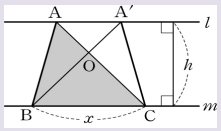
계산시 참고사항

1. 평행선과 삼각형의 넓이

1) 평행선과 삼각형의 넓이

: 두 직선 l, m이 평행할 때, $\triangle ABC$와 $\triangle A'BC$는 밑변 BC가 공통이고 높이가 h로 같으므로 두 삼각형의 넓이는 서로 같다.

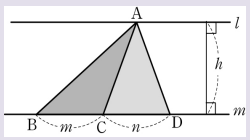
⇨ $l//m$일 때, $\triangle ABC=\triangle A'BC=\frac{1}{2}xh$



2) 높이가 같은 삼각형의 넓이의 비

: 높이가 같은 두 삼각형의 넓이의 비는 밑변의 길이의 비와 같다.

⇨ $\triangle ABC:\triangle ACD=\overline{BC}:\overline{CD}=m:n$

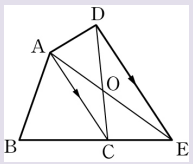


2. 사각형과 넓이가 같은 삼각형

오른쪽 그림에서 $\overline{AC}//\overline{DE}$일 때

1) $\triangle ACD=\triangle ACE$ 2) $\square ABCD=\triangle ABE$

3) $\triangle AOD=\triangle COE$



참고

◉ $\square ABCD=\triangle ABC+\triangle ACD$
$=\triangle ABC+\triangle ACE$
$=\triangle ABE$

3. 사다리꼴에서 평행선과 삼각형의 넓이

1) 사다리꼴에서 평행선과 삼각형의 넓이

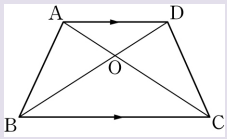
: $\overline{AD}//\overline{BC}$인 사다리꼴 $ABCD$에서 $\triangle ABC=\triangle DBC$이므로 $\triangle ABO=\triangle DCO$

2) 사다리꼴에서 삼각형의 넓이의 비

: $\overline{AD}//\overline{BC}$인 사다리꼴 $ABCD$의 두 대각선의 교점이 O일 때

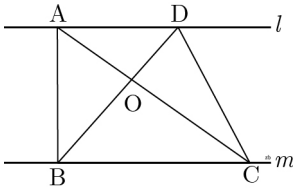
(1) $\triangle OAB:\triangle OBC=\triangle OAD:\triangle OCD=\overline{OA}:\overline{OC}$

(2) $\triangle OAD:\triangle OAB=\triangle OCD:\triangle OBC=\overline{OD}:\overline{OB}$



평행선과 삼각형의 넓이

◪ 다음 그림에서 $l//m$일 때, 다음을 구하여라.

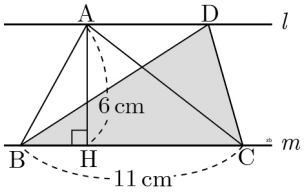


1. $\triangle ABC$와 넓이가 같은 삼각형

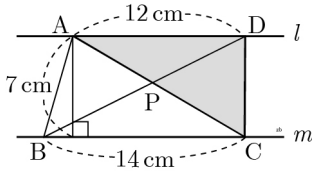
2. $\triangle ABD$와 넓이가 같은 삼각형

◪ 다음 그림에서 $l//m$일 때, 색칠한 부분의 넓이를 구하여라.

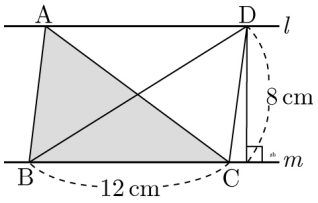
3.



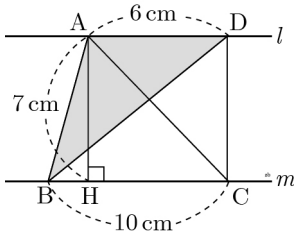
4.



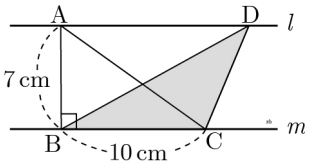
5.



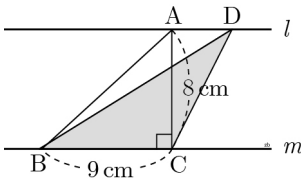
6.



7.

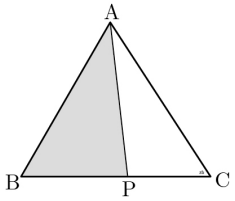


8.

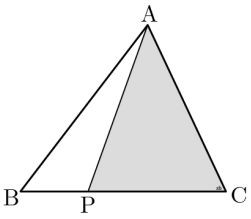


◪ **다음 그림과 같은 $\triangle ABC$에서 색칠한 부분의 넓이를 구하여라.**

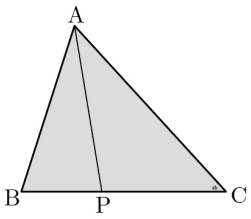
9. $\triangle ABC = 42\text{cm}^2$, $\overline{BP} : \overline{PC} = 4 : 3$



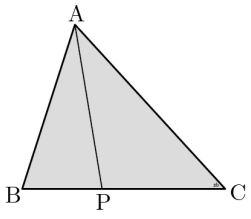
10. $\triangle ABP = 6\text{cm}^2$, $\overline{BP} : \overline{PC} = 1 : 2$



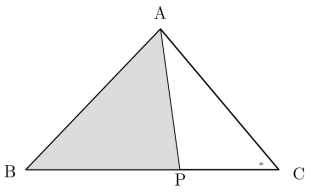
11. $\triangle ABP = 6\text{cm}^2$, $\overline{BP} : \overline{PC} = 2 : 3$



12. $\triangle APC = 30\text{cm}^2$, $\overline{BP} : \overline{PC} = 3 : 5$

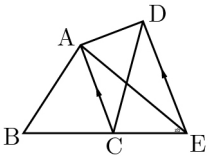


13. $\triangle ABC = 120\,\text{cm}^2$, $\overline{BP} : \overline{PC} = 3 : 2$



사각형과 넓이가 같은 삼각형

◪ 다음 그림에서 $\overline{AC}//\overline{DE}$일 때, 다음 도형과 넓이가 같은 삼각형을 찾아라.

