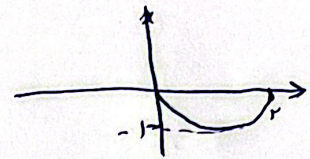
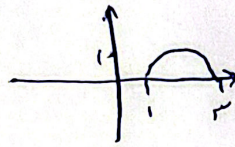
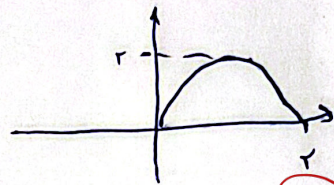


الف) $f(x+2)$

ب) $2f(x)$

ج) $f(x-1)$

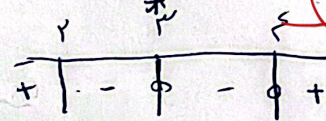
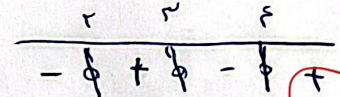
د) $-f(x)$



د

الف) $y = (x-2)(x-3)(x-4)$

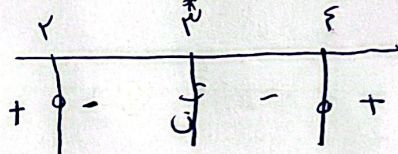
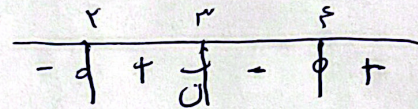
ب) $y = (x-2)(x-3)^2(x-4)$



ب

الف) $y = \frac{(x-2)(x-4)}{x-3}$

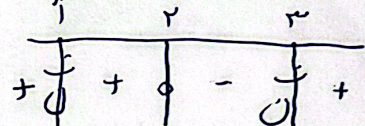
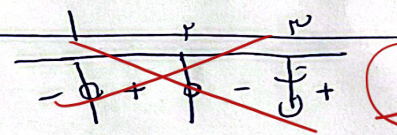
ب) $y = \frac{(x-2)(x-4)}{(x-3)^2}$



ب

الف) $y = \frac{x^3 - 2x + 2}{x-3} = \frac{(x-2)(x-1)}{x-3}$

ب) $y = \frac{x^2 - 4x + 2}{x^2 - 4x + 2} = \frac{(x-2)(x-1)}{(x-3)(x-1)}$



ب

الف) $y = \frac{x^4 - x^2}{x^2 + x + 2} = \frac{x^2(x^2 - 1)}{x^2 + x + 2} = \frac{x^2(x+1)(x-1)}{x^2 + x + 2}$

ب) $y = \frac{x^2 + 3x + 2}{x^2 + 2x + 2} \Rightarrow$ دانه فرد و دانه زوج
 $\Rightarrow D(y) = \mathbb{R}$

حرف به این هر مقداری است
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الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - 4}}$

ب) $y = \sqrt{\frac{x^2 - 1}{x^2 - 4x + 4}}$

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

$= \sqrt{\frac{(x^2 + x + 1)}{x(x+1)}}$
 $D(y) = \mathbb{R} - (-4, 1) - \{4\}$

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 $D(y) = \mathbb{R} - [-1, 4]$
 $= \{x\}$