ได้} \qquad 9.20 \quad 0$$

$$9.21 \quad 4 \qquad 9.22 \quad \frac{1}{2}$$

$$9.23 \quad -\frac{1}{2} \qquad 9.24 \quad \infty$$

9.25 0

9.26 ∞

9.27 16

9.28 0

9.29 $\frac{4}{3}$

10. ต่อเนื่อง

11. ต่อเนื่อง

12. ต่อเนื่อง

13. ไม่ต่อเนื่อง

14. ต่อเนื่อง

15. ไม่ต่อเนื่อง

16.1 $x = -1, 1$

16.2 ไม่มี

16.3 $x = 2$

16.4 $x = 1$

16.5 ไม่มี

16.6 $x = -1, 0, 1$

16.7 ทุกค่า

16.8 ทุกค่ายกเว้น 0

เฉลยแบบฝึกหัดท้ายบทที่ 2

1.1 -5

1.2 $4x$

1.3 $2x+1$

1.4 $-\frac{1}{2\sqrt{x}}$

1.5 $2x+3$

1.6 $-\frac{1}{2x\sqrt{x}}$

1.7 $-\frac{2}{(x+1)^2}$

1.8 -5

1.9 $2x-6$

1.10 $-\frac{2x}{(x^2-1)^2}$

1.11 $-2x$

1.12 x^3+3x^2+2x

1.13 $4x-1$

1.14 $\frac{3}{2}\sqrt{x}$

1.15 $3x^2+6x$

1.16 $-\frac{5}{x^2}$

1.17 1

1.18 19

1.19 -2

1.21 $\frac{3}{4}$

1.23 -4

1.25 -2

1.20 2

1.22 $\frac{3}{2}$

1.24 3

2.1 $-35(2-7x)^2$

2.3 $2x(3x^2-4)^{\frac{-2}{3}}$

2.5 $15x^2-4x+5$

2.7 $9x^2-34x-32$

2.9 $\frac{87(x+7)^2}{(8-3x)^8}$

2.11 -2

2.13 3

2.15 0

2.2 $\frac{1}{\sqrt{x^2+3}}$

2.4 $\frac{-12}{(3x-2)^5}$

2.6 $27x^4+8x^3-54x^2-24x+27$

2.8 $\frac{-7x^2-2x-21}{(x^2-3)^2}$

2.10 0

2.12 -9

2.14 10

3.1 e^{e^x+x}

3.3 $2\log x$

3.5 $2x(x^2-3)^{x^2-3}(\ln(x^2-3)+1)$

3.7 $\frac{\log e}{x \log x}$

3.9 $2xe^{x^2}2^{\ln x} + \frac{e^{x^2}2^{\ln x} \ln 2}{x}$

3.11 $\frac{5}{3 \ln 3}$

3.13 $\frac{1}{3}$

3.2 $6^{7x} \ln^2 6$

3.4 $2e^{2x}5^{x^3}+3x^2e^{2x}5^{x^3} \ln 5$

3.6 $5^{\log x}e^x + \frac{1}{x}5^{\log x}e^x \ln 5 \log e$

3.8 $\frac{x \log e}{2(x-1)} + \log \sqrt{x-1}$

3.10 $e^{x \log x}(\log e + \log x)$

3.12 0

3.14 $-\frac{1}{2} \log e$

$$3.15 \quad \frac{7}{6}$$

$$4.1 \quad 2x \cos x^2 - 4x \sec^2 x^2$$

$$4.3 \quad -\frac{1}{2} \sin\left(\frac{x}{6}\right) \cos^2\left(\frac{x}{6}\right) - \frac{1}{6} \sin\left(\frac{x}{6}\right)$$

$$4.5 \quad \frac{\sin x \sec^2 \sqrt{\cos x} \sin(\tan \sqrt{\cos x})}{2\sqrt{\cos x}}$$