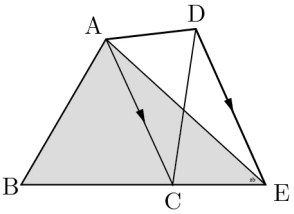


14. $\triangle ACE$

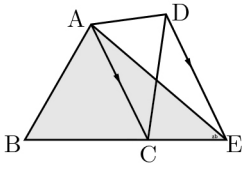
15. $\triangle ABCD$

◪ 다음 그림에서 $\overline{AC}//\overline{DE}$일 때, 색칠한 부분의 넓이를 구하여라.

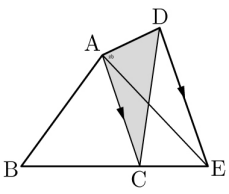
16. $\square ABCD = 30cm^2$



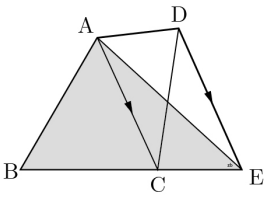
17. $\square ABCD = 20cm^2$



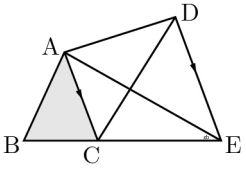
18. $\triangle ABE = 23cm^2$, $\triangle ABC = 14cm^2$



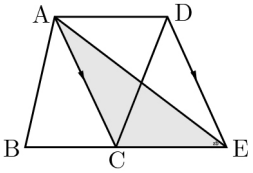
19. $\triangle ABC = 20cm^2$, $\triangle ACE = 18cm^2$



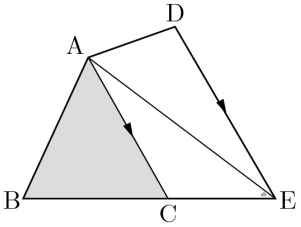
20. $\triangle ABE = 18cm^2$, $\triangle ACD = 8cm^2$



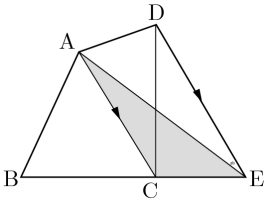
21. $\square ABCD = 35cm^2$, $\triangle ABC = 12cm^2$



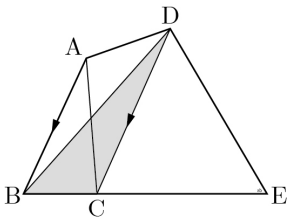
22. $\square ABCD = 40cm^2$, $\triangle ACE = 16cm^2$



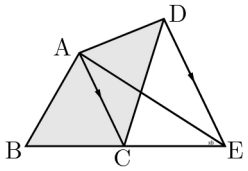
23. $\square ABCD = 35cm^2$, $\triangle ABC = 21cm^2$



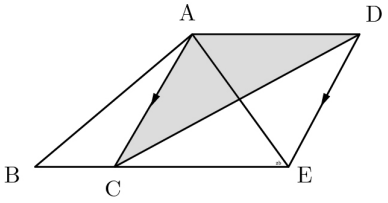
24. $\square ACED = 15cm^2$, $\triangle DCE = 10cm^2$



25. $\triangle ABC = 10cm^2$, $\triangle ACE = 18cm^2$

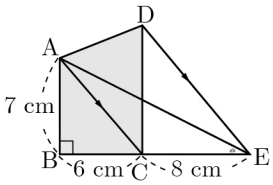


26. $\triangle ABE = 30cm^2$, $\triangle ABC = 12cm^2$

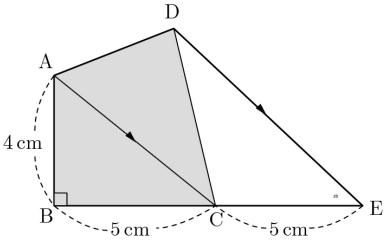


◪ 다음 그림에서 $\overline{AC}//\overline{DE}$일 때, 색칠한 부분의 넓이를 구하여라.

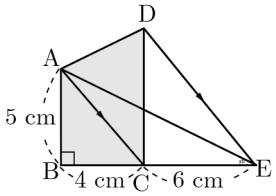
27.



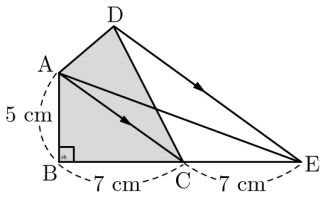
28.



29.

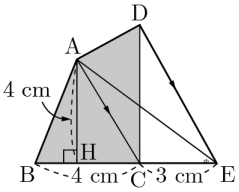


30.

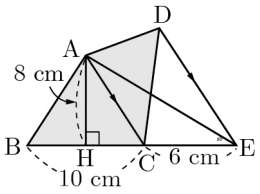


◪ 다음 그림에서 $\overline{AC}//\overline{DE}$, $\overline{AH}\perp\overline{BC}$일 때, $\square ABCD$의 넓이를 구하여라.

