

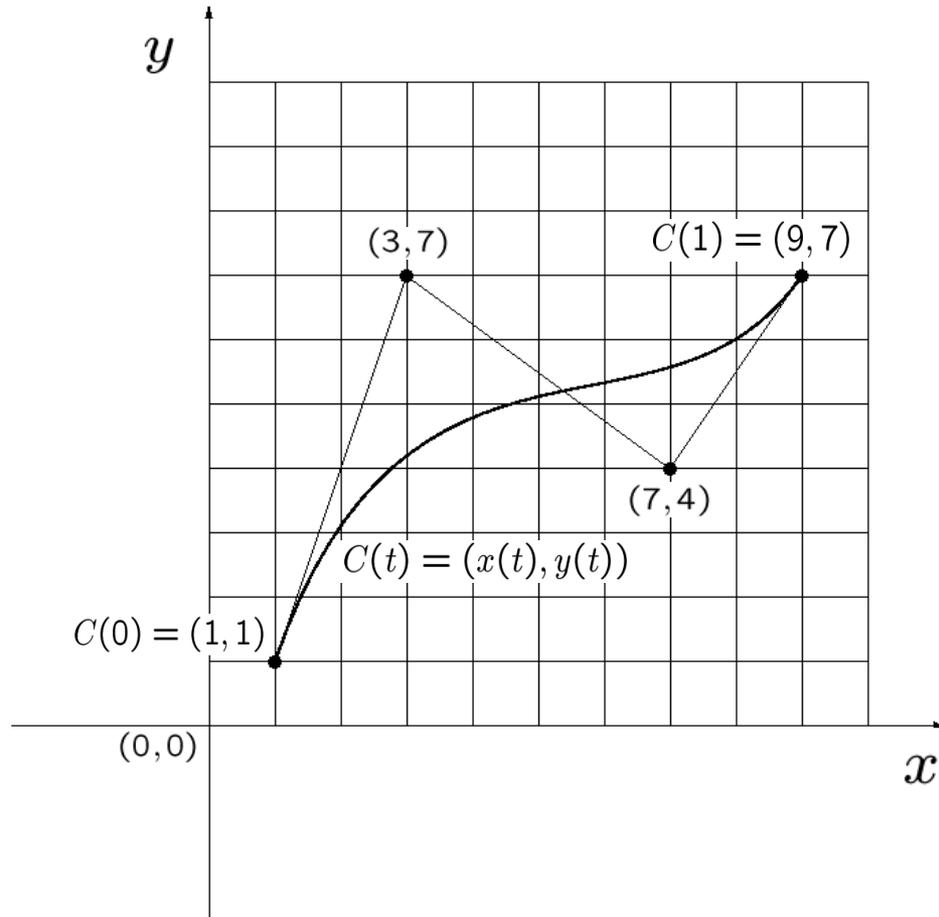
# Bezier 곡선

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김명수

<http://cse.snu.ac.kr/mskim>