$$4.7 \quad \frac{\sec x \tan x}{2x} - \frac{\sec x}{2x^2}$$

$$4.8 \quad 2 \sin x \cos e c^2(\cos x) \cot(\cos x)$$

$$4.9 \quad 5^{\ln(\sin x)} \ln 5 \cot x$$

$$4.11 \quad 2 \cos x + 2x \cos^3 x - 3x^2 \sin x \cos^2 x$$

$$4.13 \quad 6$$

$$4.15 \quad -2$$

$$4.2 \quad e^{\log(\sin x)} \log e \cot x$$

$$4.4 \quad \frac{\sin x + \cos x}{2\sqrt{\sin x - \cos x}}$$

$$4.6 \quad 8 \tan x \sec^2 x (1 - \tan^2 x)^3$$

$$4.10 \quad \frac{\sec^2(\sqrt{1 - \sin x}) \sqrt{-\cos x}}{2\sqrt{1 - \sin x}}$$

$$4.12 \quad \frac{2 \sin x}{(1 + \cos x)^2}$$

$$4.14 \quad 1$$

$$5.1 \quad \frac{2e^{2x}}{\sqrt{1 - e^{4x}}}$$

$$5.3 \quad \frac{3}{x^2 + 9}$$

$$5.5 \quad \frac{e^{\sec^{-1} 2x}}{x\sqrt{4x^2 - 1}}$$

$$5.7 \quad \frac{1}{x\sqrt{x^2 - 1}}$$

$$5.9 \quad \frac{\log x}{x^2 + 1} + \frac{\log e \cdot \tan^{-1} x}{x}$$

$$5.11 \quad \frac{\sec^2 x}{\sin^{-1}(\tan x) \sqrt{1 - \tan x}}$$

$$5.13 \quad \frac{-\sqrt{x}}{x+1} + \frac{\cot^{-1} x}{2\sqrt{x}}$$

$$5.2 \quad -\frac{\cos x}{\sqrt{1 - \sin^2 x}}$$

$$5.4 \quad -\frac{(\cot^{-1} \sqrt{x})^3}{\sqrt{x} + x\sqrt{x}}$$

$$5.6 \quad \frac{x^2}{1 + \ln^2 x} + 3x^2 \tan^{-1}(\ln x)$$

$$5.8 \quad \frac{\sec^{-1} x + \cos e c^{-1} x}{x\sqrt{x^2 - 1}}$$

$$5.10 \quad \frac{-1}{\sqrt{x}(x^2 + 1)} - \frac{\cot^{-1} \sqrt{x}}{2x\sqrt{x}}$$

$$5.12 \quad \frac{1}{x^3 + x} + \frac{\tan^{-1} x}{x^2}$$

$$5.14 \quad -\frac{3}{5}$$

5.15 1

$$6.1 \quad \frac{(5x-1)^4 \sqrt{x-7}}{\sqrt[3]{x}(2x+9)^5} \left(\frac{20}{5x-1} + \frac{1}{2x-7} - \frac{1}{3x} - \frac{10}{2x+9} \right)$$

$$6.2 \quad (2x^3+4)^3 \sqrt{4x^4+4} \sqrt[3]{1-x^3} \left(\frac{18x^2}{2x^3+4} + \frac{8x+1}{8x^2+2x} - \frac{x^2}{1-x^3} \right)$$

$$6.3 \quad \frac{e^x \sin x}{x^x} (\cos x - \ln x)$$

$$6.4 \quad \frac{\sin^{-1} x \cdot \cos^{-1} x}{\sqrt{1-x^2}} \left(\frac{1}{\sin^{-1} x} - \frac{1}{\cos^{-1} x} + \frac{x}{\sqrt{1-x^2}} \right)$$

$$6.5 \quad \frac{1}{2} \sqrt{\frac{(x-1)(x-2)}{(x-3)(x-4)}} \left(\frac{1}{x-1} + \frac{1}{x-2} - \frac{1}{x-3} - \frac{1}{x-4} \right)$$

$$6.6 \quad x^2 e^{3x} \tan^3 x (2 \tan x + 3x \tan x + 3x \sec^2 x)$$

$$6.7 \quad \frac{x^2 \cos 5x}{(x^2+1)^3 (x-1)^2} \left(\frac{2}{x} - 5 \tan 5x - \frac{6x}{x^2+1} - \frac{2}{x-1} \right)$$

$$6.8 \quad \frac{x^4 \sin^2 x}{\sqrt{x+1}} \left(\frac{4}{x} + 2 \cot x - \frac{1}{2(x+1)} \right)$$

