

الف) $x^2 - 2x + 1 = 0 \Rightarrow (x-1)^2 = 0 \Rightarrow x = 1$ $\Rightarrow D_f = \{1\}$

ب) $x^2 - 3x + 2 = 0 \Rightarrow (x-1)(x-2) = 0 \Rightarrow x = 1, 2$ $\Rightarrow D_f = \{1, 2\}$

ج) $x^2 - 4x + 4 = 0 \Rightarrow (x-2)^2 = 0 \Rightarrow x = 2$ $\Rightarrow D_f = \{2\}$

د) $x^2 - 5x + 6 = 0 \Rightarrow (x-2)(x-3) = 0 \Rightarrow x = 2, 3$ $\Rightarrow D_f = \{2, 3\}$

ه) $x^2 - 6x + 9 = 0 \Rightarrow (x-3)^2 = 0 \Rightarrow x = 3$ $\Rightarrow D_f = \{3\}$

و) $x^2 - 7x + 12 = 0 \Rightarrow (x-3)(x-4) = 0 \Rightarrow x = 3, 4$ $\Rightarrow D_f = \{3, 4\}$

ز) $x^2 - 8x + 15 = 0 \Rightarrow (x-3)(x-5) = 0 \Rightarrow x = 3, 5$ $\Rightarrow D_f = \{3, 5\}$

ح) $x^2 - 9x + 14 = 0 \Rightarrow (x-2)(x-7) = 0 \Rightarrow x = 2, 7$ $\Rightarrow D_f = \{2, 7\}$

ط) $x^2 - 10x + 21 = 0 \Rightarrow (x-3)(x-7) = 0 \Rightarrow x = 3, 7$ $\Rightarrow D_f = \{3, 7\}$

ث) $x^2 - 11x + 28 = 0 \Rightarrow (x-4)(x-7) = 0 \Rightarrow x = 4, 7$ $\Rightarrow D_f = \{4, 7\}$

ج) $x^2 - 12x + 35 = 0 \Rightarrow (x-5)(x-7) = 0 \Rightarrow x = 5, 7$ $\Rightarrow D_f = \{5, 7\}$

د) $x^2 - 13x + 42 = 0 \Rightarrow (x-6)(x-7) = 0 \Rightarrow x = 6, 7$ $\Rightarrow D_f = \{6, 7\}$

ه) $x^2 - 14x + 49 = 0 \Rightarrow (x-7)^2 = 0 \Rightarrow x = 7$ $\Rightarrow D_f = \{7\}$

و) $x^2 - 15x + 54 = 0 \Rightarrow (x-6)(x-9) = 0 \Rightarrow x = 6, 9$ $\Rightarrow D_f = \{6, 9\}$

ز) $x^2 - 16x + 63 = 0 \Rightarrow (x-7)(x-9) = 0 \Rightarrow x = 7, 9$ $\Rightarrow D_f = \{7, 9\}$

ح) $x^2 - 17x + 72 = 0 \Rightarrow (x-8)(x-9) = 0 \Rightarrow x = 8, 9$ $\Rightarrow D_f = \{8, 9\}$

ط) $x^2 - 18x + 81 = 0 \Rightarrow (x-9)^2 = 0 \Rightarrow x = 9$ $\Rightarrow D_f = \{9\}$

ث) $x^2 - 19x + 90 = 0 \Rightarrow (x-10)(x-9) = 0 \Rightarrow x = 9, 10$ $\Rightarrow D_f = \{9, 10\}$

ج) $x^2 - 20x + 100 = 0 \Rightarrow (x-10)^2 = 0 \Rightarrow x = 10$ $\Rightarrow D_f = \{10\}$

د) $x^2 - 21x + 110 = 0 \Rightarrow (x-11)(x-10) = 0 \Rightarrow x = 10, 11$ $\Rightarrow D_f = \{10, 11\}$

ه) $x^2 - 22x + 121 = 0 \Rightarrow (x-11)^2 = 0 \Rightarrow x = 11$ $\Rightarrow D_f = \{11\}$