<http://3map.snu.ac.kr>

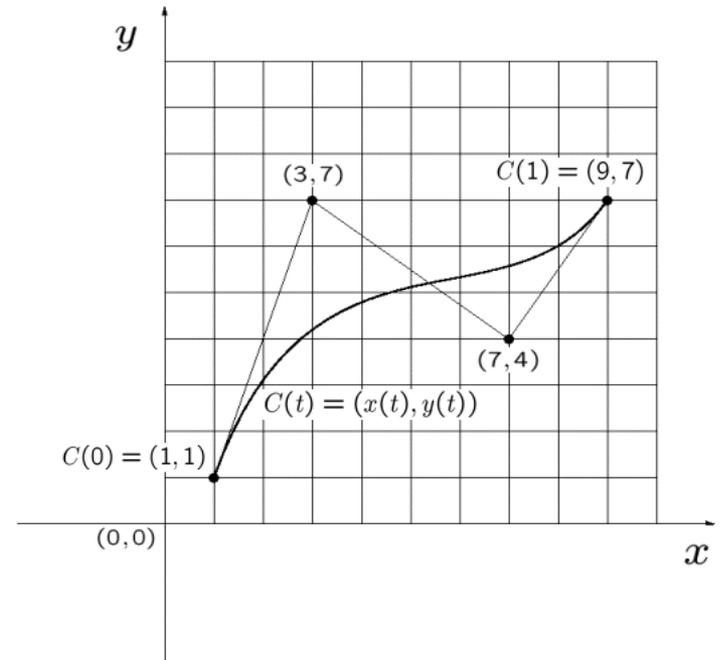
# 곡선의 표현



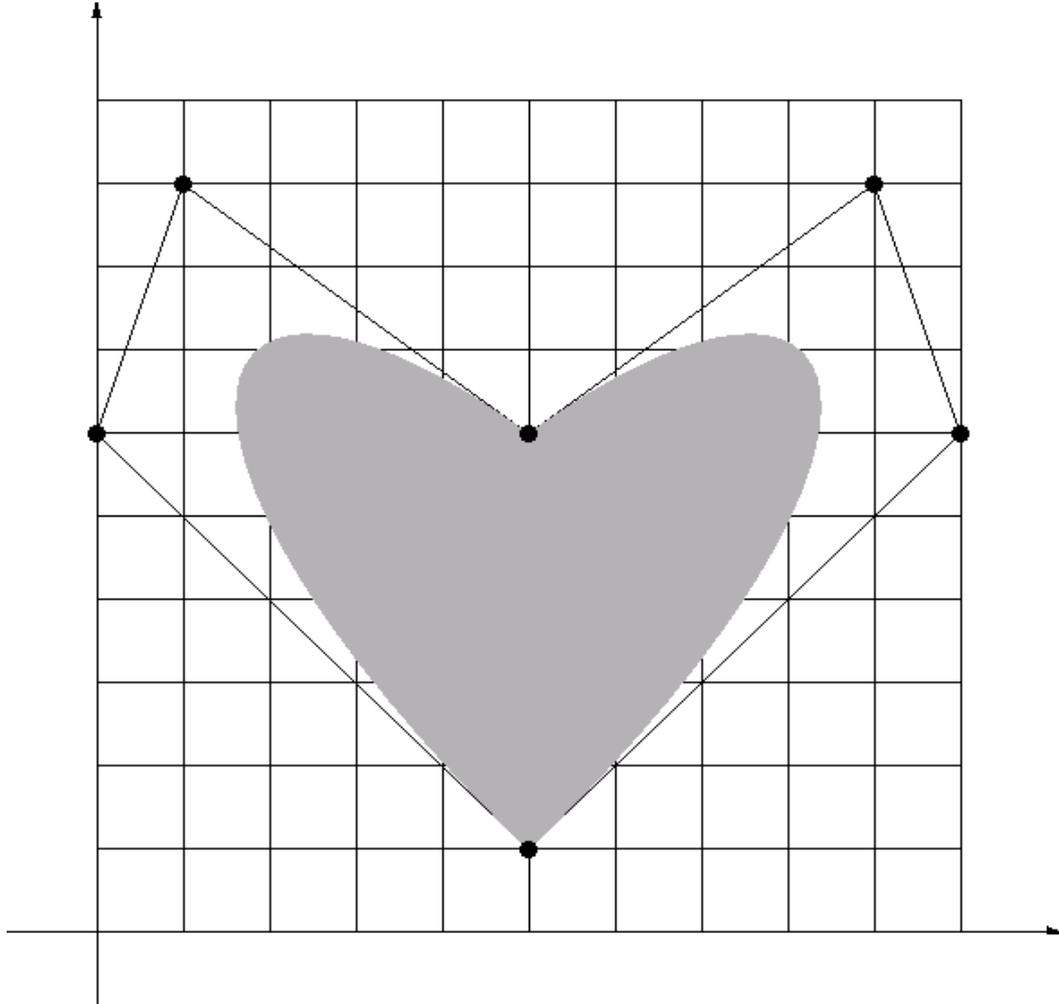
