계산시 참고사항

1. 삼각형의 내각과 외각

1) 삼각형의 내각의 크기의 합
: 삼각형 ABC의 세 내각의 크기의 합은 180°이다. ⇨ $\angle A+\angle B+\angle C=180^\circ$

2) 삼각형의 외각의 크기
: 삼각형 ABC에서 한 외각의 크기는 그와 이웃하지 않는 두 내각의 크기의 합과 같다.

2. 다각형의 내각과 외각

1) n각형의 내각의 크기의 합 ⇨ $180^\circ\times(n-2)$
2) n각형의 외각의 크기의 합은 항상 360°이다.

참고
◉ n각형의 한 꼭짓점에서 대각선을 그어 만들어지는 삼각형의 개수
: $(n-2)$개

삼각형의 내각과 외각의 크기

◪ **삼각형의 세 내각의 크기의 비가 다음과 같을 때, 가장 큰 각의 크기를 구하여라.**

1. $1:2:3$

2. $1:1:4$

3. $1:3:5$

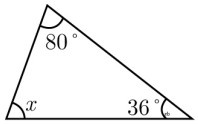
4. $2:3:4$

5. $2:3:5$

6. $3:4:5$

◪ **다음 삼각형에서 $\angle x$의 크기를 구하여라.**

7.



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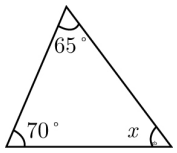

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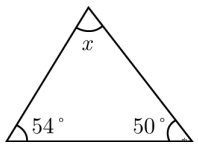

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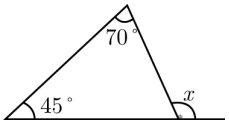

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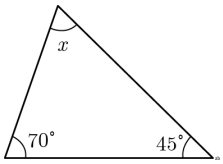

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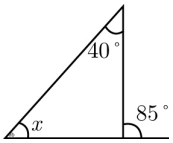

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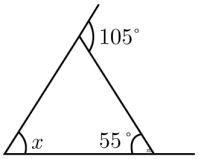

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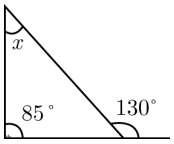

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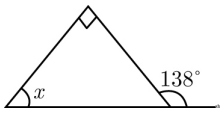

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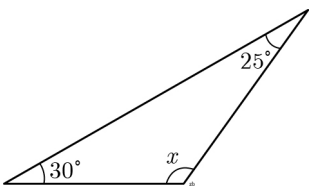

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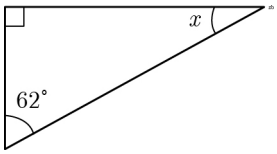

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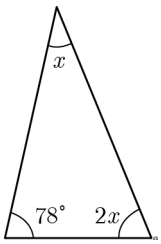

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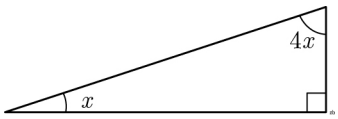

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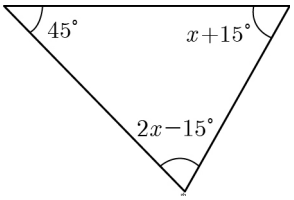

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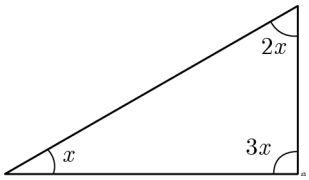

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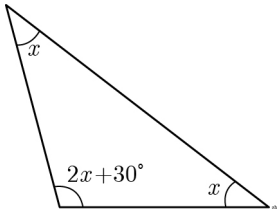

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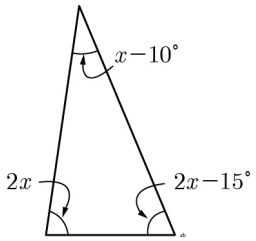

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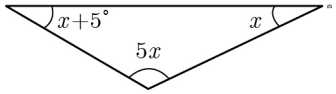

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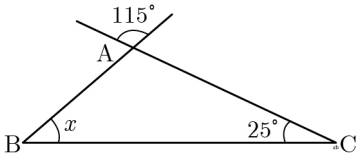

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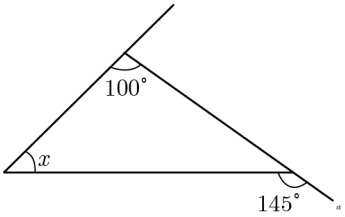

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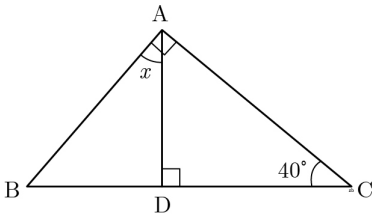