7.1 22

7.2 -4

7.3 1

7.4 $\frac{1}{t^2 - 2t + 1}$

7.5 $-\frac{6}{(x-1)^3}$

7.6 $\frac{8}{25}$

7.7 $\frac{32}{147}$

7.8 $\frac{21}{25}$

7.9 1

8.1 $\frac{y+2}{1-x}$

8.2 $\frac{2x-y^2-2xy}{2y+x^2+2xy}$

8.3 $\frac{1}{2}$

8.4 $\frac{1}{e+1}$

8.5 0

9.1 $\frac{1}{(4x+4)\sqrt{x+1}} + 2$

9.2 $360x^2 + 72$

$$9.3 \quad \frac{15}{8}t^{-\frac{5}{2}} - 8e^{2t}$$

$$9.4 \quad x^{-2} - 4\cos 2x$$

$$9.5 \quad 2\cos x - x\sin x - 6$$

$$9.6 \quad 2$$

$$9.7 \quad \frac{5}{4y}$$

$$9.8 \quad \sin x$$

$$9.9 \quad (-1)^n n!(2x-1)^{-(n+1)}$$

$$9.10 \quad xe^x + ne^x$$

เฉลยแบบฝึกหัดท้ายบทที่ 3

$$1.1 \quad \min\left(\frac{2}{3}, 1\right) \quad \max(-2, -1)$$

$$1.2 \quad \min(0, 0) \quad \max(-2, 0)$$

$$1.3 \quad \min(0, 1)$$

$$1.4 \quad \min\left(6, -\frac{321}{2}\right) \quad \max(-1, 11)$$

$$1.5 \quad \min(0, -4) \quad \max(1, -2)$$

$$1.6 \quad \min(2, 4) \quad \max(-2, -4)$$

$$1.7 \quad \min(-1, 0) \quad \max(1, 2)$$

$$2. \quad 44.31 \text{ เมตร}$$

$$3. \quad \frac{5}{3} \text{ เซนติเมตร และ } 74 \text{ ลูกบาศก์เซนติเมตร}$$

$$4. \quad 22,500 \text{ บาท}$$

$$5. \quad 40 \text{ เซนติเมตร}$$

$$6. \quad 21 \text{ หน่วยต่อวินาที และ } 12 \text{ หน่วยต่อวินาที}^2$$

$$7. \quad \text{ณ } t = 1 \text{ นาฬิกา จะได้ระยะทาง คือ } 8 \text{ กิโลเมตร และความเร่ง คือ } -6 \text{ กิโลเมตรต่อวินาที}^2$$

$$\text{ณ } t = 3 \text{ นาฬิกา จะได้ระยะทาง คือ } 4 \text{ กิโลเมตร และความเร่ง คือ } 6 \text{ กิโลเมตรต่อวินาที}^2$$

