



◇ 「콘텐츠산업 진흥법 시행령」 제33조에 의한 표시
1) 제작연월일 : 2016-10-25
2) 제작자 : 교육지대㈜
3) 이 콘텐츠는 「콘텐츠산업 진흥법」에 따라 최초 제작일부터 5년간 보호됩니다.

◇ 「콘텐츠산업 진흥법」 외에도 「저작권법」에 의하여 보호되는 콘텐츠의 경우, 그 콘텐츠의 전부 또는 일부를 무단으로 복제하거나 전송하는 것은 콘텐츠산업 진흥법 외에도 저작권법에 의한 법적 책임을 질 수 있습니다.

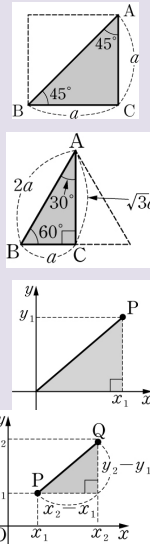
계산시 참고사항

1. 특수한 직각삼각형의 변의 길이

- 1) 세 내각의 크기가 $45^\circ, 45^\circ, 90^\circ$ 인 삼각형
 $\angle A = \angle B = 45^\circ$ 이고, $\angle C = 90^\circ$ 인 직각삼각형의 세 변의 길이의 비는
 $\overline{AB} : \overline{BC} : \overline{CA} = \sqrt{2} : 1 : 1$
- 2) 세 내각의 크기가 $30^\circ, 60^\circ, 90^\circ$ 인 삼각형
 $\angle A = 30^\circ, \angle B = 60^\circ$ 이고, $\angle C = 90^\circ$ 인 직각삼각형의
세 변의 길이의 비는 $\overline{AB} : \overline{BC} : \overline{CA} = 2 : 1 : \sqrt{3}$

2. 좌표평면의 두 점 사이의 거리

- 1) 원점과 한 점 사이의 거리
: 원점 O와 한 점 $P(x_1, y_1)$ 사이의 거리 $\Rightarrow \overline{OP} = \sqrt{x_1^2 + y_1^2}$
- 2) 두 점 사이의 거리
: 두 점 $P(x_1, y_1)$ 와 $Q(x_2, y_2)$ 사이의 거리
 $\Rightarrow \overline{PQ} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$



참고

● 두 점 사이의 거리는 두 점을 빗변의 양 끝 점으로 하는 직각삼각형을 그린 후 피타고라스 정리를 이용하여 구한다.

주의

● 다음과 같이 계산해도 된다.

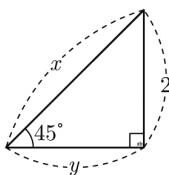
$$\begin{aligned} \overline{PQ} &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \end{aligned}$$



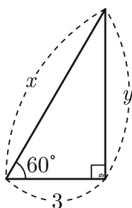
특수한 직각삼각형의 변의 길이

■ 다음 그림의 직각삼각형에서 x, y 의 값을 각각 구하여라.

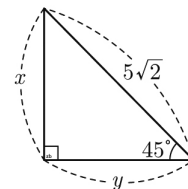
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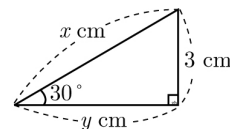
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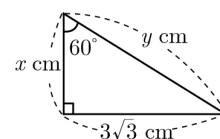
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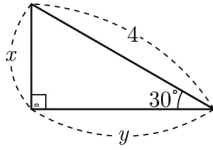
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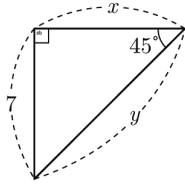
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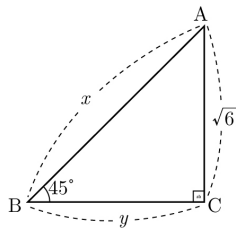
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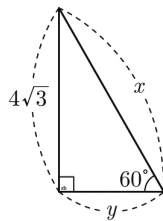
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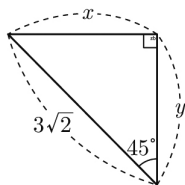
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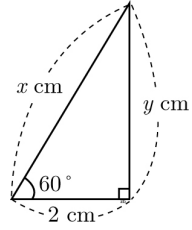
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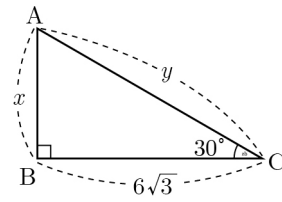
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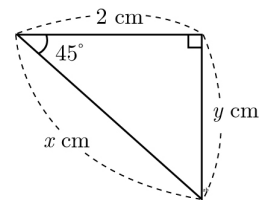
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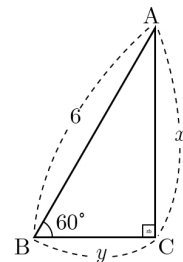
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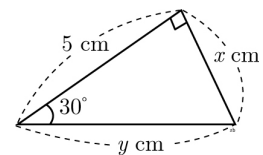
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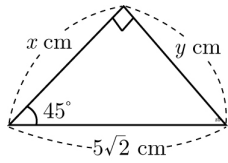
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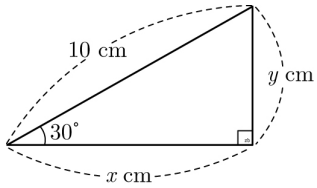
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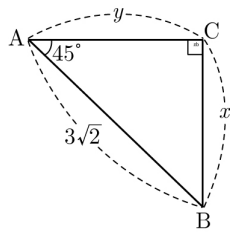
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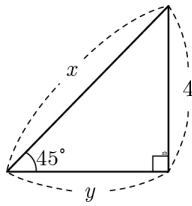
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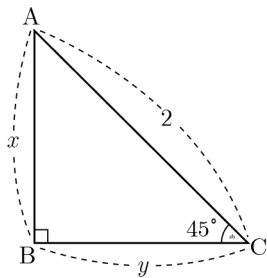
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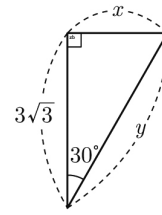
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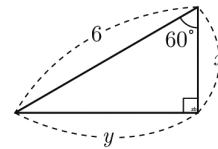
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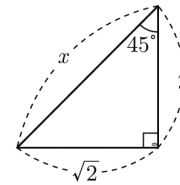
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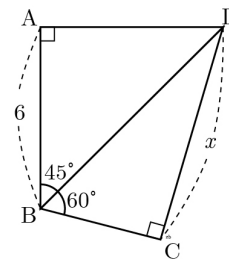