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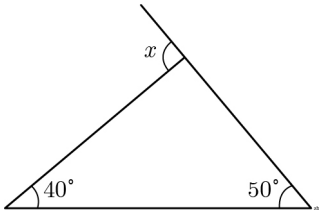

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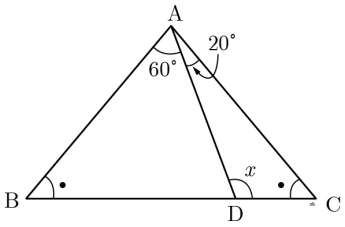

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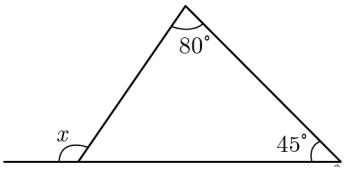

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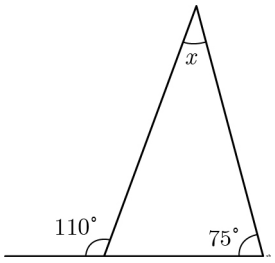

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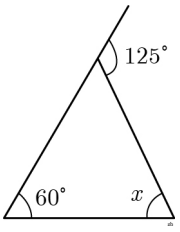

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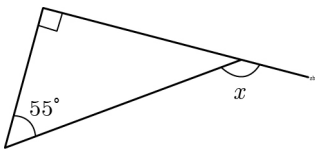

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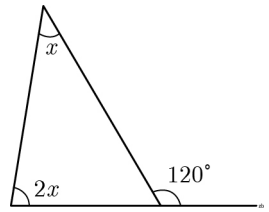

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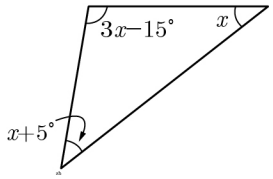

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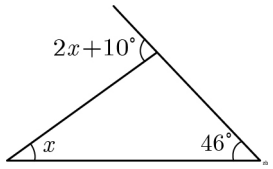

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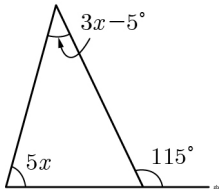

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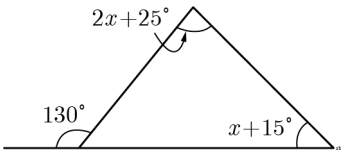

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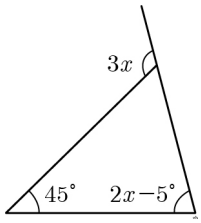

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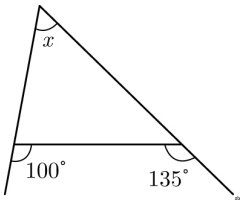

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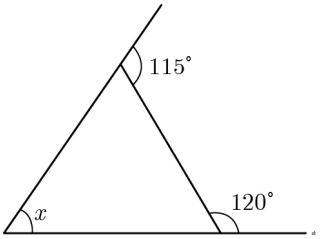

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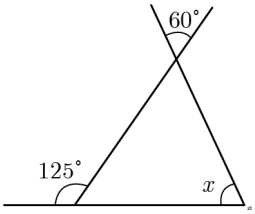

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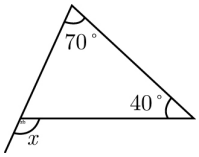

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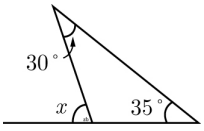

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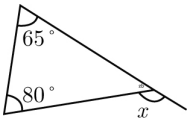

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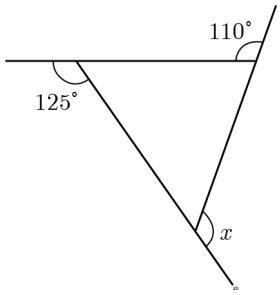

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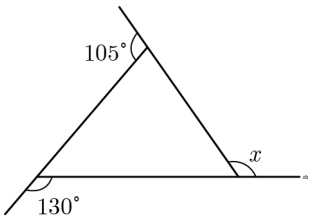

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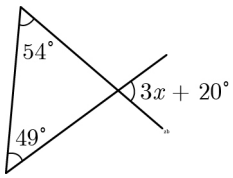

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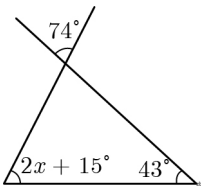
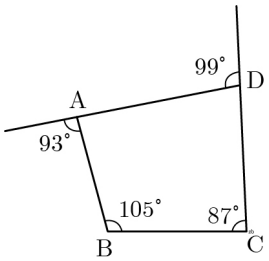


다각형의 내각과 외각의 크기

◪ 다음 그림을 보고, 다음을 구하여라.