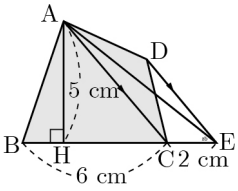
31.



32.

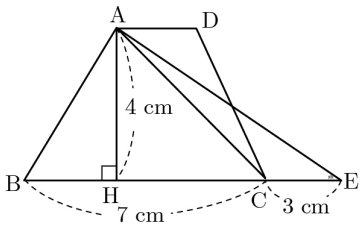


33.

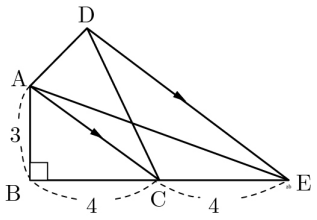


◪ 다음 물음에 답하여라.

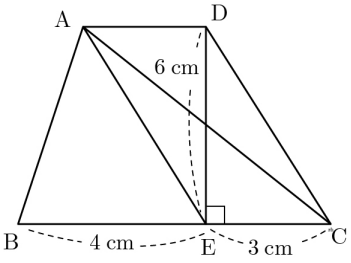
34. □ABCD에서 $\overline{BC}$의 연장선 위에 $\overline{AC}//\overline{DE}$인 점 E를 정한다. $\overline{BC}=7\,cm$, $\overline{CE}=3\,cm$, $\overline{AH}=4\,cm$일 때, □ABCD의 넓이를 구하여라.



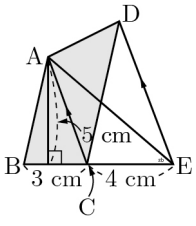
35. $\overline{AC}//\overline{DE}$이고 $\angle B=90^\circ$, $\overline{AB}=3$, $\overline{BC}=\overline{CE}=4$일 때, □ABCD의 넓이를 구하여라.



36. 다음 그림의 사다리꼴 ABCD에서 $\overline{AD}//\overline{BC}$이고, $\overline{AE}//\overline{DC}$, $\overline{BE}=4cm$, $\overline{EC}=3cm$, $\overline{DE}=6cm$일 때, □ABED의 넓이를 구하여라.

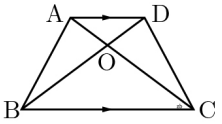


37. 다음 그림에서 $\overline{AC}//\overline{DE}$일 때, □ABCD의 넓이를 구하여라.



사다리꼴에서 평행선과 삼각형의 넓이

◪ 다음 그림과 같은 $\overline{AD}//\overline{BC}$인 사다리꼴 ABCD에서 다음 삼각형과 넓이가 같은 삼각형을 찾아라.



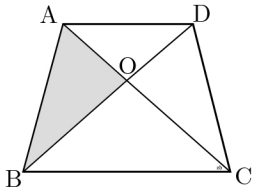
38. △ABC

39. △ABD

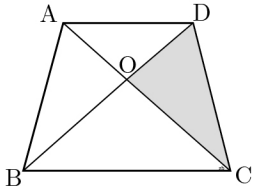
40. △ABO

◪ 다음 그림과 같이 $\overline{AD}//\overline{BC}$인 사다리꼴 ABCD에서 조건이 주어질 때, 색칠한 부분의 넓이를 구하여라.

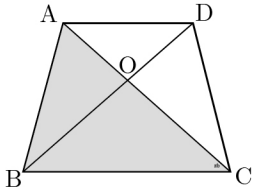
41. $\triangle CDO=10cm^2$



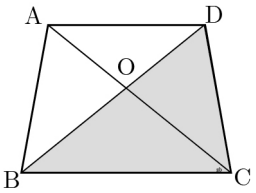
42. $\triangle ABO=5cm^2$



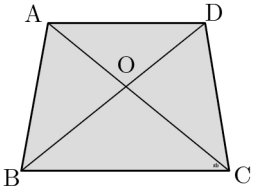
43. $\triangle OBC=14cm^2$, $\triangle CDO=9cm^2$



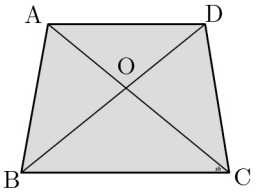
44. $\triangle ABO = 11cm^2$, $\triangle OBC = 15cm^2$



45. $\triangle DBC = 28cm^2$, $\triangle OBC = 16cm^2$, $\triangle AOD = 9cm^2$

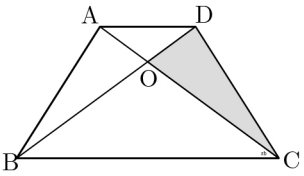


46. $\triangle ABC = 45cm^2$, $\triangle OBC = 25cm^2$, $\triangle AOD = 16cm^2$

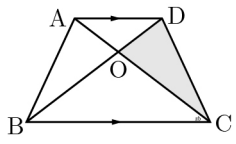


◪ 다음 그림과 같이 $\overline{AD}//\overline{BC}$인 사다리꼴 ABCD에서 색칠한 부분의 넓이를 구하여라.