و) $x^2 - 23x + 132 = 0 \Rightarrow (x-12)(x-11) = 0 \Rightarrow x = 11, 12$ $\Rightarrow D_f = \{11, 12\}$

ز) $x^2 - 24x + 144 = 0 \Rightarrow (x-12)^2 = 0 \Rightarrow x = 12$ $\Rightarrow D_f = \{12\}$

ح) $x^2 - 25x + 156 = 0 \Rightarrow (x-13)(x-12) = 0 \Rightarrow x = 12, 13$ $\Rightarrow D_f = \{12, 13\}$

ط) $x^2 - 26x + 169 = 0 \Rightarrow (x-13)^2 = 0 \Rightarrow x = 13$ $\Rightarrow D_f = \{13\}$

ث) $x^2 - 27x + 182 = 0 \Rightarrow (x-14)(x-13) = 0 \Rightarrow x = 13, 14$ $\Rightarrow D_f = \{13, 14\}$

ج) $x^2 - 28x + 196 = 0 \Rightarrow (x-14)^2 = 0 \Rightarrow x = 14$ $\Rightarrow D_f = \{14\}$

د) $x^2 - 29x + 210 = 0 \Rightarrow (x-15)(x-14) = 0 \Rightarrow x = 14, 15$ $\Rightarrow D_f = \{14, 15\}$

ه) $x^2 - 30x + 225 = 0 \Rightarrow (x-15)^2 = 0 \Rightarrow x = 15$ $\Rightarrow D_f = \{15\}$

و) $x^2 - 31x + 242 = 0 \Rightarrow (x-16)(x-15) = 0 \Rightarrow x = 15, 16$ $\Rightarrow D_f = \{15, 16\}$

ز) $x^2 - 32x + 256 = 0 \Rightarrow (x-16)^2 = 0 \Rightarrow x = 16$ $\Rightarrow D_f = \{16\}$

ح) $x^2 - 33x + 276 = 0 \Rightarrow (x-17)(x-16) = 0 \Rightarrow x = 16, 17$ $\Rightarrow D_f = \{16, 17\}$

ط) $x^2 - 34x + 299 = 0 \Rightarrow (x-17)(x-17) = 0 \Rightarrow x = 17$ $\Rightarrow D_f = \{17\}$

ث) $x^2 - 35x + 320 = 0 \Rightarrow (x-18)(x-17) = 0 \Rightarrow x = 17, 18$ $\Rightarrow D_f = \{17, 18\}$

ج) $x^2 - 36x + 343 = 0 \Rightarrow (x-18)^2 = 0 \Rightarrow x = 18$ $\Rightarrow D_f = \{18\}$

د) $x^2 - 37x + 364 = 0 \Rightarrow (x-19)(x-18) = 0 \Rightarrow x = 18, 19$ $\Rightarrow D_f = \{18, 19\}$

ه) $x^2 - 38x + 385 = 0 \Rightarrow (x-19)(x-20) = 0 \Rightarrow x = 19, 20$ $\Rightarrow D_f = \{19, 20\}$

و) $x^2 - 39x + 406 = 0 \Rightarrow (x-20)(x-20) = 0 \Rightarrow x = 20$ $\Rightarrow D_f = \{20\}$

ز) $x^2 - 40x + 429 = 0 \Rightarrow (x-21)(x-20) = 0 \Rightarrow x = 20, 21$ $\Rightarrow D_f = \{20, 21\}$

ح) $x^2 - 41x + 456 = 0 \Rightarrow (x-21)(x-22) = 0 \Rightarrow x = 21, 22$ $\Rightarrow D_f = \{21, 22\}$

ط) $x^2 - 42x + 484 = 0 \Rightarrow (x-22)^2 = 0 \Rightarrow x = 22$ $\Rightarrow D_f = \{22\}$

ث) $x^2 - 43x + 513 = 0 \Rightarrow (x-23)(x-22) = 0 \Rightarrow x = 22, 23$ $\Rightarrow D_f = \{22, 23\}$