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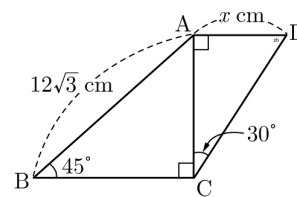


■ 다음 그림에서 x 의 값을 구하여라.

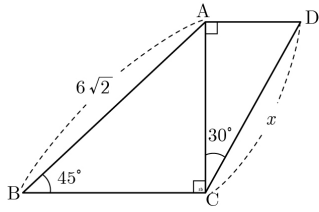
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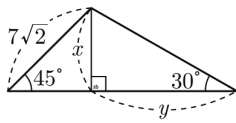


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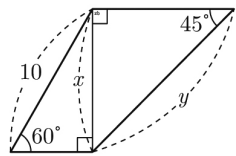


■ 다음 그림에서 x , y 의 값을 각각 구하여라.

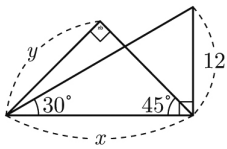
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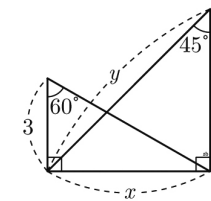
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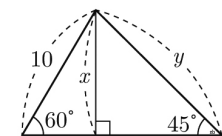
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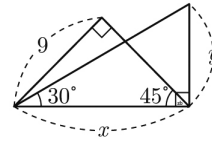
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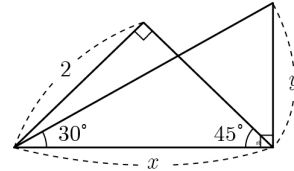
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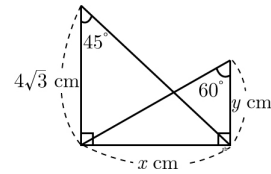
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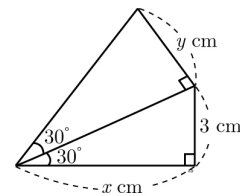
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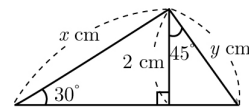
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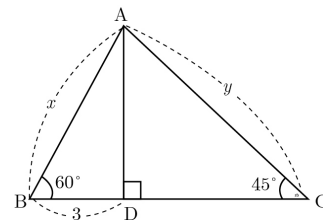
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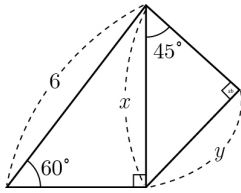
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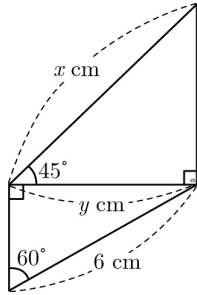
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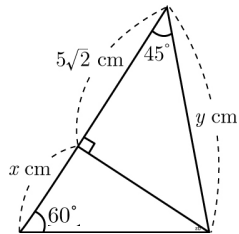
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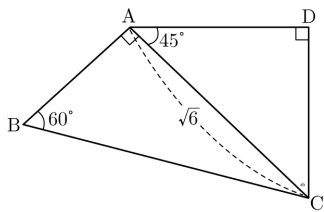


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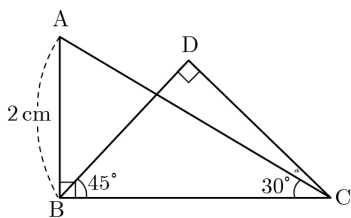


▣ 다음 그림에서 \overline{CD} 의 길이를 구하여라.

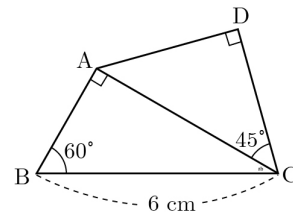
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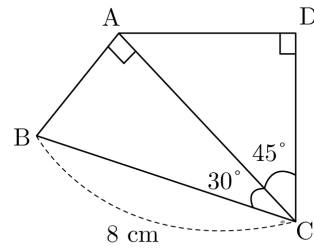


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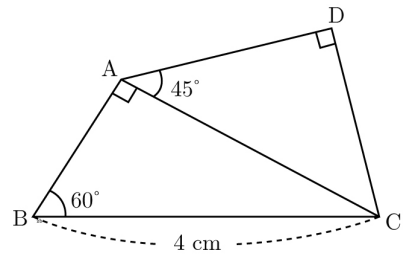


▣ $\square ABCD$ 의 둘레의 길이를 구하여라.

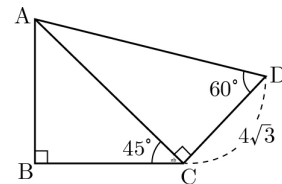
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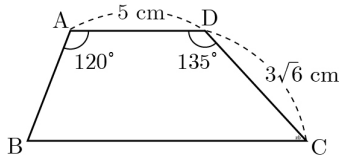


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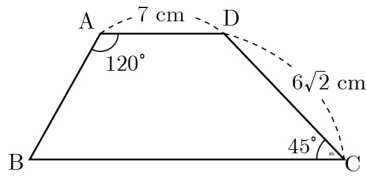


▣ 다음 그림과 같이 $\overline{AD} \parallel \overline{BC}$ 인 사다리꼴 ABCD의 둘레의 길이를 구하여라.