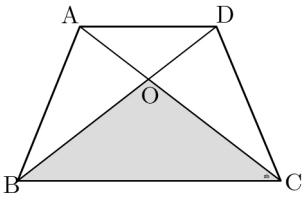
47. $\triangle ABC = 28cm^2$, $\overline{DO}:\overline{OB} = 1:3$



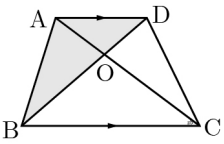
48. $\triangle ABD = 20cm^2$, $\triangle AOD = 5cm^2$



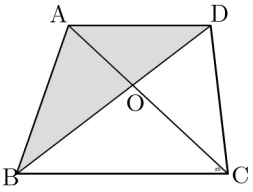
49. $\triangle AOD = 3cm^2$, $\overline{DO}:\overline{OB} = 1:2$



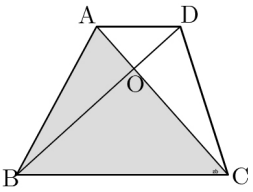
50. $\triangle AOD = 7cm^2$, $\triangle DOC = 10cm^2$



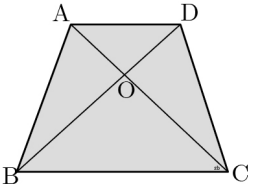
51. $\triangle OCD = 18cm^2$, $\overline{AO}:\overline{OC} = 2:3$



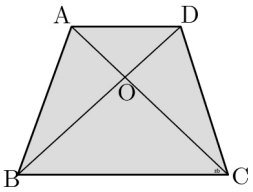
52. $\triangle AOD = 8cm^2$, $\overline{AO}:\overline{OC} = 2:5$



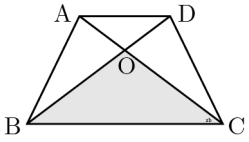
53. $\triangle ABO = 10cm^2$, $\overline{AO}:\overline{OC} = 1:2$



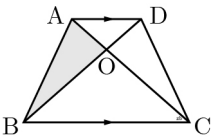
54. $\triangle OBC = 32cm^2$, $\overline{BO} : \overline{OD} = 4 : 3$



55. $\triangle ABC = 15cm^2$, $\triangle DOC = 6cm^2$

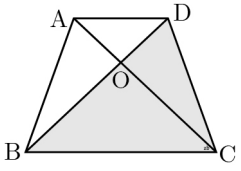


56. $\triangle AOD = 6\,cm^2$, $\triangle ACD = 14\,cm^2$

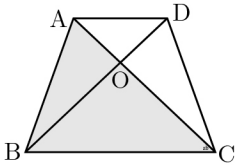


◪ 다음 그림과 같은 $\overline{AD} // \overline{BC}$인 등변사다리꼴 ABCD에서 색칠한 부분의 넓이를 구하여라.

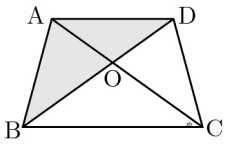
57. $\triangle ABO = 15cm^2$, $\overline{AO} : \overline{CO} = 1 : 2$



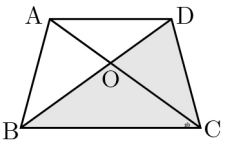
58. $\triangle OBC = 30cm^2$, $\overline{BO} : \overline{DO} = 3 : 2$



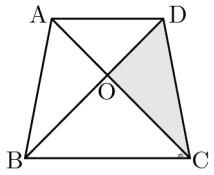
59. $\triangle AOD = 6cm^2$, $\overline{AO} : \overline{CO} = 2 : 3$



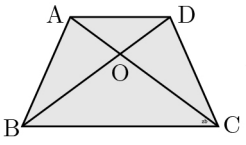
60. $\triangle ABO = 9cm^2$, $\overline{BO} : \overline{DO} = 2 : 1$



61. $\triangle ABC = 35cm^2$, $\overline{AO} : \overline{CO} = 2 : 3$

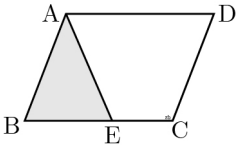


62. $\triangle AOD = 3cm^2$, $\overline{BO} : \overline{DO} = 2 : 1$

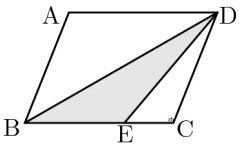


◪ 다음 그림의 평행사변형 ABCD의 넓이가 $60cm^2$일 때, 색칠한 부분의 넓이를 구하여라.

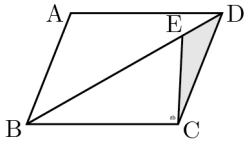
63. $\overline{BE} : \overline{EC} = 3 : 2$



64. $\overline{BE} : \overline{EC} = 2 : 1$

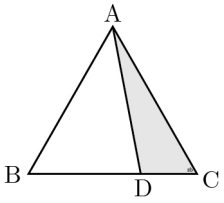


65. $\overline{BE}:\overline{ED}=4:1$

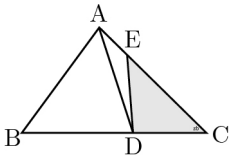


◪ 다음 그림의 $\triangle ABC$의 넓이가 $30cm^2$일 때, 색칠한 부분의 넓이를 구하여라.

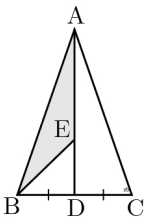
66. $\overline{BD}:\overline{DC}=2:1$



67. $\overline{BD}:\overline{DC}=3:2,\ \overline{AE}:\overline{EC}=1:3$

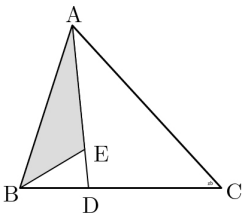


68. $\overline{BD}=\overline{DC},\ \overline{AE}:\overline{ED}=2:1$

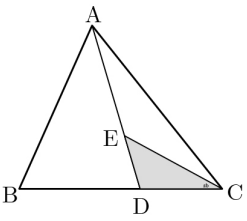


◪ 다음 그림과 같은 $\triangle ABC$에서 색칠한 부분의 넓이를 구하여라.