ج) $x^2 - 44x + 544 = 0 \Rightarrow (x-23)(x-24) = 0 \Rightarrow x = 23, 24$ $\Rightarrow D_f = \{23, 24\}$

د) $x^2 - 45x + 576 = 0 \Rightarrow (x-24)^2 = 0 \Rightarrow x = 24$ $\Rightarrow D_f = \{24\}$

ه) $x^2 - 46x + 609 = 0 \Rightarrow (x-25)(x-24) = 0 \Rightarrow x = 24, 25$ $\Rightarrow D_f = \{24, 25\}$

و) $x^2 - 47x + 644 = 0 \Rightarrow (x-26)(x-25) = 0 \Rightarrow x = 25, 26$ $\Rightarrow D_f = \{25, 26\}$

ز) $x^2 - 48x + 681 = 0 \Rightarrow (x-26)(x-26) = 0 \Rightarrow x = 26$ $\Rightarrow D_f = \{26\}$

ح) $x^2 - 49x + 720 = 0 \Rightarrow (x-27)(x-26) = 0 \Rightarrow x = 26, 27$ $\Rightarrow D_f = \{26, 27\}$

ط) $x^2 - 50x + 761 = 0 \Rightarrow (x-27)(x-28) = 0 \Rightarrow x = 27, 28$ $\Rightarrow D_f = \{27, 28\}$

ث) $x^2 - 51x + 804 = 0 \Rightarrow (x-28)(x-28) = 0 \Rightarrow x = 28$ $\Rightarrow D_f = \{28\}$

ج) $x^2 - 52x + 848 = 0 \Rightarrow (x-29)(x-29) = 0 \Rightarrow x = 29$ $\Rightarrow D_f = \{29\}$

د) $x^2 - 53x + 893 = 0 \Rightarrow (x-30)(x-29) = 0 \Rightarrow x = 29, 30$ $\Rightarrow D_f = \{29, 30\}$

ه) $x^2 - 54x + 938 = 0 \Rightarrow (x-31)(x-30) = 0 \Rightarrow x = 30, 31$ $\Rightarrow D_f = \{30, 31\}$

و) $x^2 - 55x + 985 = 0 \Rightarrow (x-32)(x-31) = 0 \Rightarrow x = 31, 32$ $\Rightarrow D_f = \{31, 32\}$

ز) $x^2 - 56x + 1032 = 0 \Rightarrow (x-33)(x-32) = 0 \Rightarrow x = 32, 33$ $\Rightarrow D_f = \{32, 33\}$

ح) $x^2 - 57x + 1081 = 0 \Rightarrow (x-34)(x-33) = 0 \Rightarrow x = 33, 34$ $\Rightarrow D_f = \{33, 34\}$

ط) $x^2 - 58x + 1132 = 0 \Rightarrow (x-35)(x-34) = 0 \Rightarrow x = 34, 35$ $\Rightarrow D_f = \{34, 35\}$

ث) $x^2 - 59x + 1185 = 0 \Rightarrow (x-36)(x-35) = 0 \Rightarrow x = 35, 36$ $\Rightarrow D_f = \{35, 36\}$

ج) $x^2 - 60x + 1240 = 0 \Rightarrow (x-37)(x-36) = 0 \Rightarrow x = 36, 37$ $\Rightarrow D_f = \{36, 37\}$

د) $x^2 - 61x + 1297 = 0 \Rightarrow (x-38)(x-37) = 0 \Rightarrow x = 37, 38$ $\Rightarrow D_f = \{37, 38\}$

ه) $x^2 - 62x + 1356 = 0 \Rightarrow (x-39)(x-38) = 0 \Rightarrow x = 38, 39$ $\Rightarrow D_f = \{38, 39\}$

و) $x^2 - 63x + 1417 = 0 \Rightarrow (x-40)(x-39) = 0 \Rightarrow x = 39, 40$ $\Rightarrow D_f = \{39, 40\}$