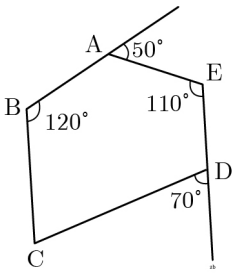
50. ∠A의 내각의 크기

51. ∠B의 외각의 크기

52. ∠C의 외각의 크기

53. ∠D의 내각의 크기

◪ 다음 그림을 보고, 다음을 구하여라.



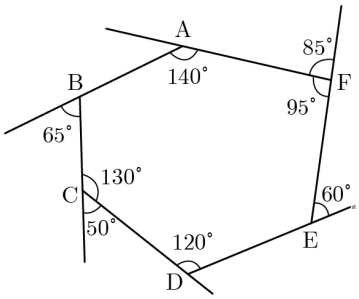
54. ∠A의 외각의 크기

55. ∠B의 내각의 크기

56. ∠D의 외각의 크기

57. ∠E의 내각의 크기

◪ 육각형 ABCDEF에서 다음 각의 크기를 구하여라.



58. ∠A의 내각

59. ∠B의 외각

60. ∠C의 외각

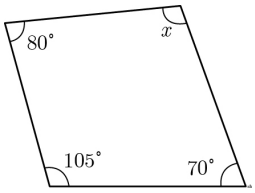
61. ∠D의 내각

62. ∠E의 외각

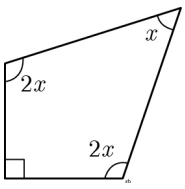
63. ∠F의 내각

◪ 다음 다각형에서 $\angle x$의 크기를 구하여라.

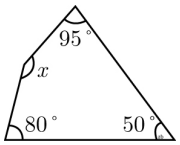
64.



65.



66.



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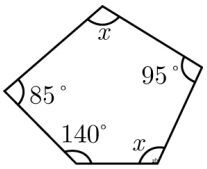

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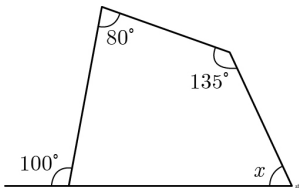

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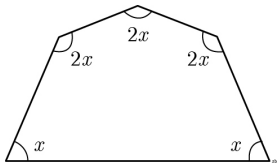
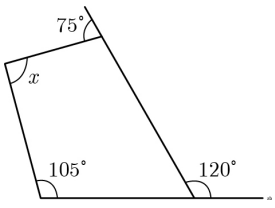


70.



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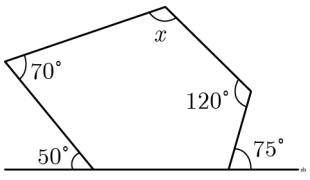

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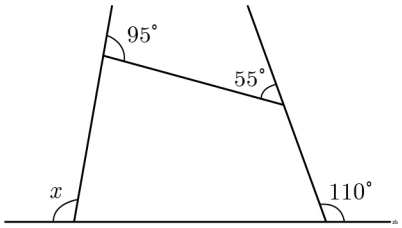

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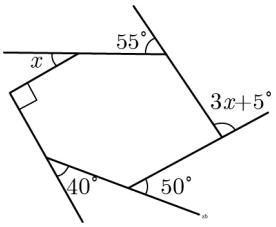

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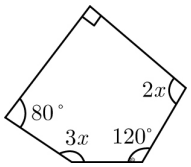

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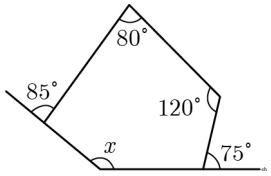

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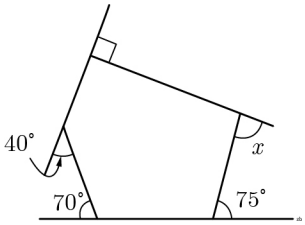

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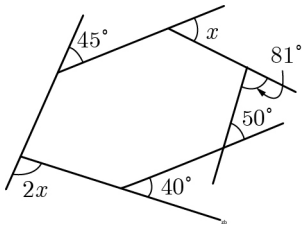

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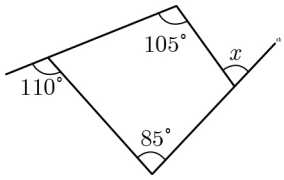

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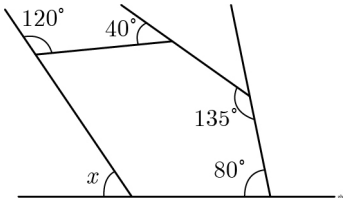

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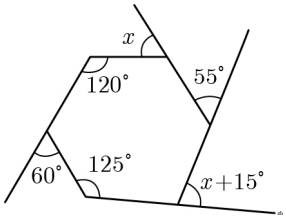