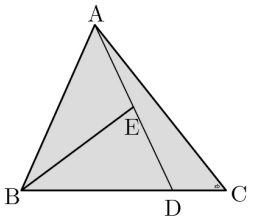
69. $\triangle ABC=48cm^2,\ \overline{BD}:\overline{DC}=1:2,\ \overline{AE}:\overline{ED}=3:1$



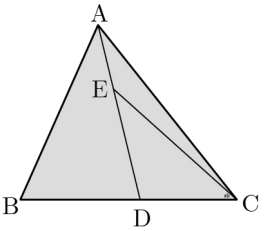
70. $\triangle ABC=60cm^2,\ \overline{BD}:\overline{DC}=3:2,\ \overline{AE}:\overline{ED}=2:1$



71. $\triangle EBD=9cm^2,\ \overline{BD}:\overline{DC}=3:1,\ \overline{AE}=\overline{ED}$

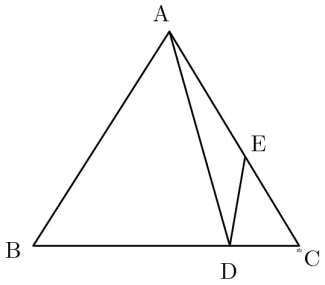


72. $\triangle AEC=6cm^2,\ \overline{BD}:\overline{DC}=4:3,\ \overline{AE}:\overline{ED}=1:2$

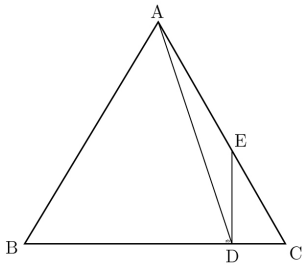


◪ 다음 물음에 답하여라.

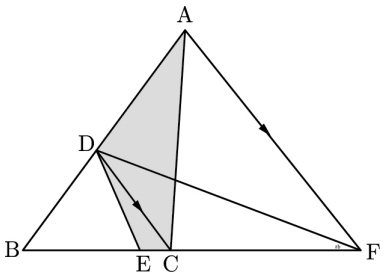
73. 다음 그림에서 $\overline{BD} : \overline{DC} = 3 : 1$, $\overline{AE} : \overline{EC} = 3 :$이다. $\triangle ABC = 20cm^2$일 때, $\triangle DCE$의 넓이를 구하여라.



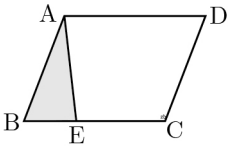
74. 다음 그림에서 $\overline{BD} : \overline{DC} = 4 : 1$, $\overline{AE} : \overline{EC} = 4 :$이고, $\triangle ABC = 70cm^2$일 때, $\triangle ADE$의 넓이를 구하여라.



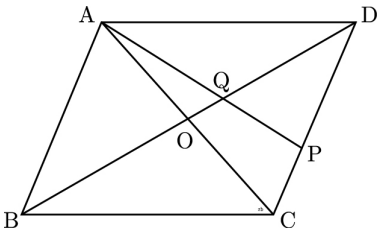
75. 다음 그림에서 $\overline{DC} // \overline{AF}$이고, $\overline{BE} : \overline{EF} = 3 : 4$이다. $\triangle DBE = 6cm^2$일 때, $\square ADEC$의 넓이를 구하여라.



76. 다음 그림의 평행사변형 ABCD에서 $\overline{BC}$위에 $\overline{BE} : \overline{EC} = 3 : 5$가 되도록 점 E를 잡았다. $\square ABCD$의 넓이가 $48cm^2$일 때, $\triangle ABE$의 넓이를 구하여라.



77. 다음 그림에서 평행사변형 ABCD의 넓이는 40이고, $\overline{CP} : \overline{PD} = 1 : 2$, $\overline{AQ} : \overline{AP} = 3 : 5$일 때, $\triangle AOQ$의 넓이를 구하여라.



정답 및 해설

1) $\triangle DBC$

2) $\triangle ACD$

3) $33cm^2$

4) $42cm^2$

5) $48cm^2$

6) $21cm^2$

7) $35cm^2$

8) $36cm^2$

9) $24cm^2$

⇨ $\triangle ABP = \frac{4}{7}\triangle ABC = \frac{4}{7}\times 42 = 24(cm^2)$

10) $12cm^2$

⇨ $\triangle APC = 2\triangle ABP = 2\times 6 = 12(cm^2)$

11) $15cm^2$

⇨ $\triangle ABC = \frac{5}{2}\triangle ABP = \frac{5}{2}\times 6 = 15(cm^2)$

12) $48cm^2$

⇨ $\triangle ABC = \frac{8}{5}\triangle APC = \frac{8}{5}\times 30 = 48(cm^2)$

13) $72\,cm^2$

⇨ $\overline{BP}:\overline{PC}=3:2$일 때, $\triangle ABP$와 $\triangle APC$의 넓이의 비도 $3:2$이다. 따라서 $\triangle ABC = 120cm^2$이면

$\triangle ABP = \frac{3}{5}\times 120 = 72\,(cm^2)$이다.

14) $\triangle ACD$

15) $\triangle ABE$

16) $30cm^2$

⇨ $\overline{AC}//\overline{DE}$이므로 $\triangle ACE = \triangle ACD$

$\therefore \triangle ABE = \triangle ABC + \triangle ACE$
$= \triangle ABC + \triangle ACD$
$= \square ABCD = 30(cm^2)$

17) $20\,cm^2$

⇨ $\triangle ABE = \triangle ABC + \triangle ACE = \triangle ABC + \triangle ACD$
$= \square ABCD = 20(cm^2)$

18) $9cm^2$

⇨ $\triangle ABE = \triangle ABC + \triangle ACE = \triangle ABC + \triangle ACD$

즉 $23 = 14 + \triangle ACD$ 이므로 $\triangle ACD = 9cm^2$이다.