ز) $x^2 - 64x + 1480 = 0 \Rightarrow (x-41)(x-40) = 0 \Rightarrow x = 40, 41$ $\Rightarrow D_f = \{40, 41\}$

ح) $x^2 - 65x + 1545 = 0 \Rightarrow (x-42)(x-41) = 0 \Rightarrow x = 41, 42$ $\Rightarrow D_f = \{41, 42\}$

ط) $x^2 - 66x + 1612 = 0 \Rightarrow (x-43)(x-42) = 0 \Rightarrow x = 42, 43$ $\Rightarrow D_f = \{42, 43\}$

ث) $x^2 - 67x + 1681 = 0 \Rightarrow (x-44)(x-43) = 0 \Rightarrow x = 43, 44$ $\Rightarrow D_f = \{43, 44\}$

ج) $x^2 - 68x + 1752 = 0 \Rightarrow (x-45)(x-44) = 0 \Rightarrow x = 44, 45$ $\Rightarrow D_f = \{44, 45\}$

د) $x^2 - 69x + 1825 = 0 \Rightarrow (x-46)(x-45) = 0 \Rightarrow x = 45, 46$ $\Rightarrow D_f = \{45, 46\}$

ه) $x^2 - 70x + 1900 = 0 \Rightarrow (x-47)(x-46) = 0 \Rightarrow x = 46, 47$ $\Rightarrow D_f = \{46, 47\}$

و) $x^2 - 71x + 1977 = 0 \Rightarrow (x-48)(x-47) = 0 \Rightarrow x = 47, 48$ $\Rightarrow D_f = \{47, 48\}$

ز) $x^2 - 72x + 2056 = 0 \Rightarrow (x-49)(x-48) = 0 \Rightarrow x = 48, 49$ $\Rightarrow D_f = \{48, 49\}$

ح) $x^2 - 73x + 2137 = 0 \Rightarrow (x-50)(x-49) = 0 \Rightarrow x = 49, 50$ $\Rightarrow D_f = \{49, 50\}$

ط) $x^2 - 74x + 2220 = 0 \Rightarrow (x-51)(x-50) = 0 \Rightarrow x = 50, 51$ $\Rightarrow D_f = \{50, 51\}$

ث) $x^2 - 75x + 2305 = 0 \Rightarrow (x-52)(x-51) = 0 \Rightarrow x = 51, 52$ $\Rightarrow D_f = \{51, 52\}$

ج) $x^2 - 76x + 2392 = 0 \Rightarrow (x-53)(x-52) = 0 \Rightarrow x = 52, 53$ $\Rightarrow D_f = \{52, 53\}$

د) $x^2 - 77x + 2481 = 0 \Rightarrow (x-54)(x-53) = 0 \Rightarrow x = 53, 54$ $\Rightarrow D_f = \{53, 54\}$

ه) $x^2 - 78x + 2572 = 0 \Rightarrow (x-55)(x-54) = 0 \Rightarrow x = 54, 55$ $\Rightarrow D_f = \{54, 55\}$

و) $x^2 - 79x + 2665 = 0 \Rightarrow (x-56)(x-55) = 0 \Rightarrow x = 55, 56$ $\Rightarrow D_f = \{55, 56\}$

ز) $x^2 - 80x + 2760 = 0 \Rightarrow (x-57)(x-56) = 0 \Rightarrow x = 56, 57$ $\Rightarrow D_f = \{56, 57\}$

ح) $x^2 - 81x + 2857 = 0 \Rightarrow (x-58)(x-57) = 0 \Rightarrow x = 57, 58$ $\Rightarrow D_f = \{57, 58\}$

ط) $x^2 - 82x + 2956 = 0 \Rightarrow (x-59)(x-58) = 0 \Rightarrow x = 58, 59$ $\Rightarrow D_f = \{58, 59\}$

ث) $x^2 - 83x + 3057 = 0 \Rightarrow (x-60)(x-59) = 0 \Rightarrow x = 59, 60$ $\Rightarrow D_f = \{59, 60\}$