$$8. \quad \frac{3}{2} \text{ เมตรต่อวินาที}$$

$$9. \quad \frac{1}{12\pi} \text{ ฟุตต่อวินาที}$$

$$10. \quad \frac{30}{\pi} \text{ เซนติเมตรต่อวินาที}$$

$$11.1 \quad 1$$

$$11.2 \quad -\frac{1}{4}$$

$$11.3 \quad -1$$

$$11.4 \quad 1$$

$$11.5 \quad 1$$

$$11.6 \quad 2$$

$$11.7 \quad \ln a$$

$$11.8 \quad \frac{1}{6}$$

$$11.9 \quad -\frac{1}{4}$$

$$11.10 \quad 0$$

$$11.11 \quad 1$$

$$11.12 \quad \frac{1}{e}$$

$$11.13 \quad 1$$

$$11.14 \quad 1$$

$$11.15 \quad 0$$

11.16	3	11.17	1	11.18	$\frac{1}{6}$
11.19	1	11.20	3	11.21	$-\frac{1}{2}$
11.22	1				

เฉลยแบบฝึกหัดท้ายบทที่ 4

1.1	$x^4 - x^3 + \frac{x^2}{2} + c$	1.2	$\frac{4}{7}x^{\frac{7}{4}} + \frac{5}{2}x^2 - \frac{3}{4}x^{\frac{4}{3}} + c$
1.3	$\frac{2}{5}x^{\frac{5}{2}} - 4x^{\frac{3}{2}} + x + c$	1.4	$x - \frac{2}{x} + c$
1.5	$6x^{\frac{11}{6}} - 4x^{\frac{7}{4}} - \frac{2}{3}x^{\frac{3}{2}} + c$	1.6	$4x^2 + 8x^{\frac{1}{2}} - 6x^{\frac{1}{3}} + c$
1.7	$\frac{3}{4}(x^2 - 4x)^{\frac{2}{3}} + c$	1.8	$-\frac{(1-4x^2)^{\frac{3}{2}}}{4} + c$
1.9	$-\frac{3(2-x^2)^{\frac{1}{3}}}{2} + c$	1.10	$-\sqrt{2x-1} + c$
1.11	$\ln^5 5x + c$	1.12	$-\frac{\cos^4 x}{4} + c$
1.13	$\frac{(\arcsin x^2)^2}{4} + c$	1.14	$\frac{1}{\log e \cdot \log x} + c$
2.1	$-2\ln 3-x + c$	2.2	$\frac{1}{4}\ln 3x^4+1 + c$
2.3	$-\frac{1}{2}\ln 5-e^{2x} + c$	2.4	$\ln \ln x + c$
2.5	$6x^{\frac{11}{6}} - 4x^{\frac{7}{4}} - \frac{2}{3}x^{\frac{3}{2}} + c$	2.6	$4x^2 + 8x^{\frac{1}{2}} - 6x^{\frac{1}{3}} + c$
2.7	$-3\ln \operatorname{arc} \cot x + c$	2.8	$\frac{(2x-3)^{20}}{40} + c$
2.9	$\frac{\ln^3 x}{3\ln 5} + c$	2.10	$-x^2 - 2x - 3\ln x-2 + c$
2.11	$\frac{1}{10}e^{5x^2-1} + c$	2.12	$-\frac{1}{9(x^3+4)^3} + c$

$$2.13 \quad \frac{(4x^2 + 5x - 1)^4}{4} + c$$

$$2.15 \quad -\frac{1}{6}(4x+1)^{\frac{3}{2}} + c$$

$$2.17 \quad \ln|x + \cos x| + c$$

$$2.19 \quad -\frac{3^{\cos x}}{\ln 3} + c$$

$$2.14 \quad -\frac{1}{6}(x^4 + 3x^2 - 5)^{-3} + c$$

$$2.16 \quad e^{e^x} + c$$

$$2.18 \quad -\ln|\ln(\cos x)| + c$$

$$2.20 \quad \frac{1}{2}e^{x^2-2x+5} + c$$

$$3.1 \quad \frac{1}{20}\ln|\sec(5x^4 - 1)| + c$$

$$3.3 \quad \cos(\arccot x) + c$$

$$3.5 \quad \frac{1}{5}\sec 5x + c$$

$$3.7 \quad -\operatorname{cosec} e^x + c$$

$$3.9 \quad -\operatorname{cosec} x + \cot x + c$$

$$3.2 \quad -\ln|\operatorname{cosec} x^{-1} - \cot x^{-1}| + c$$

$$3.4 \quad \ln|\sin(\ln x)| + c$$

$$3.6 \quad 2\sin(\ln(\sqrt{x} - 2)) + c$$

$$3.8 \quad -\operatorname{cosec} \sqrt{x} + c$$

$$3.10 \quad \ln|\sec(\arctan 2x)| + c$$

$$4.1 \quad \frac{1}{3}\arctan \frac{x}{3} + c$$

$$4.3 \quad \frac{1}{4}\operatorname{arcsec} \frac{x^2}{2} + c$$

$$4.5 \quad \frac{x}{2}\sqrt{4x^2 - 9} - \frac{9}{4}\ln|2x + \sqrt{4x^2 - 9}| + c$$

$$4.6 \quad \frac{x}{2}\sqrt{3x^2 + 5} + \frac{5}{2\sqrt{3}}\ln|\sqrt{3}x + \sqrt{3x^2 + 5}| + c$$

$$4.7 \quad \frac{1}{8\sqrt{2}}\ln\left|\frac{2\sqrt{2} + \sin 2x}{2\sqrt{2} - \sin 2x}\right| + c$$

