{5.1절}

5.6 　S; 직사각판 + 위 ¼원판 − 아래 ¼원판 　　　　　　　 M;

    A; ① 직사각판

$$A = (60 \text{ mm})(120 \text{ mm}) = 7{,}200 \text{ mm}^2$$

$$\overline{x} = -30 \text{ mm}$$

$$\overline{y} = 60 \text{ mm}$$

      ② 위 ¼원판

$$A = \frac{1}{4}\pi(60 \text{ mm})^2 = 2{,}827 \text{ mm}^2$$

$$\overline{x} = \frac{4}{3\pi}(60 \text{ mm}) = 25.46 \text{ mm}$$

$$\overline{y} = (120 \text{ mm}) - \frac{4}{3\pi}(60 \text{ mm}) = 94.54 \text{ mm}$$

      ③ 아래 ¼원판

$$A = -\frac{1}{4}\pi(60 \text{ mm})^2 = -2{,}827 \text{ mm}^2$$

$$\overline{x} = -\frac{4}{3\pi}(60 \text{ mm}) = -25.46 \text{ mm}$$

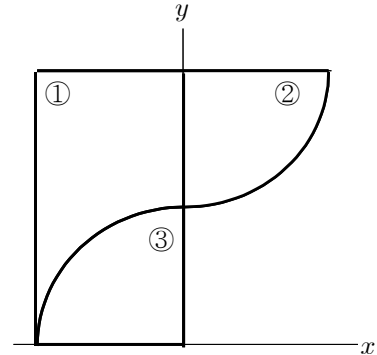$$\overline{y} = \frac{4}{3\pi}(60 \text{ mm}) = 25.46 \text{ mm}$$

$$\Sigma A = (7{,}200 \text{ mm}^2) + (2{,}827 \text{ mm}^2) + (-2{,}827 \text{ mm}^2) = 7{,}200 \text{ mm}^2$$

$$\Sigma(\overline{x}A) = (-30 \text{ mm})(7{,}200 \text{ mm}^2) + (25.46 \text{ mm})(2{,}827 \text{ mm}^2)$$
$$+ (-25.46 \text{ mm})(-2{,}827 \text{ mm}^2) = -72{,}049 \text{ mm}^3$$

$$\Sigma(\overline{y}A) = (60 \text{ mm})(7{,}200 \text{ mm}^2) + (94.54 \text{ mm})(2{,}827 \text{ mm}^2)$$
$$+ (25.46 \text{ mm})(-2{,}827 \text{ mm}^2) = 627{,}289 \text{ mm}^3$$

$$\overline{X} = \frac{\Sigma(\overline{x}A)}{\Sigma A} = \frac{-72{,}049 \text{ mm}^3}{7{,}200 \text{ mm}^2} = -10.007 \text{ mm}$$

$$\overline{Y} = \frac{\Sigma(\overline{y}A)}{\Sigma A} = \frac{627{,}289 \text{ mm}^3}{7{,}200 \text{ mm}^2} = 87.12 \text{ mm} \quad \Rightarrow \quad \text{centroid} = (-10.01 \text{ mm}, \ 87.1 \text{ mm})$$

    R; (과정의 타당성 검토) (가령, 다르게 분할 하는 방안)

    T; (결과의 의미 검토) (가령, 도심 좌표의 위치)