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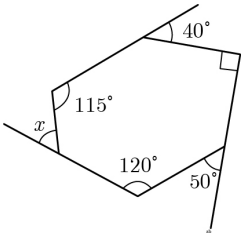

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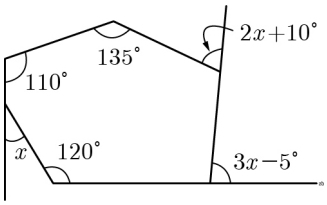
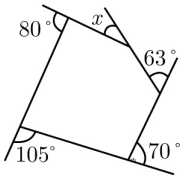
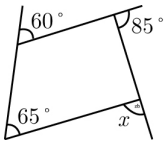


83.



84.



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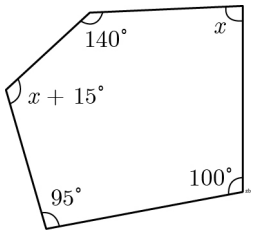

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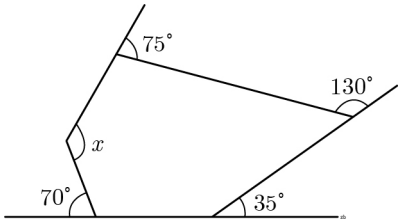

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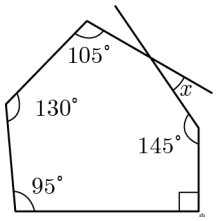

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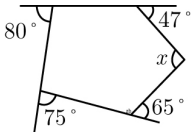

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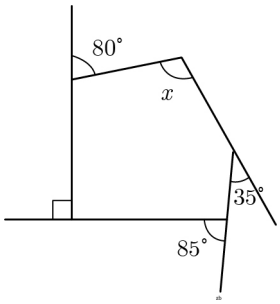

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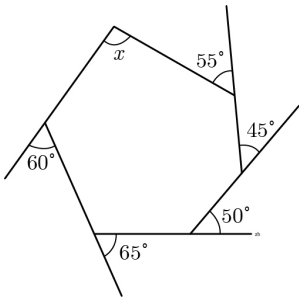

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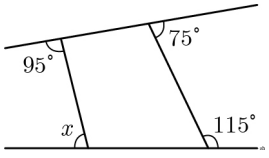
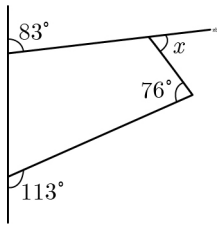


92.



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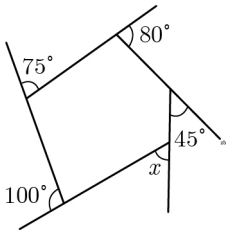
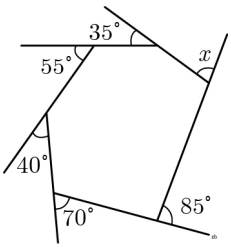


94.



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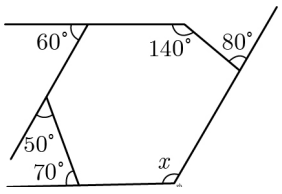

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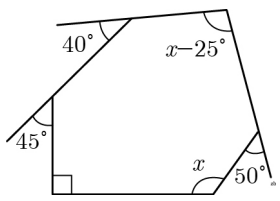

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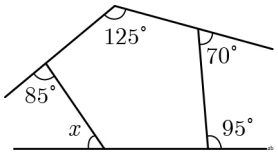

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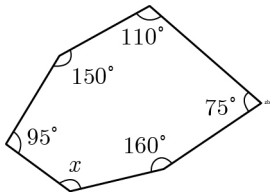

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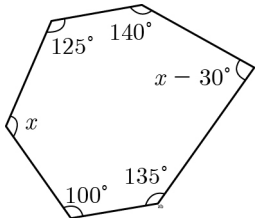


◪ **다음 다각형의 내각의 크기의 합을 구하여라.**

100 **육각형**

101 **팔각형**

102 **십일각형**

103 **십삼각형**

104 **십오각형**

105 **이십각형**

◪ 내각의 크기의 합이 다음과 같은 다각형의 이름을 말하여라.