ج) $x^2 - 84x + 3160 = 0 \Rightarrow (x-61)(x-60) = 0 \Rightarrow x = 60, 61$ $\Rightarrow D_f = \{60, 61\}$

د) $x^2 - 85x + 3265 = 0 \Rightarrow (x-62)(x-61) = 0 \Rightarrow x = 61, 62$ $\Rightarrow D_f = \{61, 62\}$

ه) $x^2 - 86x + 3372 = 0 \Rightarrow (x-63)(x-62) = 0 \Rightarrow x = 62, 63$ $\Rightarrow D_f = \{62, 63\}$

و) $x^2 - 87x + 3481 = 0 \Rightarrow (x-64)(x-63) = 0 \Rightarrow x = 63, 64$ $\Rightarrow D_f = \{63, 64\}$

ز) $x^2 - 88x + 3592 = 0 \Rightarrow (x-65)(x-64) = 0 \Rightarrow x = 64, 65$ $\Rightarrow D_f = \{64, 65\}$

ح) $x^2 - 89x + 3705 = 0 \Rightarrow (x-66)(x-65) = 0 \Rightarrow x = 65, 66$ $\Rightarrow D_f = \{65, 66\}$

ط) $x^2 - 90x + 3820 = 0 \Rightarrow (x-67)(x-66) = 0 \Rightarrow x = 66, 67$ $\Rightarrow D_f = \{66, 67\}$

ث) $x^2 - 91x + 3937 = 0 \Rightarrow (x-68)(x-67) = 0 \Rightarrow x = 67, 68$ $\Rightarrow D_f = \{67, 68\}$

ج) $x^2 - 92x + 4056 = 0 \Rightarrow (x-69)(x-68) = 0 \Rightarrow x = 68, 69$ $\Rightarrow D_f = \{68, 69\}$

د) $x^2 - 93x + 4177 = 0 \Rightarrow (x-70)(x-69) = 0 \Rightarrow x = 69, 70$ $\Rightarrow D_f = \{69, 70\}$

ه) $x^2 - 94x + 4300 = 0 \Rightarrow (x-71)(x-70) = 0 \Rightarrow x = 70, 71$ $\Rightarrow D_f = \{70, 71\}$

و) $x^2 - 95x + 4425 = 0 \Rightarrow (x-72)(x-71) = 0 \Rightarrow x = 71, 72$ $\Rightarrow D_f = \{71, 72\}$

ز) $x^2 - 96x + 4552 = 0 \Rightarrow (x-73)(x-72) = 0 \Rightarrow x = 72, 73$ $\Rightarrow D_f = \{72, 73\}$

ح) $x^2 - 97x + 4681 = 0 \Rightarrow (x-74)(x-73) = 0 \Rightarrow x = 73, 74$ $\Rightarrow D_f = \{73, 74\}$

ط) $x^2 - 98x + 4812 = 0 \Rightarrow (x-75)(x-74) = 0 \Rightarrow x = 74, 75$ $\Rightarrow D_f = \{74, 75\}$

ث) $x^2 - 99x + 4945 = 0 \Rightarrow (x-76)(x-75) = 0 \Rightarrow x = 75, 76$ $\Rightarrow D_f = \{75, 76\}$

ج) $x^2 - 100x + 5080 = 0 \Rightarrow (x-77)(x-76) = 0 \Rightarrow x = 76, 77$ $\Rightarrow D_f = \{76, 77\}$

$$(الف) \frac{x^2 - 6x + 2}{x^2 - 1} > 0 \Rightarrow \frac{(x-1)(x-2)}{(x-1)(x+1)} > 0 \Rightarrow \frac{1}{-} \frac{+}{-} \frac{+}{+} \Rightarrow D_f = [2, +\infty)$$