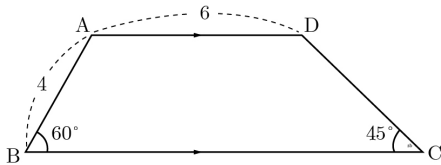
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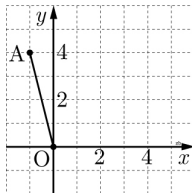
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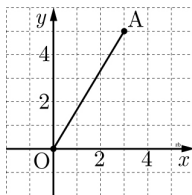
두 점 사이의 거리

▣ 다음 좌표평면에서 두 점 사이의 거리를 구하여라.

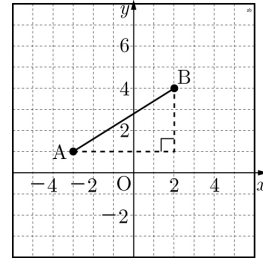
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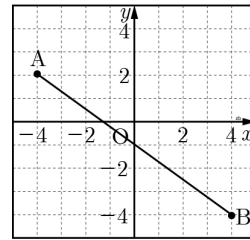
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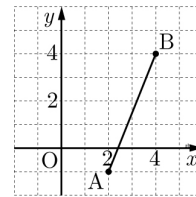
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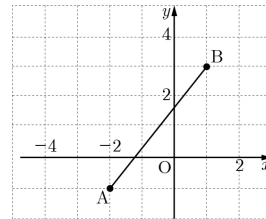
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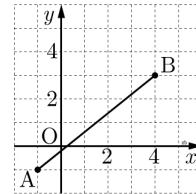
54.



55.



56.



■ 다음 점과 원점 O 사이의 거리를 구하여라.

57. $(4, 3)$

58. $(2, 5)$

59. $(-1, 1)$

60. $(0, 2)$

61. $(-1, 0)$

62. $(1, 2)$

63. $(-3, 4)$

64. $(5, -1)$

65. $(5, 3)$

66. $(-2, -3)$

67. $(-3, -2)$

68. $(-4, 6)$

69. $(-2, 4)$

■ 다음 두 점 사이의 거리를 구하여라.

70. $(5, 4), (-4, -1)$

71. $(1, 1), (3, 5)$

72. $(-4, 7), (3, 4)$

73. $(-4, -1), (1, 2)$

74. $(-3, -8), (-2, -6)$

75. $(2, 3), (5, 6)$

76. $(4, 6), (-3, -1)$

■ 다음 두 점 사이의 거리를 구하여라.

77. A(10, 4), B(4, -1)

78. A(0, 1), B(2, 0)

79. A(2, -3), B(5, 3)

80. A(-2, -4), B(5, -1)

81. A(1, 1), B(3, 1)

82. A(-1, 2), B(-3, 1)

83. $A(-3, 5), B(2, 3)$

84. $A(-2, -3), B(3, 3)$

85. $A(1, 3), B(-1, -3)$

86. $A(-2, -1), B(4, 3)$

87. $A(-1, 2), B(3, -2)$

88. $A(-2, 3), B(3, 2)$

89. $A(0, -2), B(5, -3)$

90. $A(-5, -2), B(-1, 8)$

91. $A(1, 3), B(-4, -1)$

92. $A(-1, 2), B(-3, -6)$

94. \overline{AB} 의 길이를 구하여라.

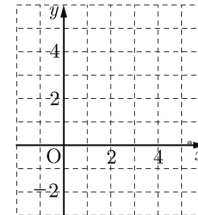
95. \overline{BC} 의 길이를 구하여라.

96. \overline{CA} 의 길이를 구하여라.

97. 삼각형 ABC가 어떤 삼각형인지 말하여라.

■ 세 점 $A(2, -2), B(5, -1), C(5, 4)$ 을 꼭짓점으로 하는 삼각형 ABC에 대하여 다음 물음에 답하여라.

98. 삼각형 ABC를 다음 좌표평면 위에 나타내어라.



99. \overline{AB} 의 길이를 구하여라.

100. \overline{BC} 의 길이를 구하여라.

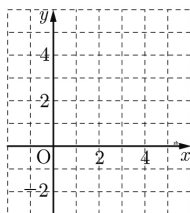
101. \overline{CA} 의 길이를 구하여라.

102. 삼각형 ABC가 어떤 삼각형인지 말하여라.

좌표평면에서 삼각형의 종류와 넓이

■ 세 점 $A(1, -1), B(4, -1), C(4, 3)$ 을 꼭짓점으로 하는 삼각형 ABC에 대하여 다음 물음에 답하여라.

93. 삼각형 ABC를 다음 좌표평면 위에 나타내어라.



■ 다음 세 점을 꼭짓점으로 하는 삼각형은 어떤 삼각형인지 말하여라.