106. 540°

107. 720°

108. 900°

109. 1260°

110. 1800°

111. 2340°

112. 3240°

정답 및 해설

1) 90°

⇨ $180^\circ \times \frac{3}{1+2+3} = 90^\circ$

2) 120°

⇨ $180^\circ \times \frac{4}{1+1+4} = 120^\circ$

3) 100°

⇨ $180^\circ \times \frac{5}{1+3+5} = 100^\circ$

4) 80°

⇨ $180^\circ \times \frac{4}{2+3+4} = 80^\circ$

5) 90°

⇨ $180^\circ \times \frac{5}{2+3+5} = 90^\circ$

6) 75°

⇨ $180^\circ \times \frac{5}{3+4+5} = 75^\circ$

7) 64°

⇨ $\angle x = 180^\circ - (80^\circ + 36^\circ) = 64^\circ$

8) 45°

⇨ $\angle x = 180^\circ - (65^\circ + 70^\circ) = 45^\circ$

9) 76°

⇨ $\angle x = 180^\circ - (54^\circ + 50^\circ) = 76^\circ$

10) 115°

⇨ $\angle x = 70^\circ + 45^\circ = 115^\circ$

11) 65°

12) 45°

⇨ $\angle x = 85^\circ - 40^\circ = 45^\circ$

13) 50°

⇨ $\angle x = 105^\circ - 55^\circ = 50^\circ$

14) 45°

⇨ $\angle x = 130^\circ - 85^\circ = 45^\circ$

15) 48°

⇨ $\angle x = 138^\circ - 90^\circ = 48^\circ$

16) 125°

17) 28°

18) 34°

⇨ $\angle x + 78^\circ + 2\angle x = 180^\circ$, $3\angle x = 102^\circ$

$\therefore \angle x = 34^\circ$

19) 18°

⇨ $4\angle x + \angle x + 90^\circ = 180^\circ$, $5\angle x = 90^\circ$

$\therefore \angle x = 18^\circ$

20) 45°

⇨ $45^\circ + 2\angle x - 15^\circ + \angle x + 15^\circ = 180^\circ$, $3\angle x = 135^\circ$

$\therefore \angle x = 45^\circ$

21) 30°

⇨ $2\angle x + \angle x + 3\angle x = 180^\circ$, $6\angle x = 180^\circ$

$\therefore \angle x = 30^\circ$

22) 37.5°

⇨ $\angle x + 2\angle x + 30^\circ + \angle x = 180^\circ$, $4\angle x = 150^\circ$

$\therefore \angle x = 37.5^\circ$

23) 41°

⇨ $\angle x - 10^\circ + 2\angle x + 2\angle x - 15^\circ = 180^\circ$, $5\angle x = 205^\circ$

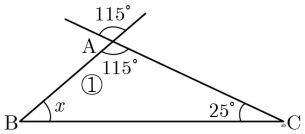
$\therefore \angle x = 41^\circ$

24) 25°

⇨ $\angle x + 5^\circ + 5\angle x + \angle x = 180^\circ$, $7\angle x = 175^\circ$

$\therefore \angle x = 25^\circ$

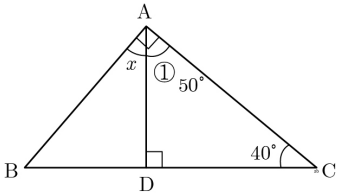
25) 40°

⇨ 

② △ABC에서 $115^\circ + \angle x + 25^\circ = 180^\circ$ $\therefore \angle x = 40^\circ$

26) 45°

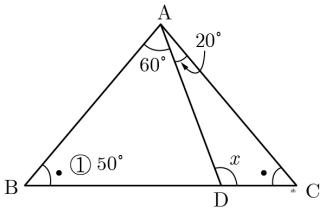
27) 40°

⇨ 

② $\angle A = 90^\circ$ 이므로 $\angle x + 50^\circ = 90^\circ$ $\therefore \angle x = 40^\circ$

28) 90°

29) 110°



① △ABC에서 $80^\circ+2\angle\bullet=180^\circ$, $\angle\bullet=50^\circ$

② △ADC에서 $20^\circ+\angle x+50^\circ=180^\circ$ ∴ $\angle x=110^\circ$

30) 125°

31) 35°

⇨ $\angle x+75^\circ=110^\circ$ ∴ $\angle x=35^\circ$

32) 65°

33) 145°

34) 40°

⇨ $\angle x+\angle 2x=120^\circ$, $3\angle x=120^\circ$ ∴ $\angle x=40^\circ$

35) 38°

⇨ $3\angle x-15^\circ+\angle x+5^\circ+\angle x=180^\circ$

$5\angle x=190^\circ$ ∴ $\angle x=38^\circ$

36) 36°

⇨ $2\angle x+10^\circ=\angle x+46^\circ$ ∴ $\angle x=36^\circ$

37) 15°

⇨ $3\angle x-5^\circ+5\angle x=115^\circ$, $8\angle x=120^\circ$

∴ $\angle x=15^\circ$

38) 30°

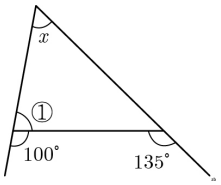
⇨ $2\angle x+25^\circ+\angle x+15^\circ=130^\circ$, $3\angle x=90^\circ$

