

$$2) f(n) = n(n-2) + C$$

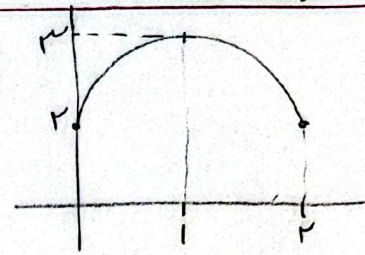
$$f(n) = n^2 - 2n + C$$

$$\frac{-b}{2a} = \frac{2}{2} = 1$$

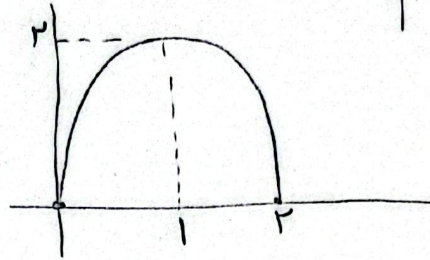
$$f(1) = 1 - 2 + C$$

$$1 = 1 - 2 + C$$

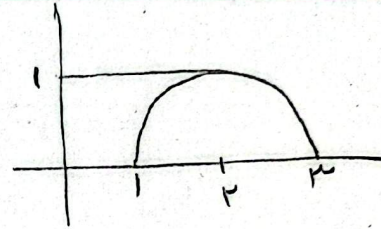
$$C = 2$$



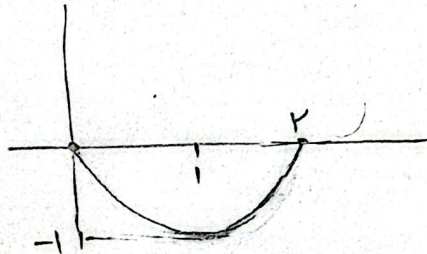
$$1) 2f(n) = 2n^2 - 4n + 4$$



$$2) f(n-1) = (n-1)^2 - 2(n-1) + 2$$

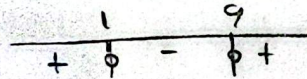


$$3) -f(n) = -n^2 + 2n - 2$$



$$2) n^2 - 9n + 9 > 0$$

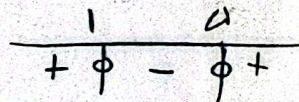
$$(n-1)(n-9) > 0$$



$$n = (-\infty, 1) \cup (9, +\infty)$$

$$1) n^2 - 9n + 4 < 0$$

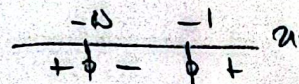
$$(n-1)(n-4) < 0$$



$$n = (1, 4)$$

$$2) n^2 + 9n + 10 > 0$$

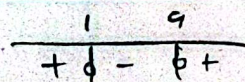
$$(n+1)(n+10) > 0$$



$$n = [-1, \infty) \cup (-\infty, -10]$$

$$3) n^2 - 9n + 9 \leq 0$$

$$(n-1)(n-9) \leq 0$$



$$n = [1, 9]$$

بالنسبة لـ

$$\text{أ) } \frac{n^2 - 3n + 2}{n - 2} < 0$$

$$\frac{(n-1)(n-2)}{n-2} < 0$$

$$\frac{1}{-2} + \frac{1}{2} - \frac{1}{2} + \frac{1}{2} \quad n = (-1, \infty) \cup (2, \infty)$$

$$\text{ب) } \frac{n^2 - 1}{n^2 - 4n + 4} \geq 0$$

$$\frac{-1, 1 - n^2 - 1}{(n-1)(n-2)} \geq 0$$

$$\frac{-1}{+2} - \frac{1}{2} - \frac{1}{2} + \frac{1}{2} \quad n = (2, \infty) \cup [-1, \infty)$$