$$4.9 \quad \frac{1}{\sqrt{5}}\arctan\left(\frac{x+5}{\sqrt{5}}\right) + c$$

$$4.11 \quad \frac{x+1}{2}\sqrt{3-2x-x^2} + \arcsin \frac{x+1}{2} + c$$

$$4.2 \quad \frac{1}{5}\arcsin \frac{5x}{4} + c$$

$$4.4 \quad \arctan e^x + c$$

$$4.8 \quad \frac{1}{2}\ln\left|\frac{\ln x - 1}{\ln x + 1}\right| + c$$

$$4.10 \quad \frac{1}{4}\ln\left|\frac{x+1}{x+5}\right| + c$$

$$4.12 \quad \frac{1}{3} \ln \left| 3x - 3 + \sqrt{9x^2 - 18x + 13} \right| + c$$

$$4.13 \quad \frac{1}{2} \arcsin \frac{2x+3}{2\sqrt{3}} + c$$

$$4.14 \quad \frac{e^x + 1}{2} \sqrt{15 - 2e^x - e^{2x}} + 8 \arcsin \frac{e^x + 1}{4} + c$$

$$4.15 \quad -\frac{1}{20} \ln \left| \frac{2 \sin x - 1}{2 \sin x + 9} \right| + c$$

เฉลยแบบฝึกหัดท้ายบทที่ 5

$$1.1 \quad -x \cos x - \sin x + c$$

$$1.2 \quad \frac{x^3}{3} \ln x - \frac{x^3}{9} + c$$

$$1.3 \quad \frac{2}{3} x^{\frac{3}{2}} \ln x - \frac{2}{\sqrt{x}} + c$$

$$1.4 \quad 3x \ln x - 3 + c$$

$$1.5 \quad -\frac{x^2}{2(x^2+1)} + \frac{1}{2} \ln |x^2+1| + c$$

$$1.6 \quad \frac{1}{3} x^3 e^{x^3} - \frac{1}{3} e^{x^3} + c$$

$$1.7 \quad \frac{1}{3} x e^{3x} - \frac{1}{9} e^{3x} + c$$

$$1.8 \quad (4-10x) \sin \frac{x}{2} + 10 \cos \frac{x}{2} + c$$

$$1.9 \quad -x^2 e^{-x} - 2x e^{-x} - 2e^{-x} + c$$

$$1.10 \quad \frac{1}{3} (1-x^2) e^{3x} + \frac{2}{9} x e^{3x} - \frac{2}{27} e^{3x} + c$$

$$1.11 \quad -\frac{x}{e^x+1} + x - \ln(e^x+1) + c$$

$$1.12 \quad \frac{2}{5} e^{-x} \sin 2x + \frac{1}{5} e^{-x} \cos 2x + c$$

$$1.13 \quad -(x^2+2x) \cos x + (2x+2) \sin x + 2 \cos x + c$$

$$1.14 \quad \frac{1}{2} (3x^2-x) e^{2x-1} - \frac{1}{4} (6x-1) e^{2x-1} + \frac{3}{8} e^{2x-1} + c$$

$$1.15 \quad x \arcsin(-2x) - \frac{1}{4} \sqrt{1-4x^2} + c$$

$$1.16 \quad -\frac{2}{5} e^{(1-x)} \cos(2x+1) - \frac{1}{5} e^{(1-x)} \sin(2x+1) + c$$