103. $A(0, -1), B(4, 0), C(5, -4)$

104. $O(0, 0), A(3, -2), B(5, 1)$

105. $O(0, 0), A(3, 4), B(-2, 4)$

106. $A(2, 1), B(4, 3), C(5, 0)$

107. $A(1, 0), B(5, 3), C(5, -2)$

108. $A(-1, -1), B(2, 5), C(-9, 3)$

109. $A(-3, 3), B(-2, 2), C(-5, 1)$

110. $A(-3, 0), B(3, 0), C(0, 3\sqrt{3})$

111. $A(-2, 2), B(0, -3), C(3, 4)$

정답 및 해설



1) $x = 2\sqrt{2}, y = 2$

$$\Rightarrow 2:x = 1:\sqrt{2} \quad \therefore x = 2\sqrt{2}$$

$$2:y = 1:1 \quad \therefore y = 2$$

2) $x = 6, y = 3\sqrt{3}$

$$\Rightarrow 3:x = 1:2 \quad \therefore x = 6$$

$$3:y = 1:\sqrt{3} \quad \therefore y = 3\sqrt{3}$$

3) $x = 5, y = 5$

$$\Rightarrow x:5\sqrt{2} = 1:\sqrt{2} \quad \therefore x = 5$$

$$y:5\sqrt{2} = 1:\sqrt{2} \quad \therefore y = 5$$

4) $x = 6, y = 3\sqrt{3}$

$$\Rightarrow x:3 = 2:1 \text{에서 } x = 6$$

$$y:3 = \sqrt{3}:1 \text{에서 } y = 3\sqrt{3}$$

5) $x = 3, y = 6$

$$\Rightarrow x:3\sqrt{3} = 1:\sqrt{3} \text{에서 } x = 3$$

$$3\sqrt{3}:y = \sqrt{3}:2 \text{에서 } y = 6$$

6) $x = 2, y = 2\sqrt{3}$

$$\Rightarrow x:4 = 1:2 \quad \therefore x = 2$$

$$y:4 = \sqrt{3}:2 \quad \therefore y = 2\sqrt{3}$$

7) $x = 7, y = 7\sqrt{2}$

$$\Rightarrow 7:x = 1:1 \quad \therefore x = 7$$

$$7:y = 1:\sqrt{2} \quad \therefore y = 7\sqrt{2}$$

8) $x = 2\sqrt{3}, y = \sqrt{6}$

$$\Rightarrow x:\sqrt{6} = \sqrt{2}:1 \quad \therefore x = 2\sqrt{3}$$

$$y:\sqrt{6} = 1:1 \quad \therefore y = \sqrt{6}$$

9) $x = 8, y = 4$

$$\Rightarrow 4\sqrt{3}:x = \sqrt{3}:2 \quad \therefore x = 8$$

$$4\sqrt{3}:y = \sqrt{3}:1 \quad \therefore y = 4$$

10) $x = 3, y = 3$

$$\Rightarrow 3\sqrt{2}:x = \sqrt{2}:1 \quad \therefore x = 3$$

$$3\sqrt{2}:y = \sqrt{2}:1 \quad \therefore y = 3$$

11) $x = 4, y = 2\sqrt{3}$

$$\Rightarrow x:2 = 2:1 \text{에서 } x = 4$$

$$2:y = 1:\sqrt{3} \text{에서 } y = 2\sqrt{3}$$

12) $x = 6, y = 12$

$$\Rightarrow x:6\sqrt{3} = 1:\sqrt{3} \quad \therefore x = 6$$

$$y:6\sqrt{3} = 2:\sqrt{3} \quad \therefore y = 12$$

13) $x = 2\sqrt{2}, y = 2$

$$\Rightarrow 2:x = 1:\sqrt{2} \text{에서 } x = 2\sqrt{2}$$

$$2:y = 1:1 \text{에서 } y = 2$$

14) $x = 3\sqrt{3}, y = 3$

$$\Rightarrow 6:x = 2:\sqrt{3} \quad \therefore x = 3\sqrt{3}$$

$$6:y = 2:1 \quad \therefore y = 3$$

15) $x = \frac{5\sqrt{3}}{3}, y = \frac{10\sqrt{3}}{3}$

$$\Rightarrow x:5 = 1:\sqrt{3} \text{에서 } x = \frac{5\sqrt{3}}{3}$$

$$5:y = \sqrt{3}:2 \text{에서 } y = \frac{10\sqrt{3}}{3}$$

16) $x = 5, y = 5$

$$\Rightarrow x:5\sqrt{2} = 1:\sqrt{2} \text{에서 } x = 5$$

$$y:5\sqrt{2} = 1:\sqrt{2} \text{에서 } y = 5$$

17) $x = 5\sqrt{3}, y = 5$

$$\Rightarrow 1:2 = y:10, 2y = 10 \quad \therefore y = 5$$

$$x = \sqrt{10^2 - 5^2} = \sqrt{100 - 25} = \sqrt{75} = 5\sqrt{3}$$

18) $x = y = 3$

$$\Rightarrow \triangle ABC \text{에서 } x:y = 1:1 \text{이므로 } x = y \text{이다.}$$

$$1:\sqrt{2} = x:3\sqrt{2}, \sqrt{2}x = 3\sqrt{2}$$

$$\therefore x = y = 3$$

19) $x = 4\sqrt{2}, y = 4$

$$\Rightarrow \text{주어진 직각삼각형에서}$$

$$x:4 = \sqrt{2}:1 \text{이므로 } x = 4\sqrt{2}$$

$$y:4 = 1:1 \text{이므로 } y = 4$$

20) $x = \sqrt{2}, y = \sqrt{2}$

$$\Rightarrow 2:x = \sqrt{2}:1 \quad \therefore x = \sqrt{2}$$

$$2:y = \sqrt{2}:1 \quad \therefore y = \sqrt{2}$$

21) $x = 3, y = 6$

$$\Rightarrow 3\sqrt{3}:x = \sqrt{3}:1 \quad \therefore x = 3$$

$$3\sqrt{3}:y = \sqrt{3}:2 \quad \therefore y = 6$$

22) $x = 3, y = 3\sqrt{3}$

$$\Rightarrow 6:x = 2:1 \quad \therefore x = 3$$

$$6:y = 2:\sqrt{3} \quad \therefore y = 3\sqrt{3}$$

23) $x = 2, y = \sqrt{2}$

$$\Rightarrow \sqrt{2}:x = 1:\sqrt{2} \quad \therefore x = 2$$

$$\sqrt{2}:y = 1:1 \quad \therefore y = \sqrt{2}$$

24) $3\sqrt{6}$

$$\Rightarrow \text{직각삼각형 ABD에서}$$

$$\overline{AB} : \overline{BD} = 1 : \sqrt{2} \text{이므로 } \overline{BD} = 6\sqrt{2}$$

$$\text{직각삼각형 BCD에서}$$

$$\overline{BD} : \overline{CD} = 2 : \sqrt{3} \text{이므로 } x = \overline{CD} = 3\sqrt{6}$$