∴ $\angle x=30^\circ$

39) 40°

⇨ $45^\circ+2\angle x-5^\circ=3\angle x$ ∴ $\angle x=40^\circ$

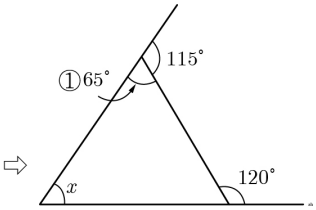
40) 55°



①$=180^\circ-100^\circ=80^\circ$, $\angle x+①=135^\circ$

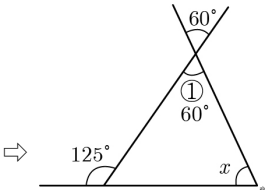
∴ $\angle x=55^\circ$

41) 55°



② $65^\circ+\angle x=120^\circ$ ∴ $\angle x=55^\circ$

42) 65°



② $60^\circ+\angle x=125^\circ$ ∴ $\angle x=65^\circ$

43) 110°

⇨ $\angle x=70^\circ+40^\circ=110^\circ$

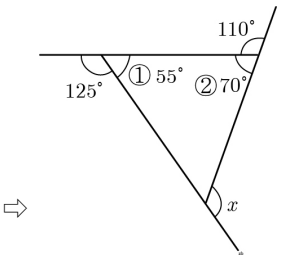
44) 65°

⇨ $\angle x=30^\circ+35^\circ=65^\circ$

45) 145°

⇨ $\angle x=65^\circ+80^\circ=145^\circ$

46) 125°



③ $55^\circ+70^\circ=\angle x$ ∴ $\angle x=125^\circ$

47) 125°

⇨ $\angle x=360^\circ-(105^\circ+130^\circ)=125^\circ$

48) 19°

⇨ $3\angle x+20^\circ=180^\circ-(54^\circ+49^\circ)$에서

$3\angle x=57^\circ$ ∴ $\angle x=19^\circ$

49) 24°

⇨ $(2\angle x+15^\circ)+43^\circ+74^\circ=180^\circ$에서

$2\angle x=48^\circ$ ∴ $\angle x=24^\circ$

50) 87°

⇨ ∠A의 외각의 크기가 93°이므로

(∠A의 내각의 크기)$=180^\circ-93^\circ=87^\circ$

51) 75°

⇨ ∠B의 내각의 크기가 105°이므로

(∠B의 외각의 크기)$=180^\circ-105^\circ=75^\circ$

52) 93°
⇨ $\angle C$의 내각의 크기가 87°이므로
($\angle C$의 외각의 크기)$=180^\circ-87^\circ=93^\circ$

53) 81°
⇨ $\angle D$의 외각의 크기가 99°이므로
($\angle D$의 내각의 크기)$=180^\circ-99^\circ=81^\circ$

54) 50°

55) 120°

56) 70°

57) 110°

58) 140°

59) 65°

60) 50°

61) 120°

62) 60°

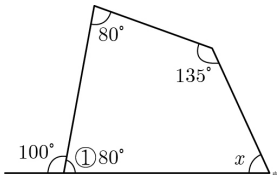
63) 95°

64) 105°

65) 54°
⇨ $2\angle x+\angle x+2\angle x+90^\circ=360^\circ$
$5\angle x=270^\circ$ ∴ $\angle x=54^\circ$

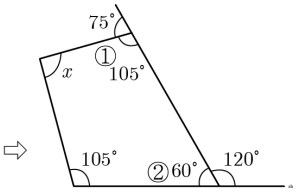
66) 135°
⇨ $\angle x=360^\circ-(95^\circ+50^\circ+80^\circ)=135^\circ$

67) 110°
⇨ $\angle x+85^\circ+140^\circ+\angle x+95^\circ=540^\circ$
∴ $\angle x=110^\circ$

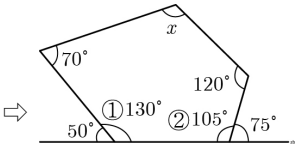
68) 65°
⇨ 

② $80^\circ+80^\circ+\angle x+135^\circ=360^\circ$ ∴ $\angle x=65^\circ$

69) 67.5°
⇨ $2\angle x+2\angle x+\angle x+\angle x+2\angle x=540^\circ$
$8\angle x=540^\circ$ ∴ $\angle x=67.5^\circ$

70) 90°
⇨ 

③ $\angle x+105^\circ+60^\circ+105^\circ=360^\circ$ ∴ $\angle x=90^\circ$

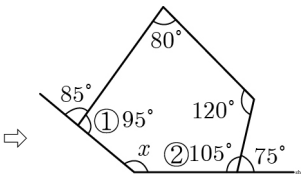
71) 115°
⇨ 

③ $\angle x+70^\circ+130^\circ+105^\circ+120^\circ=540^\circ$
∴ $\angle x=115^\circ$