# PostScript 곡선

1 1 moveto

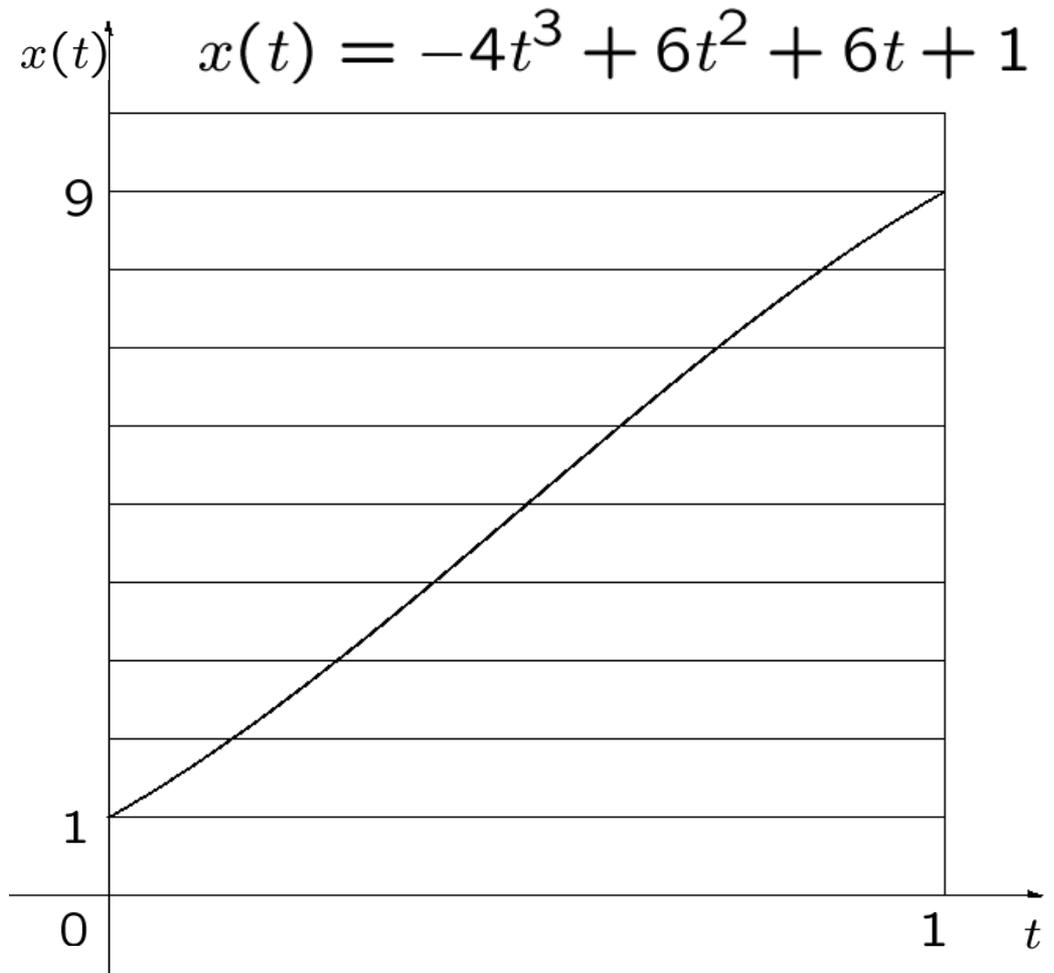
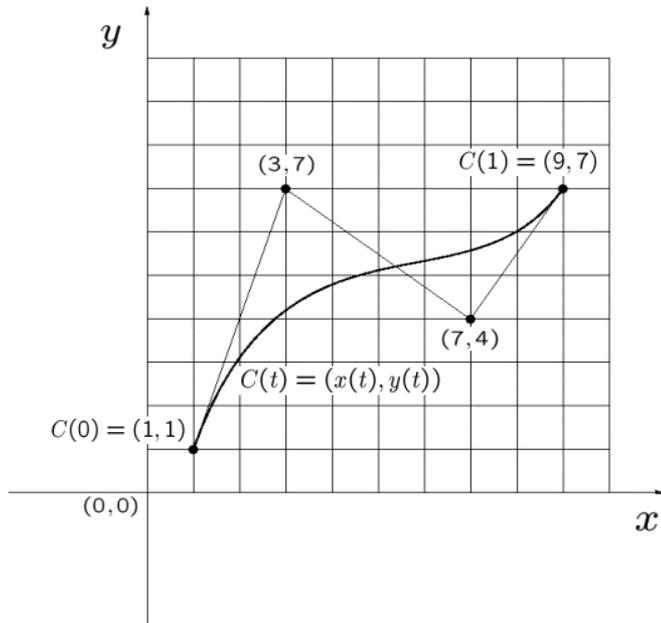
3 7 7 4 9 7 curveto