19) $38cm^2$

⇨ $\overline{AC}//\overline{DE}$이므로 $\triangle ACD = \triangle ACE$

$\therefore \square ABCD = \triangle ABC + \triangle ACD$
$= \triangle ABC + \triangle ACE$
$= 20 + 18 = 38(cm^2)$

20) $10\,cm^2$

⇨ $\triangle ABC = \triangle ABE - \triangle ACE = \triangle ABE - \triangle ACD$
$= 18 - 8 = 10(cm^2)$

21) $23\,cm^2$

⇨ $\triangle ACE = \triangle ABE - \triangle ABC = \square ABCD - \triangle ABC$
$= 35 - 12 = 23(cm^2)$

22) $24cm^2$

⇨ $\overline{AC}//\overline{DE}$이므로 $\triangle ACD = \triangle ACE$

$\therefore \triangle ABC = \square ABCD - \triangle ACD$
$= \square ABCD - \triangle ACE$
$= 40 - 16 = 24(cm^2)$

23) $14cm^2$

⇨ $\overline{AC}//\overline{DE}$이므로

$\triangle ACE = \triangle ACD = \square ABCD - \triangle ABC$
$= 35 - 21 = 14(cm^2)$

24) $5cm^2$

⇨ $\overline{AB}//\overline{DC}$이므로

$\triangle DBC = \triangle ACD = \square ACED - \triangle DCE$
$= 15 - 10 = 5(cm^2)$

25) 28

⇨ $\square ABCD = \triangle ABC + \triangle ACD = \triangle ABC + \triangle ACE$
$= 10 + 18 = 28\,(cm^2)$

26) $18cm^2$

⇨ $\overline{AC}//\overline{DE}$일 때, $\triangle ACD = \triangle ACE$이다.

따라서 $\triangle ABE = 30cm^2$, $\triangle ABC = 12cm^2$이면

$\triangle ACE = 30 - 12 = 18\,(cm^2)$이므로 $\triangle ACD = 18cm^2$이다.

27) $49\,cm^2$

⇨ $\square ABCD = \triangle ABE = \frac{1}{2}\times 14\times 7 = 49(cm^2)$

28) $20\,cm^2$

⇨ $\overline{AC}//\overline{DE}$일 때, $\triangle ACD$와 $\triangle ACE$의 넓이가 같다.

$\therefore \square ABCD = \triangle ABE = \frac{1}{2}\times 10\times 4 = 20cm^2$

29) $25\,\mathrm{cm}^2$

⇨ $\square ABCD = \triangle ABE = \frac{1}{2}\times 10\times 5 = 25(\mathrm{cm}^2)$

30) $35\mathrm{cm}^2$

⇨ $\square ABCD = \triangle ABC + \triangle ADC = \triangle ABC + \triangle ACE$
$= \triangle ABE = \frac{1}{2}\times 5\times 14 = 35\,(\mathrm{cm}^2)$

31) $14\mathrm{cm}^2$

⇨ $\overline{AC}\,//\,\overline{DE}$일 때, $\triangle ACD = \triangle ACE$이다.

따라서 $\square ABCD = \triangle ABE = \frac{1}{2}\times 7\times 4 = 14\,(\mathrm{cm}^2)$이다.

32) 64

⇨ $\square ABCD = \triangle ABC + \triangle ACD$
$= \triangle ABC + \triangle ACE$
$= \triangle ABE$
$= \frac{1}{2}\times \overline{BE}\times \overline{AH}$
$= \frac{1}{2}\times 16\times 8 = 64(\mathrm{cm}^2)$

33) $20\,\mathrm{cm}^2$

⇨ $\square ABCD = \triangle ABE = \frac{1}{2}\times 8\times 5 = 20(\mathrm{cm}^2)$

34) $20\,\mathrm{cm}^2$

⇨ $\overline{AC}\,//\,\overline{DE}$일 때, $\triangle ACD = \triangle ACE$이므로
$\square ABCD = \triangle ABE$이다.

따라서 $\square ABCD = \frac{1}{2}\times 10\times 4 = 20\,(\mathrm{cm}^2)$이다.

35) 12

⇨ $\overline{AC}\,//\,\overline{DE}$일 때, $\triangle ACD = \triangle ACE$이다.
따라서 $\square ABCD = \triangle ABE$이므로
($\square ABCD$의 넓이)$= \frac{1}{2}\times 8\times 3 = 12$이다.

36) $21\mathrm{cm}^2$

⇨ $\triangle AEC = \triangle AED$이므로 $\square ABED = \triangle ABC$이다.

이 때, $\triangle ABC = 7\times 6\times \frac{1}{2} = 21\mathrm{cm}^2$이므로

$\square ABED = 21\mathrm{cm}^2$이다.