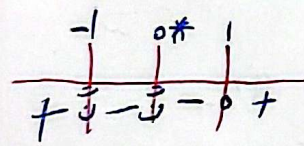
$$x^2 - 1 = 0 \Rightarrow x^2 = 1 \Rightarrow x = 1 \text{ or } x = -1$$

$$\Rightarrow D_f = \mathbb{R} - \{-1\}$$

$$(ب) \left[\frac{1-x}{x-2} > 0 \Rightarrow x < 2 \text{ or } x > 1 \right] \cup \left[\frac{x^2 - 7x + 12}{x-2} > 0 \Rightarrow \frac{(x-3)(x-4)}{x-2} > 0 \Rightarrow x > 4 \right] \Rightarrow D_f = (1, 2) \cup (4, +\infty)$$

$$\left\{ \begin{array}{l} x^2 - 11x + 21 > 0 \Rightarrow (x-3)(x-7) > 0 \Rightarrow x < 3 \text{ or } x > 7 \\ \sqrt{x^2 - 3x} > 0 \Rightarrow x^2 - 3x > 0 \Rightarrow -3 < x < 3 \end{array} \right\} \Rightarrow D_f = (0, 1) \cup (1, 3)$$

$$\frac{x^2 - x}{x^2 + x} = \frac{x(x-1)}{x(x+1)} \Rightarrow$$

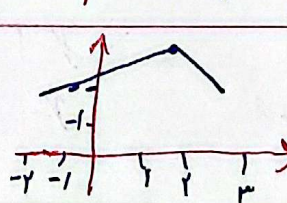
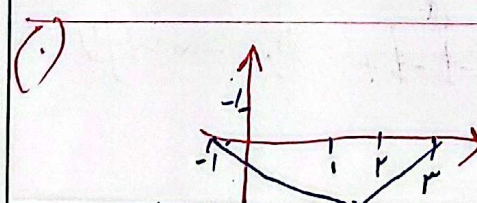
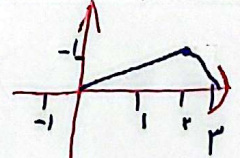
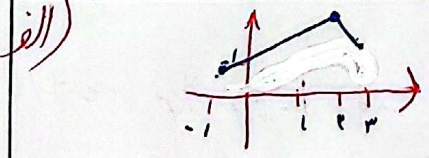


	-1	0	1	
$x^2 - x$	+	+	-	+
$x^2 + x$	+	+	+	+
	+	-	-	+

$$\frac{x - f(x)}{f(x)} > 0 \Rightarrow \left[\begin{array}{l} (1) x - f(x) > 0 \text{ and } f(x) > 0 \\ (2) x - f(x) < 0 \text{ and } f(x) < 0 \end{array} \right] \Rightarrow D_f = (-\infty, -\frac{1}{3}) \cup [0, 3]$$

$$\begin{cases} f(a) + c = 0 \rightarrow c = -f(a) \\ f(a) + c = r \rightarrow c = r - f(a) \end{cases} \Rightarrow x^2 - 9a = -f(a) \Rightarrow x^2 = 9a \Rightarrow a = \frac{x^2}{9}, c = -\frac{12}{a}$$

$$8 = 12a + c = 12a + (-\frac{12}{a}) = x^2 \Rightarrow x^2 - 12a - 12 = 0 \Rightarrow \frac{0 \pm \sqrt{144}}{1} \Rightarrow x = \pm 12$$



$$(الف) x^2 - 3x > 0$$

$$\Rightarrow x(x-3) > 0 \Rightarrow x > 3 \text{ or } x < 0$$

$$\Rightarrow D_f = (-\infty, 0) \cup (3, +\infty)$$

$$\left\{ \begin{array}{l} 14 - x^2 > 0 \Rightarrow x^2 < 14 \Rightarrow -\sqrt{14} < x < \sqrt{14} \\ |x - 2| > 0 \Rightarrow |x| > 2 \Rightarrow x > 2 \text{ or } x < -2 \\ |x - 2| < 1 \Rightarrow |x| < 3 \Rightarrow -3 < x < 3 \end{array} \right\} \Rightarrow D_f = (-\sqrt{14}, -2) \cup (-2, 2) \cup (2, \sqrt{14})$$