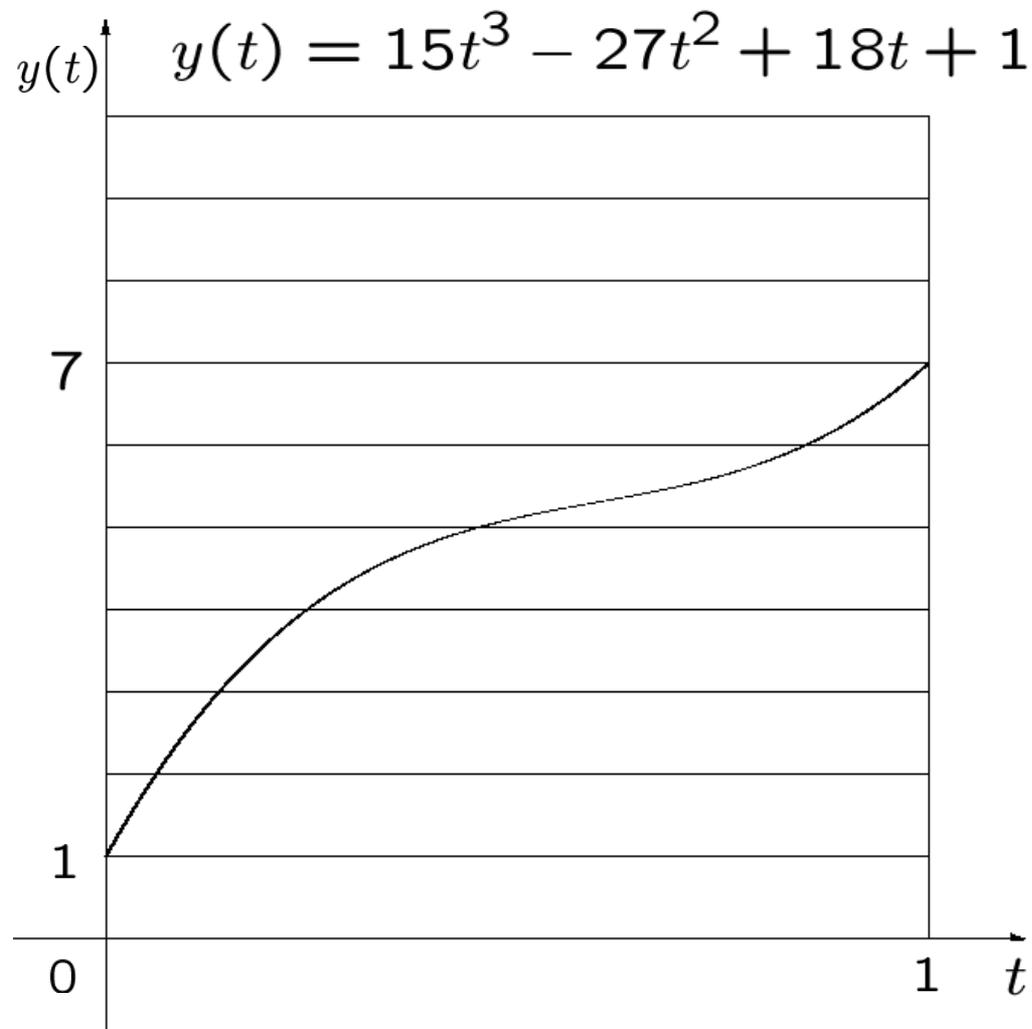
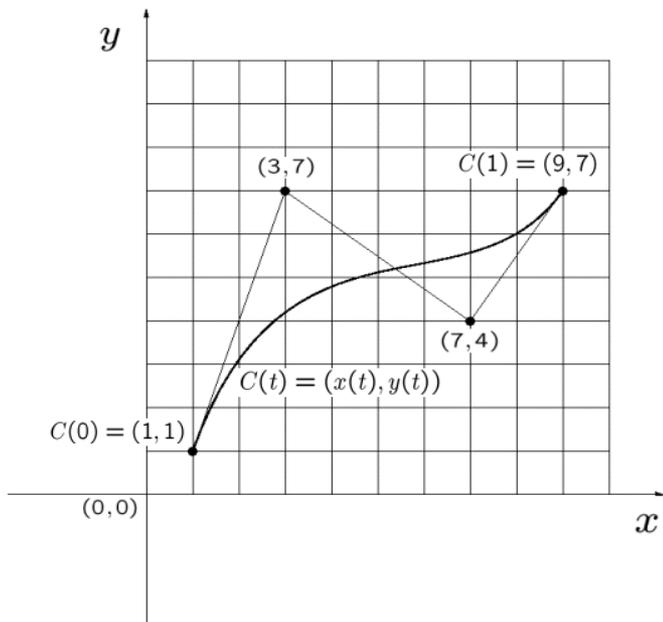
# 곡선을 이용한 도형디자인