37) $\frac{35}{2}\,\mathrm{cm}^2$

⇨ $\square ABCD = \triangle ABC + \triangle ACD$
$= \triangle ABC + \triangle ACE = \triangle ABE$
$= \frac{1}{2}\times(3+4)\times 5 = \frac{35}{2}(\mathrm{cm}^2)$

38) $\triangle DBC$

39) $\triangle ACD$

40) $\triangle DCO$

41) $10\mathrm{cm}^2$

42) $5\mathrm{cm}^2$

43) $23\mathrm{cm}^2$

44) $26\mathrm{cm}^2$

45) $49\mathrm{cm}^2$

⇨ $\triangle OCD = \triangle DBC - \triangle OBC = 28-16 = 12(\mathrm{cm}^2)$
$\therefore \triangle ABO = \triangle OCD = 12(\mathrm{cm}^2)$
$\therefore \square ABCD = 9+12+12+16 = 49(\mathrm{cm}^2)$

46) $81\mathrm{cm}^2$

⇨ $\triangle ABO = \triangle ABC - \triangle OBC = 45-25 = 20(\mathrm{cm}^2)$
$\therefore \triangle OCD = \triangle ABO = 20(\mathrm{cm}^2)$
$\therefore \square ABCD = 16+20+20+25 = 81(\mathrm{cm}^2)$

47) $7\mathrm{cm}^2$

⇨ $\triangle DBC = \triangle ABC = 28(\mathrm{cm}^2)$이므로
$\triangle DOC = \frac{1}{4}\triangle DBC = \frac{1}{4}\times 28 = 7(\mathrm{cm}^2)$

48) $15\,\mathrm{cm}^2$

⇨ $\triangle DOC = \triangle ABO = \triangle ABD - \triangle AOD$
$= 20-5 = 15(\mathrm{cm}^2)$

49) $12\mathrm{cm}^2$

⇨ $\triangle ABO = 2\triangle AOD = 2\times 3 = 6(\mathrm{cm}^2)$
$\triangle DOC = \triangle ABO = 6(\mathrm{cm}^2)$이므로
$\triangle OBC = 2\triangle DOC = 2\times 6 = 12(\mathrm{cm}^2)$

50) $17\,\mathrm{cm}^2$

⇨ $\triangle ABD = \triangle ABO + \triangle AOD = \triangle DOC + \triangle AOD$
$= 10+7 = 17(\mathrm{cm}^2)$

51) $30\mathrm{cm}^2$

⇨ $\triangle AOD = \frac{2}{3}\triangle OCD = \frac{2}{3}\times 18 = 12(\mathrm{cm}^2)$
$\triangle ABO = \triangle OCD = 18(\mathrm{cm}^2)$이므로
$\triangle ABD = \triangle AOD + \triangle ABO = 12+18 = 30(\mathrm{cm}^2)$

52) $70\mathrm{cm}^2$

⇨ $\triangle OCD = \frac{5}{2}\triangle AOD = \frac{5}{2}\times 8 = 20(\mathrm{cm}^2)$
$\triangle ABO = \triangle OCD = 20(\mathrm{cm}^2)$이므로
$\triangle OBC = \frac{5}{2}\triangle ABO = \frac{5}{2}\times 20 = 50(\mathrm{cm}^2)$

$\therefore \triangle ABC = \triangle ABO + \triangle OBC = 20 + 50 = 70(cm^2)$

53) $45cm^2$

⇨ $\triangle OBC = 2\triangle ABO = 2 \times 10 = 20(cm^2)$

$\triangle OCD = \triangle ABO = 10(cm^2)$이므로

$\triangle AOD = \frac{1}{2}\triangle OCD = \frac{1}{2} \times 10 = 5(cm^2)$

$\therefore \square ABCD = 5 + 10 + 20 + 10 = 45(cm^2)$

54) $98cm^2$

⇨ $\triangle OCD = \frac{3}{4}\triangle OBC = \frac{3}{4} \times 32 = 24(cm^2)$

$\triangle ABO = \triangle OCD = 24(cm^2)$이므로

$\triangle AOD = \frac{3}{4}\triangle ABO = \frac{3}{4} \times 24 = 18(cm^2)$

$\therefore \square ABCD = 18 + 24 + 24 + 32 = 98(cm^2)$

55) $9\,cm^2$

⇨ $\triangle OBC = \triangle ABC - \triangle ABO = \triangle ABC - \triangle DOC$

$= 15 - 6 = 9(cm^2)$

56) $8\,cm^2$

⇨ $\triangle ABO = \triangle ABD - \triangle AOD = \triangle ACD - \triangle AOD$

$= 14 - 6 = 8(cm^2)$

57) 45

⇨ $\overline{AO} : \overline{CO} = 1 : 2$ 이므로

$\triangle ABO : \triangle OBC = 1 : 2$

$15 : \triangle OBC = 1 : 2$

$\therefore \triangle OBC = 30\,(cm^2)$

$\triangle DBC = \triangle ABC = \triangle ABO + \triangle OBC$

$= 15 + 30 = 45(cm^2)$

58) $50cm^2$

⇨ $\triangle OBC : \triangle DOC = 3 : 2$이므로

$30 : \triangle DOC = 3 : 2$ $\therefore \triangle DOC = 20(cm^2)$

$\therefore \triangle ABC = \triangle DBC = \triangle DOC + \triangle OBC$

$= 20 + 30 = 50(cm^2)$

59) $15cm^2$

⇨ $6 : \triangle DOC = 2 : 3$이므로 $\therefore \triangle DOC = 9(cm^2)$

$\therefore \triangle ABD = \triangle ACD$

$= \triangle AOD + \triangle DOC = 6 + 9 = 15(cm^2)$

60) $27cm^2$

⇨ $\triangle DOC = \triangle ABO = 9(cm^2)$이고

$\triangle OBC : 9 = 2 : 1$ $\therefore \triangle OBC = 18(cm^2)$

$\therefore \triangle DBC = \triangle DOC + \triangle OBC = 9 + 18 = 27(cm^2)$

61) $14cm^2$

⇨ $\triangle ABO = \frac{2}{5}\triangle ABC = \frac{2}{5} \times 35 = 14(cm^2)$

$\therefore \triangle DOC = \triangle ABO = 14(cm^2)$

62) 27

⇨ $\triangle ABO : \triangle AOD = 2 : 1$이므로 $\triangle ABO : 3 = 2 : 1$

$\therefore \triangle ABO = 6\,(cm^2)$

$\triangle DOC = \triangle ABO = 6\,cm^2$ 이고

$\triangle DOC : \triangle OBC = 1 : 2$ 이므로

$6 : \triangle OBC = 1 : 2$

$\therefore \triangle OBC = 12\,(cm^2)$

$\therefore \square ABCD = \triangle AOD + \triangle ABO + \triangle DOC + \triangle OBC$