25) $6\sqrt{2}$

$$\Rightarrow \triangle ABC \text{에서 } 1 : \sqrt{2} = \overline{AC} : 12\sqrt{3}, \sqrt{2}\overline{AC} = 12\sqrt{3}$$

$$\therefore \overline{AC} = \frac{12\sqrt{3}}{\sqrt{2}} = \frac{12\sqrt{6}}{2} = 6\sqrt{6}$$

$$\triangle ACD \text{에서 } 1 : \sqrt{3} = x : 6\sqrt{6}, \sqrt{3}x = 6\sqrt{6}$$

$$\therefore x = \frac{6\sqrt{6}}{\sqrt{3}} = 6\sqrt{2}$$

26) $4\sqrt{3}$

$$\Rightarrow \triangle ABC \text{에서 } 1 : \sqrt{2} = \overline{AC} : 6\sqrt{2}, \sqrt{2}\overline{AC} = 6\sqrt{2}$$

$$\therefore \overline{AC} = \frac{6\sqrt{2}}{\sqrt{2}} = 6$$

$$\triangle ACD \text{에서 } \sqrt{3} : 2 = 6 : x, \sqrt{3}x = 12$$

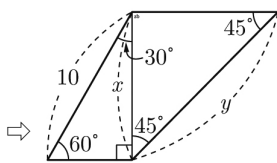
$$\therefore x = \frac{12}{\sqrt{3}} = \frac{12\sqrt{3}}{3} = 4\sqrt{3}$$

27) $x=7, y=7\sqrt{3}$

$$\Rightarrow 7\sqrt{2} : x = \sqrt{2} : 1 \quad \therefore x = 7$$

$$7 : y = 1 : \sqrt{3} \quad \therefore y = 7\sqrt{3}$$

28) $x=5\sqrt{3}, y=5\sqrt{6}$



$$10 : x = 2 : \sqrt{3} \quad \therefore x = 5\sqrt{3}$$

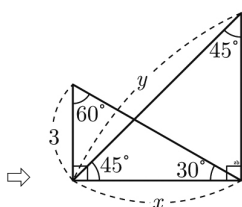
$$5\sqrt{3} : y = 1 : \sqrt{2} \quad \therefore y = 5\sqrt{6}$$

29) $x=12\sqrt{3}, y=6\sqrt{6}$

$$\Rightarrow 12 : x = 1 : \sqrt{3} \quad \therefore x = 12\sqrt{3}$$

$$12\sqrt{3} : y = \sqrt{2} : 1 \quad \therefore y = 6\sqrt{6}$$

30) $x=3\sqrt{3}, y=3\sqrt{6}$



$$3 : x = 1 : \sqrt{3} \quad \therefore x = 3\sqrt{3}$$

$$3\sqrt{3} : y = 1 : \sqrt{2} \quad \therefore y = 3\sqrt{6}$$

31) $x=5\sqrt{3}, y=5\sqrt{6}$

$$\Rightarrow 10 : x = 2 : \sqrt{3} \quad \therefore x = 5\sqrt{3}$$

$$5\sqrt{3} : y = 1 : \sqrt{2} \quad \therefore y = 5\sqrt{6}$$

32) $x=9\sqrt{2}, y=3\sqrt{6}$

$$\Rightarrow 9 : x = 1 : \sqrt{2} \quad \therefore x = 9\sqrt{2}$$

$$9\sqrt{2} : y = \sqrt{3} : 1 \quad \therefore y = 3\sqrt{6}$$

33) $x=2\sqrt{2}, y=\frac{2\sqrt{6}}{3}$

$$\Rightarrow 1 : \sqrt{2} = 2 : x \quad \therefore x = 2\sqrt{2}$$

$$1 : \sqrt{3} = y : 2\sqrt{2}, \sqrt{3}y = 2\sqrt{2}$$

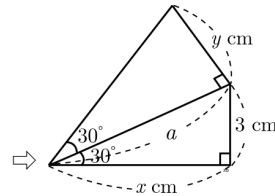
$$\therefore y = \frac{2\sqrt{2}}{\sqrt{3}} = \frac{2\sqrt{6}}{3}$$

34) $x=4\sqrt{3}, y=4$

$$\Rightarrow 4\sqrt{3} : x = 1 : 1 \text{에서 } x = 4\sqrt{3}$$

$$4\sqrt{3} : y = \sqrt{3} : 1 \text{에서 } y = 4$$

35) $x=3\sqrt{3}, y=2\sqrt{3}$



$$x : 3 = \sqrt{3} : 1 \text{에서 } x = 3\sqrt{3}$$

$$a : 3 = 2 : 1 \text{에서 } a = 6$$

$$6 : y = \sqrt{3} : 1 \text{에서 } y = 2\sqrt{3}$$

36) $x=4, y=2\sqrt{2}$

$$\Rightarrow x : 2 = 2 : 1 \text{에서 } x = 4$$

$$2 : y = 1 : \sqrt{2} \text{에서 } y = 2\sqrt{2}$$

37) $x=6, y=3\sqrt{6}$

$$\Rightarrow \triangle ABD \text{는 } \angle ABD = 60^\circ \text{인 직각삼각형이므로}$$

$$3 : x = 1 : 2 \quad \therefore x = 6$$

$$3 : \overline{AD} = 1 : \sqrt{3} \quad \therefore \overline{AD} = 3\sqrt{3}$$

$$\triangle ACD \text{는 } \overline{AD} = \overline{CD} \text{인 직각이등변삼각형이므로}$$

$$3\sqrt{3} : y = 1 : \sqrt{2} \quad \therefore y = 3\sqrt{6}$$

38) $x=3\sqrt{3}, y=\frac{3\sqrt{6}}{2}$

$$\Rightarrow 6 : x = 2 : \sqrt{3} \text{이므로 } 2x = 6\sqrt{3} \quad \therefore x = 3\sqrt{3}$$

$$3\sqrt{3} : y = \sqrt{2} : 1 \text{이므로 } \sqrt{2}y = 3\sqrt{3} \quad \therefore y = \frac{3\sqrt{6}}{2}$$