$$\text{ج) } \sqrt{\frac{n^2 - 1}{n^2 - n}} = y$$

$$\frac{1}{-2} + \frac{1}{2} + \frac{1}{2}$$

$$D_f = (1, \infty) \cup (0, 1)$$

$$\text{د) } \sqrt{\frac{n^2 - 14}{n^2 - 4n + 4}} = y$$

$$\frac{(n-1)(n-2)}{n}$$

$$\frac{1}{-2} + \frac{1}{2} + \frac{1}{2}$$

$$D_f = (2, \infty) \cup (1, 2)$$

$$\text{هـ) } y = \sqrt{2 - \sqrt{2n-2}}$$

$$2 - \sqrt{2n-2} \geq 0$$

$$n \geq -1$$

$$D_f = [-1, 2]$$

$$2 - n \geq 0$$

$$n \leq 2$$

$$\sqrt{2 - n} \leq 2$$

$$2 - n \leq 4$$

$$\frac{-1}{-2} + \frac{1}{2}$$

$$\text{و) } \sqrt{2 - \sqrt{2n-2}} = y$$

$$2 - 2 \geq 0$$

$$n \geq 2$$

$$2 - \sqrt{2n-2} \geq 0$$

$$\sqrt{2n-2} \leq 2$$

$$2 - 2 \leq 4$$

$$n \leq 11$$

$$\frac{2}{2} + \frac{11}{11}$$

$$D_f = [2, 11]$$

$$\text{ز) } y = \sqrt{2 - 2n^2}$$

$$2 - 2n^2 \geq 0$$

$$2n^2 \leq 2$$

$$n^2 \leq 1$$

$$-\sqrt{1} \leq n \leq \sqrt{1}$$

$$D_f = [-1, 1]$$

$$\text{ح) } y = \sqrt{2|n|-9}$$

$$2|n|-9 \geq 0$$

$$2|n| \geq 9$$

$$|n| \geq \frac{9}{2}$$

$$n \leq -\frac{9}{2}, n \geq \frac{9}{2}$$

$$D_f = [\frac{9}{2}, \infty) \cup (-\infty, -\frac{9}{2}]$$

$$2) y = \sqrt{\frac{|n|+1}{|n|-3}} \quad D_f: \mathbb{R} - \{3, -3\}$$

$$3) y = \sqrt{\frac{\sqrt{n}+1}{\sqrt{n}-3}} \quad D_f: \mathbb{N} - \{9\}$$

$$1) \frac{\sin n}{r \cos n - 1} = y \quad r \cos n - 1 \neq 0 \quad D_f = \mathbb{R} - \{r k \pi \pm \frac{\pi}{r} \mid k \in \mathbb{Z}\}$$

$$2) \frac{\cos n + 1}{r \sin n + 1} = y \quad r \cos n \neq 1 \quad D_f = \mathbb{R} - \left\{ \frac{\sqrt{r}}{y} + r k \pi, \frac{11\pi}{r} + r k \pi \mid k \in \mathbb{Z} \right\}$$

$$3) \cot n - 1 \neq 0 \quad \cos n \neq 0 \quad D_f = \mathbb{R} - \left\{ k\pi, \frac{\pi}{r} + k\pi, \frac{\pi}{r} + k\pi \mid k \in \mathbb{Z} \right\}$$

$$4) r \sin^2 n - r \neq 0 \quad \sin^2 n \neq \frac{r}{r} \quad D_f = \mathbb{R} - \left\{ \frac{\pi}{r} + k\pi, \frac{3\pi}{r} + k\pi \mid k \in \mathbb{Z} \right\}$$

$$r|m-r| - \frac{1}{r} > 0$$

$$r|m-r| > \frac{1}{r}$$

$$|m-r| > \frac{1}{r^2}$$

$$m-r > \frac{1}{r^2} \quad m > \frac{r}{r^2}$$

$$m-r < -\frac{1}{r^2} \quad m < \frac{r}{r^2}$$

$$D_f: \left(\frac{r}{r^2}, \frac{r}{r^2} \right)$$

$$1) r - r|m| \geq 0$$

$$r|m| \leq r$$

$$|m| \leq 1$$

$$-1 \leq m \leq 1$$

$$D_f: [-1, 1]$$

$$\Rightarrow |m| \neq 0$$

$$D_f: \mathbb{R} - \{0\}$$

$$\frac{|m|}{|m|} \geq 0 \quad \checkmark$$