

الف) $y^3 = 2x^2 - 1$ $x_1 = x_2$ $y^3 = y^3 \rightarrow y = y$ ✓
 ۱) $y^3 = 2x^2 - 1$

ب) $y^3 + y = 2x^2 - 1$ $x_1 = x_2$ $y^3 + y = y^3 + y$ ✓
 ۱) $y^3 + y = 2x^2 - 1$

الف) $y = x^2 - 1$ $x_1 = x_2$ $y = y$ ✓
 ۱) $y = x^2 - 1$

ب) $|y| + xy = x^2 + 1$ $x_1 = x_2$ $|y| = 1 \rightarrow y = \pm 1$ ✓

ج) $y^3 + x^3 = 2x - 1$ $y^3 = -x^3 + 2x - 1$ $x_1 = x_2$ $y^3 = y^3$ ✓
 ۱) $y^3 = -x^3 + 2x - 1$

الف) $\tan \frac{\pi}{3} = \tan 60^\circ$ 90° $\frac{1}{\sqrt{3}}$ $\tan 45^\circ = \frac{\sqrt{3}}{1} = \sqrt{3}$

ب) $\cot \frac{\pi}{4} = \cot 45^\circ$ 90° $\frac{\sqrt{3}}{1} = \sqrt{3}$

ج) $\tan 45^\circ = \frac{1}{1} = 1$ $\tan 60^\circ = \frac{\sqrt{3}}{1} = \sqrt{3}$

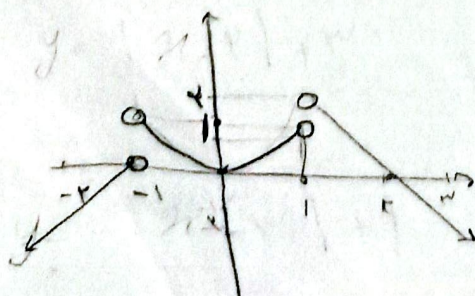
د) $\cot 180^\circ = \frac{1}{0}$ $\cot 180^\circ = \frac{1}{0}$ $\frac{1}{0}$ $\frac{1}{0}$

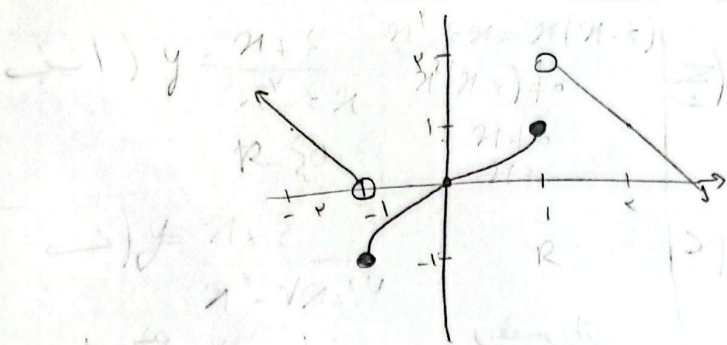
الف) $\sin \alpha = \frac{1}{2} \rightarrow 30^\circ, 150^\circ \rightarrow \frac{\pi}{6}, \frac{5\pi}{6}$

ب) $y = \sin x$

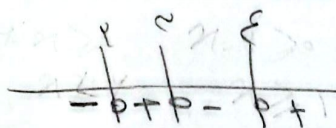
ج) $\cos \alpha = \frac{\sqrt{3}}{2} \rightarrow 30^\circ, 150^\circ \rightarrow \frac{\pi}{6}, \frac{5\pi}{6}$

د) $y = \cos x$





الف) $y = (x-2)(x-3)(x-4)$



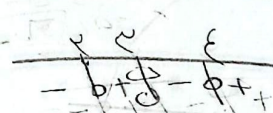
$y > 0 \Rightarrow (2, 3) \cup (3, 4)$
 $y < 0 \Rightarrow (-\infty, 2) \cup (4, +\infty)$

ب) $y = (x-1)(x-2)^2(x-3)$

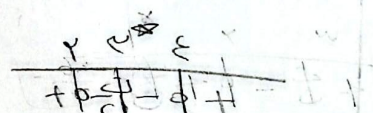


$y > 0 \Rightarrow (-\infty, 1) \cup (2, 3)$
 $y < 0 \Rightarrow (1, 2) \cup (3, +\infty)$

الف) $y = \frac{(x-2)(x-3)}{x-1}$



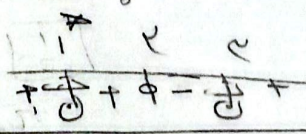
ب) $y = \frac{(x-2)(x-3)}{(x-1)^2}$



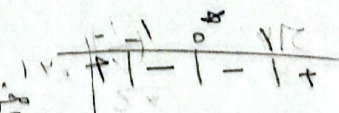
الف) $\frac{x^2 - 2x + 2}{x-1} = \frac{(x-1)(x+2)}{x-1}$

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

ب) $y = \frac{x^2 - 2x + 2}{(x-1)^2}$



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



ب) $\frac{x^2 + 2x + 1}{x^2 + 2x + 1} = 1$

$y > 0 \Rightarrow (-\infty, +\infty)$