39) $x=3\sqrt{6}, y=3\sqrt{3}$

$$\Rightarrow 2 : \sqrt{3} = 6 : y \quad \therefore y = 3\sqrt{3} (cm)$$

$$1 : \sqrt{2} = 3\sqrt{3} : x \quad \therefore x = 3\sqrt{6} (cm)$$

40) $x=\frac{5\sqrt{6}}{3}, y=10$

$$\Rightarrow 5\sqrt{2} : y = 1 : \sqrt{2} \text{에서 } y = 10$$

$$x : 5\sqrt{2} = 1 : \sqrt{3} \text{ 에서 } x = \frac{5\sqrt{6}}{3}$$

41) $\sqrt{3}$

42) $\sqrt{6}$ cm

⇒ 직각삼각형 ABC에서 $\overline{AB} : \overline{BC} = 1 : \sqrt{3}$ 이므로
 $2 : \overline{BC} = 1 : \sqrt{3} \quad \therefore \overline{BC} = 2\sqrt{3}$
 직각삼각형 BCD에서 $\overline{CD} : \overline{BC} = 1 : \sqrt{2}$ 이므로
 $\overline{CD} : 2\sqrt{3} = 1 : \sqrt{2} \quad \therefore \overline{CD} = \sqrt{6}$

43) $\frac{3\sqrt{6}}{2}$ cm

⇒ 직각삼각형 ABC에서 $\overline{AC} : \overline{BC} = \sqrt{3} : 2$ 이므로
 $\overline{AC} = 3\sqrt{3}$ (cm)
 직각삼각형 ACD에서 $\overline{CD} : \overline{AC} = 1 : \sqrt{2}$ 이므로
 $\overline{CD} = \frac{3\sqrt{6}}{2}$ (cm)

44) $4(3 + \sqrt{6})$ cm

⇒ $\overline{AB} = 4$ cm, $\overline{AC} = 4\sqrt{3}$ cm
 $1 : \sqrt{2} = \overline{AD} : 4\sqrt{3} \quad \therefore \overline{AD} = 2\sqrt{6}$
 따라서 □ABCD의 둘레는
 $4 + 8 + 2\sqrt{6} + 2\sqrt{6} = 12 + 4\sqrt{6} = 4(3 + \sqrt{6})$ (cm)

45) $(2\sqrt{6} + 6)$ cm

⇒ $\sqrt{3} : 2 = \overline{AC} : 4, \quad 2\overline{AC} = 4\sqrt{3}, \quad \overline{AC} = 2\sqrt{3}$
 $1 : \sqrt{2} = \overline{AD} : 2\sqrt{3}, \quad \sqrt{2}\overline{AD} = 2\sqrt{3}, \quad \overline{AD} = \sqrt{6}$
 □ABCD의 둘레의 길이는 $\overline{AB} + \overline{BC} + \overline{CD} + \overline{DA}$
 $= 2 + 4 + \sqrt{6} + \sqrt{6} = 6 + 2\sqrt{6}$ 이 된다.

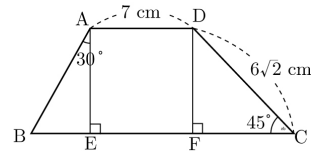
46) $12(\sqrt{2} + \sqrt{3})$

⇒ △ACD에서 $1 : \sqrt{3} = 4\sqrt{3} : \overline{AC} \quad \therefore \overline{AC} = 12$
 $2 : 1 = \overline{AD} : 4\sqrt{3} \quad \therefore \overline{AD} = 8\sqrt{3}$
 △ABC에서 $1 : \sqrt{2} = \overline{AB} : 12, \quad \sqrt{2}\overline{AB} = 12$
 $\therefore \overline{AB} = \frac{12}{\sqrt{2}} = \frac{12\sqrt{2}}{2} = 6\sqrt{2}$
 △ABC는 직각이등변삼각형이므로 $\overline{BC} = 6\sqrt{2}$ 이다.
 $\therefore (\square ABCD \text{의 둘레}) = 12\sqrt{2} + 12\sqrt{3} = 12(\sqrt{2} + \sqrt{3})$

47) $19 + 3\sqrt{6} + 3\sqrt{3}$ (cm)

48) $20 + 6\sqrt{2} + 6\sqrt{3}$

⇒ 점 A와 점 D에서 \overline{BC} 에 내린 수선의 발을 E, F라고 하자.



△CDF에서 $1 : \sqrt{2} = \overline{CF} : 6\sqrt{2},$
 $\sqrt{2}\overline{CF} = 6\sqrt{2} \quad \therefore \overline{CF} = 6$ (cm)
 △ABE에서 $1 : \sqrt{3} = \overline{BE} : 6, \quad \sqrt{3}\overline{BE} = 6,$
 $\therefore \overline{BE} = \frac{6}{\sqrt{3}} = \frac{6\sqrt{3}}{3} = 2\sqrt{3}$ (cm)
 $1 : 2 = 2\sqrt{3} : \overline{AB} \quad \therefore \overline{AB} = 4\sqrt{3}$ (cm)
 (□ABCD의 둘레의 길이)
 $= \overline{AD} + \overline{DC} + \overline{CF} + \overline{FE} + \overline{EB} + \overline{BA}$
 $= 7 + 6\sqrt{2} + 6 + 7 + 2\sqrt{3} + 4\sqrt{3}$
 $= 20 + 6\sqrt{2} + 6\sqrt{3}$ (cm)

49) $18 + 2\sqrt{3} + 2\sqrt{6}$

50) $\sqrt{17}$

⇒ A(-1, 4), O(0, 0) 사이의 거리는
 $\overline{AO} = \sqrt{(-1)^2 + 4^2} = \sqrt{17}$

51) $\sqrt{34}$

⇒ A(3, 5), O(0, 0) 사이의 거리는
 $\overline{AO} = \sqrt{3^2 + 5^2} = \sqrt{34}$

52) $\overline{AB} = \sqrt{34}$

⇒ $\overline{AB} = \sqrt{(-3-2)^2 + (1-4)^2} = \sqrt{34}$

53) 10

54) $\sqrt{29}$

⇒ A(2, -1), B(4, 4) 사이의 거리는
 $\overline{AB} = \sqrt{(4-2)^2 + (4+1)^2} = \sqrt{29}$