$$1.17 \quad -(x-3)^2 e^{-x} - 2(x-3) e^{-x} - 2e^{-x} + c$$

$$1.18 \quad \frac{1}{2} x \sin(x^2-2) + \frac{1}{4} \cos(x^2-2) + c$$

$$1.19 \quad x \cos(\ln x) - \cos(\ln x) + c$$

$$1.20 \quad x \tan x - \ln |\sec x| + c$$

$$2.1 \quad -\cos x + \frac{2}{3} \cos^3 x - \frac{1}{5} \cos^5 x + c$$

$$2.2 \quad \frac{1}{2} x + \frac{1}{4} \sin 2x + c$$

- 2.3 $-\frac{1}{3}\cos^3 x - \frac{2}{5}\cos^5 x + \frac{1}{7}\cos^7 x + c$ 2.4 $\frac{1}{16}x - \frac{1}{24}\sin 4x + \frac{1}{48}\sin^3 2x + c$
- 2.5 $\frac{2}{5}\sin^{\frac{5}{2}} x + c$ 2.6 $\frac{1}{5}\sec^5 x - \frac{1}{3}\sec^3 x + c$
- 2.7 $-\frac{1}{12}\cos 6x - \frac{1}{8}\cos 4x + c$ 2.8 $\frac{1}{2}\sin x + \frac{1}{10}\sin 5x + c$
- 2.9 $\frac{1}{8}\sin 4x - \frac{1}{12}\sin 6x + c$ 2.10 $-\frac{1}{3}\cos\left(\frac{3}{2}x\right) - \cos\left(\frac{1}{2}x\right) + c$
- 2.11 $\frac{1}{6}\sec^6 x - \frac{1}{4}\sec^4 x + c$ 2.12 $\frac{1}{12}\tan^3 4x - \frac{1}{4}\tan 4x + x + c$
- 2.13 $-\frac{1}{5}\cot^5 x + \frac{1}{3}\cot^3 x - \cot x - x + c$ 2.14 $\frac{1}{12}\tan^6 2x + \frac{1}{8}\tan^4 2x + c$
- 2.15 $\frac{2}{21}\tan^{\frac{7}{2}} 3x + \frac{2}{33}\tan^{\frac{11}{2}} 3x + c$
- 2.16 $-\frac{3}{5}\cot^5\left(\frac{x}{3}\right) - 2\cot^3\left(\frac{x}{3}\right) - 3\cot\left(\frac{x}{3}\right) + c$
- 2.17 $\frac{1}{6}\tan^3 2x + \frac{1}{2}\tan 2x + c$
- 2.18 $-\frac{1}{9}\operatorname{cosec}^9 x + \frac{2}{7}\operatorname{cosec}^7 x - \frac{1}{5}\operatorname{cosec}^5 x + c$
-
- 3.1 $-\frac{1}{2}x\sqrt{x^2-9} + \frac{9}{2}\ln|x+\sqrt{x^2-9}| + c$ 3.2 $\sqrt{x^2-25} - 5\operatorname{arcsec}\left(\frac{x}{5}\right) + c$
- 3.3 $\frac{1}{\sqrt{3}}\ln\left|\frac{\sqrt{3+8x}-\sqrt{3}}{\sqrt{3+8x}+\sqrt{3}}\right| + c$ 3.4 $\frac{1}{6}\tan^{-1}\frac{2x}{3} + c$
- 3.5 $\frac{1}{2}\ln x\sqrt{\ln^2 x-25} - \frac{25}{2}\ln|\ln x + \sqrt{\ln^2 x-25}| + c$
- 3.6 $\frac{x}{2}\sqrt{x^2+16} + 8\ln|x+\sqrt{x^2+16}| + c$ 3.7 $\ln|x+4+\sqrt{x^2+8x+11}| + c$
- 3.8 $\frac{1}{6}\ln\left|\frac{x-1}{x+5}\right| + c$
- 3.9 $\frac{x+2}{2}\sqrt{8-4x-x^2} + 6\arcsin\frac{x+2}{2\sqrt{3}} + c$
- 3.10 $\frac{1}{2}\tan^{-1}(\ln\sqrt{x}) + c$

$$3.11 \quad \frac{x+2}{2} \sqrt{x^2+4x} - 2 \ln|x+2+\sqrt{x^2+4x}| + c$$

$$3.12 \quad \frac{1}{2} \ln \left| \frac{1+\ln x}{1-\ln x} \right| + c$$

$$4.1 \quad \ln \left| \frac{x^2(x-1)^2}{x+1} \right| + c$$

$$4.2 \quad 4 \ln|x| + \frac{1}{x} + 3 \ln|x-1| + c$$

$$4.3 \quad \ln|x| - \frac{3}{x-1} + \frac{2}{(x-1)^2} + c$$

$$4.4 \quad 2 \ln|x+2| + \frac{3}{2} \ln|x^2+2x+5| - \frac{7}{2} \arctan \frac{x+1}{2} + c$$