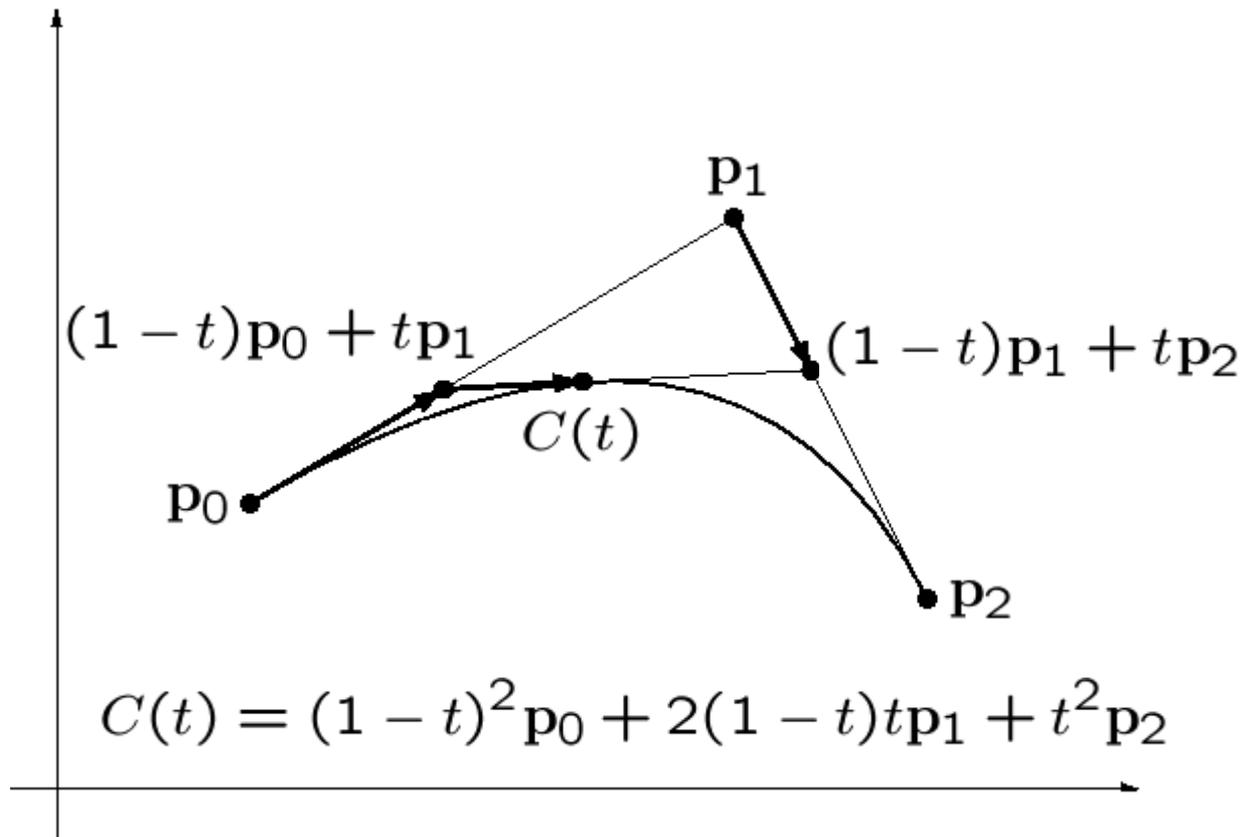
# 곡선의 X-좌표함수



# 곡선의 $y$ -좌표함수



# Bezier 2차 곡선의 정의



# Bezier 3차 곡선의 정의

$$C(t) = (1-t)^3 p_0 + 3(1-t)^2 t p_1 + 3(1-t)t^2 p_2 + t^3 p_3$$

$$\begin{aligned} x(t) &= (1-t)^3 + 9(1-t)^2 t \\ &\quad + 21(1-t)t^2 + 9t^3 \\ &= -4t^3 + 6t^2 + 6t + 1 \end{aligned}$$

$$\begin{aligned} y(t) &= (1-t)^3 + 21(1-t)^2 t \\ &\quad + 12(1-t)t^2 + 7t^3 \\ &= 15t^3 - 27t^2 + 18t + 1 \end{aligned}$$