55) 5

56) $\sqrt{41}$

⇒ A(-1, -1), B(4, 3) 사이의 거리는
 $\overline{AB} = \sqrt{(4+1)^2 + (3+1)^2} = \sqrt{41}$

57) 5

⇒ $\sqrt{4^2 + 3^2} = \sqrt{25} = 5$

58) $\sqrt{29}$

⇒ $\sqrt{2^2 + 5^2} = \sqrt{29}$

59) $\sqrt{2}$

⇒ $\sqrt{(-1)^2 + 1^2} = \sqrt{2}$

60) 2

61) 1

62) $\sqrt{5}$

63) 5

64) $\sqrt{26}$

65) $\sqrt{34}$

66) $\sqrt{13}$

67) $\sqrt{13}$

$\Rightarrow \sqrt{(-3)^2 + (-2)^2} = \sqrt{13}$

68) $2\sqrt{13}$

$\Rightarrow \sqrt{(-4)^2 + 6^2} = 2\sqrt{13}$

69) $2\sqrt{5}$

$\Rightarrow \overline{OA} = \sqrt{(-2)^2 + 4^2} = 2\sqrt{5}$

70) $\sqrt{106}$

$\Rightarrow \sqrt{(-4-5)^2 + (-1-4)^2} = \sqrt{106}$

71) $\sqrt{20}$

$\Rightarrow \sqrt{(3-1)^2 + (5-1)^2} = \sqrt{20}$

72) $\sqrt{58}$

$\Rightarrow \sqrt{(3+4)^2 + (4-7)^2} = \sqrt{58}$

73) $\sqrt{34}$

$\Rightarrow \sqrt{\{1-(-4)\}^2 + \{2-(-1)\}^2} = \sqrt{34}$

74) $\sqrt{5}$

75) $3\sqrt{2}$

$\Rightarrow \sqrt{(5-2)^2 + (6-3)^2} = \sqrt{18} = 3\sqrt{2}$

76) $7\sqrt{2}$

$\Rightarrow \sqrt{(-3-4)^2 + (-1-6)^2} = \sqrt{98} = 7\sqrt{2}$

77) $\sqrt{61}$

$\Rightarrow \overline{AB} = \sqrt{(4-10)^2 + (-1-4)^2} = \sqrt{61}$

78) $\sqrt{5}$

$\Rightarrow \overline{AB} = \sqrt{(2-0)^2 + (0-1)^2} = \sqrt{5}$

79) $3\sqrt{5}$

$\Rightarrow \overline{AB} = \sqrt{(2-5)^2 + (-3-3)^2} = 3\sqrt{5}$

80) ②

$\Rightarrow \overline{AB} = \sqrt{(-2-5)^2 + (-4+1)^2} = \sqrt{58}$

81) 2

$\Rightarrow \overline{AB} = \sqrt{(3-1)^2 + (1-1)^2} = \sqrt{4} = 2$

82) $\sqrt{5}$

$\Rightarrow \overline{AB} = \sqrt{\{-3-(-1)\}^2 + (1-2)^2} = \sqrt{5}$

83) $\sqrt{29}$

$\Rightarrow \overline{AB} = \sqrt{\{2-(-3)\}^2 + (3-5)^2} = \sqrt{29}$

84) $\sqrt{61}$

$\Rightarrow \overline{AB} = \sqrt{\{3-(-2)\}^2 + \{3-(-3)\}^2} = \sqrt{61}$

85) $2\sqrt{10}$

$\Rightarrow \overline{AB} = \sqrt{(-1-1)^2 + (-3-3)^2} = \sqrt{40} = 2\sqrt{10}$

86) $2\sqrt{13}$

$\Rightarrow \overline{AB} = \sqrt{(-2-4)^2 + (-1-3)^2} = 2\sqrt{13}$

87) $4\sqrt{2}$

$\Rightarrow \overline{AB} = \sqrt{(3+1)^2 + (-2-2)^2} = \sqrt{16+16} = \sqrt{32} = 4\sqrt{2}$

88) $\sqrt{26}$

$\Rightarrow \overline{AB} = \sqrt{(3+2)^2 + (2-3)^2} = \sqrt{26}$

89) $\sqrt{26}$

$\Rightarrow \overline{AB} = \sqrt{(5-0)^2 + (-3+2)^2} = \sqrt{26}$

90) $2\sqrt{29}$

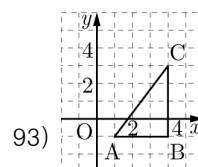
$\Rightarrow \overline{AB} = \sqrt{(-1+5)^2 + (8+2)^2} = 2\sqrt{29}$

91) $\sqrt{41}$

$\Rightarrow \overline{AB} = \sqrt{(-4-1)^2 + (-1-3)^2} = \sqrt{41}$

92) $2\sqrt{17}$

$\Rightarrow \overline{AB} = \sqrt{\{-3-(-1)\}^2 + (-6-2)^2} = 2\sqrt{17}$



93)

94) 3

$\Rightarrow \overline{AB} = \sqrt{(4-1)^2 + \{-1-(-1)\}^2} = \sqrt{9} = 3$

95) 4

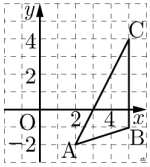
$\Rightarrow \overline{BC} = \sqrt{(4-4)^2 + \{3-(-1)\}^2} = \sqrt{16} = 4$

96) 5

$\Rightarrow \overline{CA} = \sqrt{(4-1)^2 + \{3-(-1)\}^2} = \sqrt{25} = 5$

97) 직각삼각형

⇒ $\overline{CA}^2 = \overline{AB}^2 + \overline{BC}^2$ 이므로 직각삼각형이다.