72) 100°
⇨ $\angle x=360^\circ-(95^\circ+55^\circ+110^\circ)=100^\circ$

73) 30°
⇨
$\angle x+3\angle x+5^\circ=360^\circ-(90^\circ+40^\circ+50^\circ+55^\circ)=125^\circ$
$4\angle x=120^\circ$ ∴ $\angle x=30^\circ$

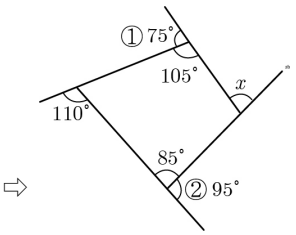
74) 50°
⇨ $90^\circ+80^\circ+3\angle x+120^\circ+2\angle x=540^\circ$
∴ $\angle x=50^\circ$

75) 140°
⇨ 

③ $\angle x=540^\circ-(80^\circ+95^\circ+105^\circ+120^\circ)=140^\circ$

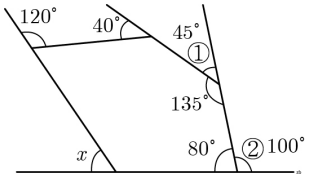
76) 85°
⇨ $\angle x=360^\circ-(90^\circ+40^\circ+70^\circ+75^\circ)=85^\circ$

77) 48°
⇨ $45^\circ+2\angle x+40^\circ+50^\circ+81^\circ+\angle x=360^\circ$
$3\angle x=144^\circ$ ∴ $\angle x=48^\circ$

78) 80°
⇨ 

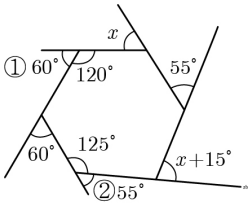
③ $\angle x=360^\circ-(75^\circ+110^\circ+95^\circ)=80^\circ$

79) 55°



③ $\angle x=360^\circ-(100^\circ+45^\circ+40^\circ+120^\circ)=55^\circ$

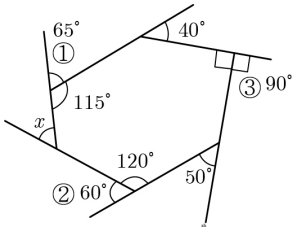
80) 57.5°



③ $\angle x+60^\circ+60^\circ+55^\circ+\angle x+15^\circ+55^\circ=360^\circ$

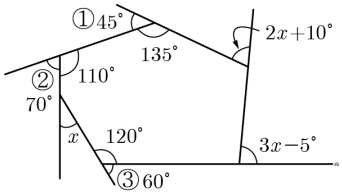
$2\angle x=115^\circ$ $\therefore\ \angle x=57.5^\circ$

81) 55°



④ $\angle x=360^\circ-(40^\circ+65^\circ+60^\circ+50^\circ+90^\circ)=55^\circ$

82) 30°



④ $45^\circ+70^\circ+\angle x+60^\circ+3\angle x-5^\circ+2\angle x+10^\circ=360^\circ$

$6\angle x=180^\circ$ $\therefore\ \angle x=30^\circ$

83) 42°

$\angle x=360^\circ-(63^\circ+70^\circ+105^\circ+80^\circ)=42^\circ$

84) 100°

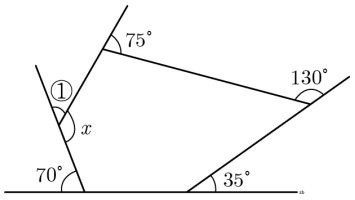
$\angle x=360^\circ-(60^\circ+85^\circ+115^\circ)=100^\circ$

85) 95°

$\angle x+15^\circ+140^\circ+\angle x+100^\circ+95^\circ=540^\circ$ 이므로

$2\angle x=190^\circ$ $\therefore\ \angle x=95^\circ$

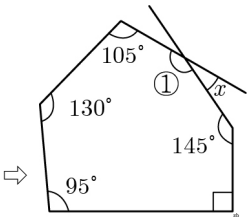
86) 130°



① $360^\circ-(75^\circ+70^\circ+35^\circ+130^\circ)=50^\circ$

② $\angle x=180^\circ-50^\circ=130^\circ$

87) 25°



① $105^\circ+130^\circ+95^\circ+90^\circ+145^\circ=565^\circ$ 이므로

$720^\circ-565^\circ=155^\circ$

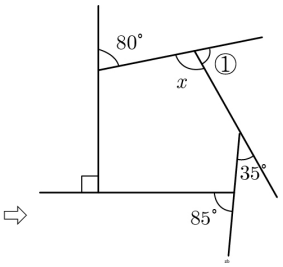
② $\angle x=180^\circ-155^\circ=25^\circ$

