도형 공식

넓이와 둘레

정사각형

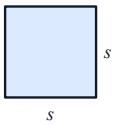
넓이

$$A = s^2$$

둘레

$$P = 4s$$

s 변



직사각형

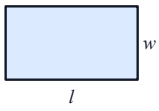
넓이

$$A = lw$$

둘레

$$P = 2l + 2w$$

l 가로 w 세로



삼각형

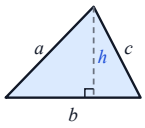
넓이

$$A = \frac{1}{2}bh$$

둘레

$$P = a + b + c$$

b 밑변 h 높이 a, b, c 각 변



평행사변형

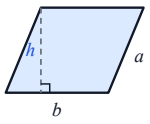
넓이

$$A = bh$$

둘레

$$P = 2a + 2b$$

b 밑변 h 높이 a 변

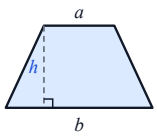


사다리꼴

넓이

$$A = \frac{1}{2}(a + b)h$$

a, b 윗변과 아랫변 h 높이



마름모

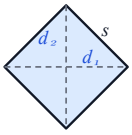
넓이

$$A = \frac{1}{2}d_1d_2$$

둘레

$$P = 4s$$

d_1, , d_2 대각선 s 변



정다각형

넓이

$$A = \frac{1}{2}aP$$

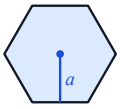
내각의 합

$$S = (n - 2) \cdot 180°$$

한 내각의 크기

$$\frac{(n - 2) \cdot 180°}{n}$$

a 중심에서 변까지의 거리 P 둘레 n 변의 개수



원

원

원주

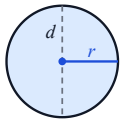
$$C = 2\pi r = \pi d$$

넓이

$$A = \pi r^2$$

$$d = 2r$$

r 반지름 d 지름



호와 부채꼴

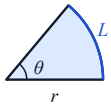
호의 길이

$$L = \frac{\theta}{360°} \cdot 2\pi r$$

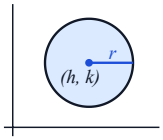
부채꼴의 넓이

$$A = \frac{\theta}{360°} \cdot \pi r^2$$

θ 중심각 r 반지름



원의 방정식



$$(x - h)^2 + (y - k)^2 = r^2$$

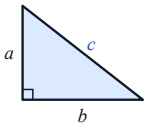
(h, k) 중심 r 반지름

삼각형

피타고라스 정리

$$a^2 + b^2 = c^2$$

a, b 직각을 낀 두 변 c 빗변



각

삼각형의 내각

$$\alpha + \beta + \gamma = 180°$$

여각

$$\alpha + \beta = 90°$$

보각

$$\alpha + \beta = 180°$$

특수한 직각삼각형

30-60-90 변의 비

$$x : x\sqrt{3} : 2x$$

45-45-90 변의 비

$$x : x : x\sqrt{2}$$

정삼각형

넓이

$$A = \frac{\sqrt{3}}{4}s^2$$

높이

$$h = \frac{\sqrt{3}}{2}s$$

s 변

헤론의 공식

넓이

$$A = \sqrt{s(s - a)(s - b)(s - c)}$$

$$s = \frac{a + b + c}{2}$$

a, b, c 각 변 s 둘레의 절반

부피와 겉넓이

정육면체

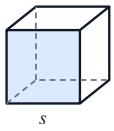
부피

$$V = s^3$$

겉넓이

$$SA = 6s^2$$

s 변



직육면체

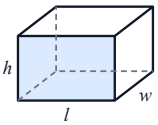
부피

$$V = lwh$$

겉넓이

$$SA = 2(lw + lh + wh)$$

l 가로 w 세로 h 높이



각기둥

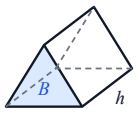
부피

$$V = Bh$$

겉넓이

$$SA = 2B + Ph$$

B 밑넓이 P 밑면의 둘레
h 높이



원기둥

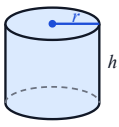
부피

$$V = \pi r^2 h$$

겉넓이

$$SA = 2\pi r^2 + 2\pi rh$$

r 반지름 h 높이



원뿔

부피

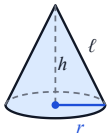
$$V = \frac{1}{3}\pi r^2 h$$

겉넓이

$$SA = \pi r^2 + \pi r\ell$$

$$\ell = \sqrt{r^2 + h^2}$$

r 반지름 h 높이 ℓ 비스듬한 높이



각뿔

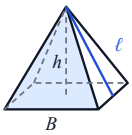
부피

$$V = \frac{1}{3}Bh$$

겉넓이

$$SA = B + \frac{1}{2}P\ell$$

B 밑넓이 P 밑면의 둘레
h 높이 ℓ 비스듬한 높이



구

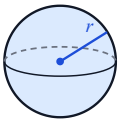
부피

$$V = \frac{4}{3}\pi r^3$$

겉넓이

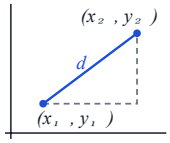
$$SA = 4\pi r^2$$

r 반지름



좌표와 도형

두 점 사이의 거리



$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

(x_1, y_1), (x_2, y_2) 두 점

중점의 좌표

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

(x_1, y_1), (x_2, y_2) 두 점

기울기

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

평행한 직선

$$m_1 = m_2$$

수직인 직선

$$m_1 \cdot m_2 = -1$$

m 기울기

직선의 방정식

기울기와 Y절편 꼴

$$y = mx + b$$

점-기울기 꼴

$$y - y_1 = m(x - x_1)$$

m 기울기 b y절편