$$4.5 \quad 2 \ln|x^2+2| - \ln|x^2+1| - \arctan x + c \quad 4.6 \quad \frac{1}{2} \ln(x^2+3) + \arctan x + c$$

$$4.7 \quad \arctan \frac{x}{2} - \frac{3\sqrt{2}}{2} \arctan \sqrt{2}x + c$$

$$4.8 \quad x^2 + 4x + \ln|(x-1)(x^2+1)| + 3 \arctan x + c$$

$$4.9 \quad \ln(x^2+1) + \frac{1}{x^2+1} + c$$

$$4.10 \quad -\frac{7}{15} \ln|3x-1| + \frac{2}{5} \ln|x^2+1| + \frac{3}{5} \arctan x + c$$

เฉลยแบบฝึกหัดท้ายบทที่ 6

$$1.1 \quad \frac{7}{2}$$

$$1.2 \quad \frac{1}{3}$$

$$1.3 \quad \frac{e^9-1}{3}$$

$$1.4 \quad \sqrt{2}-1$$

$$1.5 \quad \frac{\ln 17}{2}$$

$$1.6 \quad \frac{1}{3}$$

$$1.7 \quad \frac{3}{4}(4-\sqrt[3]{9})$$

$$1.8 \quad \frac{32}{3}$$

$$1.9 \quad -\ln 3$$

$$1.10 \quad \frac{1}{7}$$

- | | | | |
|------|---------------------------------------|------------------------------------|---------------------------------|
| 2.1 | $\frac{1}{3}$ ตารางหน่วย | 2.2 | $\frac{8}{3}$ ตารางหน่วย |
| 2.3 | 8 ตารางหน่วย | 2.4 | 8 ตารางหน่วย |
| 2.5 | 4 ตารางหน่วย | 2.6 | $\frac{128}{3}$ ตารางหน่วย |
| 2.7 | $\frac{64}{3}$ ตารางหน่วย | 2.8 | $\frac{343}{6}$ ตารางหน่วย |
| 2.9 | $\frac{149}{6}$ ตารางหน่วย | 2.10 | 14 ตารางหน่วย |
| 3.1 | $\frac{4\pi}{5}$ ลูกบาศก์หน่วย | 3.2 | $\frac{\pi}{6}$ ลูกบาศก์หน่วย |
| 3.3 | $\frac{32\pi}{5}$ ลูกบาศก์หน่วย | 3.4 | $\frac{4\pi}{5}$ ลูกบาศก์หน่วย |
| 3.5 | $\frac{\pi}{30}$ ลูกบาศก์หน่วย | 3.6 | $\frac{\pi}{6}$ ลูกบาศก์หน่วย |
| 3.7 | $\frac{64\pi}{3}$ ลูกบาศก์หน่วย | 3.8 | $\frac{\pi}{2}$ ลูกบาศก์หน่วย |
| 3.9 | $\frac{5\pi}{14}$ ลูกบาศก์หน่วย | 3.10 | $\frac{2\pi}{35}$ ลูกบาศก์หน่วย |
| 3.11 | $\frac{128\pi}{15}$ ลูกบาศก์หน่วย | 3.12 | $\frac{2\pi}{15}$ ลูกบาศก์หน่วย |
| 3.13 | 1) $\frac{9\pi}{10}$ ลูกบาศก์หน่วย | 2) $\frac{9\pi}{14}$ ลูกบาศก์หน่วย | |
| | 3) $\frac{21\pi}{10}$ ลูกบาศก์หน่วย | 4) $\frac{15\pi}{7}$ ลูกบาศก์หน่วย | |
| 3.14 | 1) $\frac{7\pi}{15}$ ลูกบาศก์หน่วย | 2) $\frac{\pi}{6}$ ลูกบาศก์หน่วย | |
| | 3) $\frac{13\pi}{15}$ ลูกบาศก์หน่วย | 4) $\frac{11\pi}{6}$ ลูกบาศก์หน่วย | |
| 3.15 | 1) $\frac{1024\pi}{35}$ ลูกบาศก์หน่วย | | |
| | 2) $\frac{704\pi}{5}$ ลูกบาศก์หน่วย | | |