88) 87°

$180^\circ-\angle x=360^\circ-(80^\circ+47^\circ+65^\circ+75^\circ)$

$\therefore\ \angle x=87^\circ$

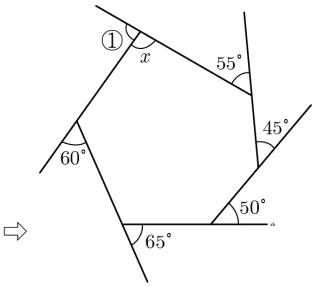
89) 110°



① $360^\circ-(80^\circ+90^\circ+85^\circ+35^\circ)=70^\circ$

② $\angle x=180^\circ-70^\circ=110^\circ$

90) 95°



① $360^\circ-(60^\circ+65^\circ+50^\circ+45^\circ+55^\circ)=85^\circ$

② $\angle x=180^\circ-85^\circ=95^\circ$

91) 75°

$\angle x+95^\circ+75^\circ+115^\circ=360^\circ$ $\therefore\ \angle x=75^\circ$

92) 60°

$180^\circ-76^\circ=104^\circ$ 이므로

$\angle x+104^\circ+113^\circ+83^\circ=360^\circ$ $\therefore\ \angle x=60^\circ$

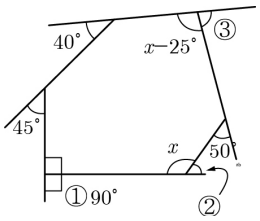
93) 60°

$\angle x+100^\circ+75^\circ+80^\circ+45^\circ=360^\circ$ $\therefore\ \angle x=60^\circ$

94) 75°

⇨ $\angle x+85^\circ+70^\circ+40^\circ+55^\circ+35^\circ=360^\circ$
$\therefore \angle x=75^\circ$

95) 120°
⇨ $180^\circ-140^\circ=40^\circ$ 이므로
$(180^\circ-\angle x)+70^\circ+50^\circ+60^\circ+40^\circ+80^\circ=360^\circ$
$\therefore \angle x=120^\circ$

96) 125°
⇨ 

$(②+③)=360^\circ-(40^\circ+45^\circ+90^\circ+50^\circ)=135^\circ$
④ $\angle x-25^\circ+\angle x=(180^\circ-②)+(180^\circ-③)$
$=360^\circ-(②+③)=360^\circ-135^\circ=225^\circ$
$2\angle x=250^\circ$ $\therefore \angle x=125^\circ$

97) 55°
⇨ $180^\circ-125^\circ=55^\circ$ 이므로
$\angle x+85^\circ+55^\circ+70^\circ+95^\circ=360^\circ$ $\therefore \angle x=55^\circ$

98) 130°
⇨ 육각형의 내각의 크기의 합은 $180^\circ\times(6-2)=720^\circ$ 이므로
$\angle x+95^\circ+150^\circ+110^\circ+75^\circ+160^\circ=720^\circ$
$\therefore \angle x=130^\circ$

99) 125°
⇨
$\angle x+125^\circ+140^\circ+(\angle x-30^\circ)+135^\circ+100^\circ=720^\circ$
$2\angle x=250^\circ$ $\therefore \angle x=125^\circ$

100) 720°
⇨ $180^\circ\times(6-2)=720^\circ$

101) 1080°
⇨ $180^\circ\times(8-2)=1080^\circ$

102) 1620°
⇨ $180^\circ\times(11-2)=1620^\circ$

103) 1980°
⇨ $180^\circ\times(13-2)=1980^\circ$

104) 2340°
⇨ $180^\circ\times(15-2)=2340^\circ$

105) 3240°
⇨ $180^\circ\times(20-2)=3240^\circ$

106) 오각형
⇨ 내각의 크기의 합이 540°인 다각형을 n각형이라고 하면 $180^\circ\times(n-2)=540^\circ$, $n-2=3$ $\therefore n=5$

107) 육각형

108) 칠각형
⇨ 구하는 다각형을 n각형이라 하면
$180^\circ\times(n-2)=900^\circ$ $\therefore n=7$
따라서 구하는 다각형은 칠각형이다.

109) 구각형
⇨ 구하는 다각형을 n각형이라 하면
$180^\circ\times(n-2)=1260^\circ$ $\therefore n=9$
따라서 구하는 다각형은 구각형이다.

110) 십이각형
⇨ 구하는 다각형을 n각형이라 하면
$180^\circ\times(n-2)=1800^\circ$ $\therefore n=12$
따라서 구하는 다각형은 십이각형이다.

111) 십오각형
⇨ 구하는 다각형을 n각형이라 하면
$180^\circ\times(n-2)=2340^\circ$ $\therefore n=15$
따라서 구하는 다각형은 십오각형이다.

112) 이십각형