$= 3 + 6 + 6 + 12 = 27\,(cm^2)$

63) 18

⇨ $\triangle ABE = \frac{3}{5}\triangle ABC = \frac{3}{5} \times (\frac{1}{2}\square ABCD)$

$= \frac{3}{10}\square ABCD = \frac{3}{10} \times 60 = 18\,(cm^2)$

64) $20cm^2$

⇨ $\triangle DBE = \frac{2}{3}\triangle DBC$

$= \frac{2}{3} \times \left(\frac{1}{2}\square ABCD\right)$

$= \frac{1}{3}\square ABCD$

$= \frac{1}{3} \times 60 = 20(cm^2)$

65) $6cm^2$

⇨ $\triangle DEC = \frac{1}{5}\triangle DBC$

$= \frac{1}{5} \times \left(\frac{1}{2}\square ABCD\right)$

$= \frac{1}{10}\square ABCD$

$= \frac{1}{10} \times 60 = 6(cm^2)$

66) 10

⇨ $\triangle ADC = \frac{1}{3}\triangle ABC = \frac{1}{3} \times 30 = 10\,(cm^2)$

67) $9cm^2$

⇨ $\triangle ADC = \frac{2}{5} \times 30 = 12(cm^2)$

$\therefore \triangle EDC = \frac{3}{4} \times 12 = 9(cm^2)$

68) $10cm^2$

⇨ $\triangle ABD = \frac{1}{2} \times 30 = 15(cm^2)$

$\therefore \triangle ABE = \frac{2}{3} \times 15 = 10(cm^2)$

69) $12cm^2$

⇨ $\triangle ABE = \frac{3}{4}\triangle ABD = \frac{3}{4} \times \frac{1}{3}\triangle ABC$
$= \frac{1}{4}\triangle ABC = \frac{1}{4} \times 48 = 12(cm^2)$

70) $8cm^2$

⇨ $\triangle EDC = \frac{1}{3}\triangle ADC = \frac{1}{3} \times \frac{2}{5}\triangle ABC$
$= \frac{2}{15}\triangle ABC = \frac{2}{15} \times 60 = 8(cm^2)$

71) $24cm^2$

⇨ $\triangle ABC = \frac{4}{3}\triangle ABD = \frac{4}{3} \times 2\triangle EBD$
$= \frac{8}{3}\triangle EBD = \frac{8}{3} \times 9 = 24(cm^2)$

72) $42cm^2$

⇨ $\triangle ABC = \frac{7}{3}\triangle ADC = \frac{7}{3} \times 3\triangle AEC$
$= 7\triangle AEC = 7 \times 6 = 42(cm^2)$

73) $2cm^2$

⇨ $\triangle ABC = 20cm^2$일 때, $\overline{BD} : \overline{DC} = 3 : 1$이면
$\triangle ABD$와 $\triangle ADC$의 넓이의 비는 $3 : 1$이다.
즉, $\triangle ADC = \frac{1}{4}\triangle ABC = 5cm^2$이다.
또, $\overline{AE} : \overline{EC} = 3 : 2$이면 $\triangle ADE$와 $\triangle DCE$의 넓이의 비는 $3 : 2$이다. 즉, $\triangle DCE = \frac{2}{5} \times \triangle ADC = 2cm^2$이다.

74) $8cm^2$

⇨ $\overline{BD} : \overline{DC} = 4 : 1$일 때, $\triangle ABC = 70cm^2$이면
$\triangle ACD = \frac{1}{5}\triangle ABC = 14cm^2$이고, $\overline{AE} : \overline{EC} = 4 : 3$일 때,
$\triangle ADE = \frac{4}{7}\triangle ACD = 8cm^2$이다.

75) $8cm^2$

⇨ $\overline{BE} : \overline{EF} = \triangle DBE : \triangle DEF$ 이므로
$3 : 4 = 6 : \triangle DEF$
$\therefore \triangle DEF = 8cm^2$
$\square ADEC = \triangle DEC + \triangle ADC$
$= \triangle DEC + \triangle DCF = \triangle DEF = 8cm^2$

76) $9cm^2$

⇨ $\triangle ABE = \frac{3}{8}\triangle ABC = \frac{3}{8} \times \left(\frac{1}{2}\square ABCD\right)$
$= \frac{3}{16}\square ABCD = \frac{3}{16} \times 48 = 9(cm^2)$

77) 2

⇨ $\triangle ACD = \frac{1}{2}\square ABCD = 20$
$\overline{CP} : \overline{PD} = 1 : 2$이므로 $\triangle ACP : \triangle APD = 1 : 2$이다.
따라서 $\triangle ACP = 20 \times \frac{1}{3} = \frac{20}{3}$이고, $\overline{AO} : \overline{OC} = 1 : 1$이므로
$\triangle AOP = \frac{20}{3} \times \frac{1}{2} = \frac{10}{3}$이다.
$\overline{AQ} : \overline{AP} = 3 : 5$ 이므로 $\overline{AQ} : \overline{QP} = 3 : 2$
$\triangle AOQ : \triangle OQP = 3 : 2$
$\therefore \triangle AOQ = \frac{10}{3} \times \frac{3}{5} = 2$