98)

99) $\sqrt{10}$

⇒ $\overline{AB} = \sqrt{(5-2)^2 + \{-1-(-2)\}^2} = \sqrt{10}$

100) 5

⇒ $\overline{BC} = \sqrt{(5-5)^2 + \{4-(-1)\}^2} = \sqrt{25} = 5$

101) $3\sqrt{5}$

⇒ $\overline{CA} = \sqrt{(5-2)^2 + \{4-(-2)\}^2} = \sqrt{45} = 3\sqrt{5}$

102) 둔각삼각형

⇒ $\overline{CA}^2 > \overline{AB}^2 + \overline{BC}^2$ 이므로 둔각삼각형이다.

103) $\angle B = 90^\circ$ 인 직각이등변삼각형

⇒ $\overline{AB} = \sqrt{(4-0)^2 + \{0-(-1)\}^2} = \sqrt{17}$

$\overline{BC} = \sqrt{(5-4)^2 + \{-4-0\}^2} = \sqrt{17}$

$\overline{CA} = \sqrt{(0-5)^2 + \{-1-(-4)\}^2} = \sqrt{34}$

따라서 $\overline{AB} = \overline{BC}$ 이고, $\overline{CA}^2 = \overline{AB}^2 + \overline{BC}^2$ 이므로 $\triangle ABC$ 는 $\angle B = 90^\circ$ 인 직각이등변삼각형이다.

104) $\angle A = 90^\circ$ 인 직각이등변삼각형

⇒ $\overline{OA} = \sqrt{3^2 + (-2)^2} = \sqrt{13}$

$\overline{AB} = \sqrt{(5-3)^2 + \{1-(-2)\}^2} = \sqrt{13}$

$\overline{OB} = \sqrt{5^2 + 1^2} = \sqrt{26}$

따라서 $\overline{OA} = \overline{AB}$ 이고, $\overline{OB}^2 = \overline{OA}^2 + \overline{AB}^2$ 이므로 $\triangle OAB$ 는 $\angle A = 90^\circ$ 인 직각이등변삼각형이다.

105) 이등변삼각형

⇒ $\overline{OA} = \sqrt{3^2 + 4^2} = 5$

$\overline{AB} = \sqrt{(-2-3)^2 + (4-4)^2} = 5$

$\overline{OB} = \sqrt{(-2)^2 + 4^2} = \sqrt{20} = 2\sqrt{5}$

따라서 $\overline{OA} = \overline{AB}$ 이므로 $\triangle OAB$ 는 이등변삼각형이다.

106) 이등변삼각형

⇒ $\overline{AB} = \sqrt{(4-2)^2 + (3-1)^2} = \sqrt{8} = 2\sqrt{2}$

$\overline{BC} = \sqrt{(5-4)^2 + (0-3)^2} = \sqrt{10}$

$\overline{CA} = \sqrt{(2-5)^2 + (1-0)^2} = \sqrt{10}$

따라서 $\overline{BC} = \overline{CA}$ 이므로 $\triangle ABC$ 는 이등변삼각형이다.

107) 이등변삼각형

⇒ $\overline{AB} = \sqrt{(5-1)^2 + (3-0)^2} = \sqrt{25} = 5$

$\overline{BC} = \sqrt{(5-5)^2 + (-2-3)^2} = \sqrt{25} = 5$

$\overline{CA} = \sqrt{(1-5)^2 + \{0-(-2)\}^2} = \sqrt{20} = 2\sqrt{5}$

따라서 $\overline{AB} = \overline{BC}$ 이므로 $\triangle ABC$ 는 이등변삼각형이다.

108) $\angle A = 90^\circ$ 인 직각삼각형

⇒ $\overline{AB} = \sqrt{\{2-(-1)\}^2 + \{5-(-1)\}^2} = \sqrt{45} = 3\sqrt{5}$

$\overline{BC} = \sqrt{(-9-2)^2 + (3-5)^2} = \sqrt{125} = 5\sqrt{5}$

$\overline{CA} = \sqrt{\{-1-(-9)\}^2 + \{-1-3\}^2} = \sqrt{80} = 4\sqrt{5}$

따라서 $\overline{BC}^2 = \overline{AB}^2 + \overline{CA}^2$ 이므로

$\triangle ABC$ 는 $\angle A = 90^\circ$ 인 직각삼각형이다.

109) $\angle A = 90^\circ$ 인 직각삼각형

⇒ $\overline{AB} = \sqrt{\{-2-(-3)\}^2 + (2-3)^2} = \sqrt{2}$

$\overline{BC} = \sqrt{\{-5-(-2)\}^2 + (1-2)^2} = \sqrt{10}$

$\overline{CA} = \sqrt{\{-3-(-5)\}^2 + (3-1)^2} = \sqrt{8} = 2\sqrt{2}$

따라서 $\overline{BC}^2 = \overline{AB}^2 + \overline{CA}^2$ 이므로 $\triangle ABC$ 는 $\angle A = 90^\circ$ 인 직각삼각형이다.

110) 정삼각형

⇒ $\overline{AB} = \sqrt{\{3-(-3)\}^2 + (0-0)^2} = \sqrt{36} = 6$

$\overline{BC} = \sqrt{(0-3)^2 + (3\sqrt{3}-0)^2} = \sqrt{36} = 6$

$\overline{CA} = \sqrt{(-3-0)^2 + (0-3\sqrt{3})^2} = \sqrt{36} = 6$

따라서 $\overline{AB} = \overline{BC} = \overline{CA}$ 이므로 $\triangle ABC$ 는 정삼각형이다.

111) $\angle A = 90^\circ$ 인 직각이등변삼각형

⇒ $\overline{AB} = \sqrt{\{0-(-2)\}^2 + (-3-2)^2} = \sqrt{29}$

$\overline{BC} = \sqrt{(3-0)^2 + \{4-(-3)\}^2} = \sqrt{58}$

$\overline{CA} = \sqrt{(-2-3)^2 + (2-4)^2} = \sqrt{29}$

따라서 $\overline{AB} = \overline{CA}$ 이고, $\overline{BC}^2 = \overline{AB}^2 + \overline{CA}^2$ 이므로

$\triangle ABC$ 는 $\angle A = 90^\circ$ 인 직각이등변삼각형이다.