۱

$D_f = [-1, 1]$

$x=1 \rightarrow \sqrt{1-1} = 0$

$x=-1 \rightarrow \sqrt{1-1} = 0$

$x=0 \rightarrow \sqrt{1-0} = 1$

$\{(1,0), (-1,0), (0,1)\} = f(x)$

$۲\times۱ - ۳\times۰ = ۲$

$۲\times۴ - ۳\times۱ = ۵$

$۲\times(۴+۳) - ۳\times۰ = ۴$

$۵ + ۴ + ۲ = ۱۱$

۲

$۲x-۱$ $[۳, +\infty)$ $۲\times۳-۱ = ۵$ $R_f = [۵, +\infty)$

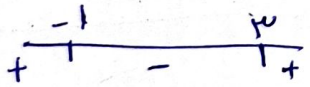
$\frac{۱}{۳}x+۳$ $(-\infty, ۳]$ $\frac{۱}{۳}\times۳+۳ = ۴$ R_f $(-\infty, ۴]$

$f \cup g = (-\infty, ۴] \cup [۵, +\infty)$

۳

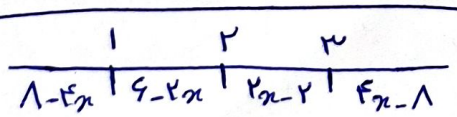
$\left(\frac{-x^۲}{۲} + x + ۳ > \frac{۳}{۲}\right) \times ۲$ $-x^۲ + ۲x + ۶ > ۳$ $x^۲ - ۲x - ۳ < ۰$

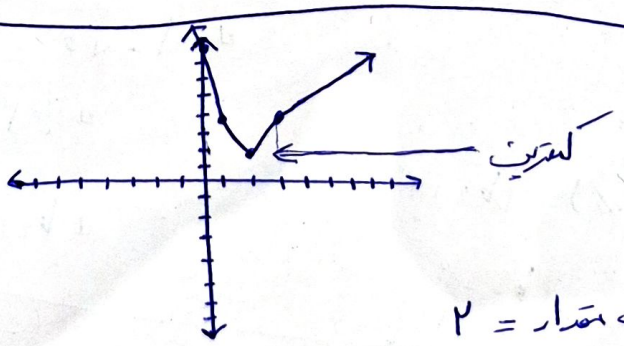
$(x-۳)(x+۱) < ۰$



$(a, b) = (-۱, ۳)$ $\sqrt{۳-(-۱)} = ۲$

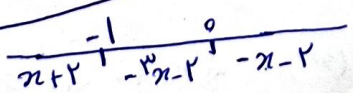
۴

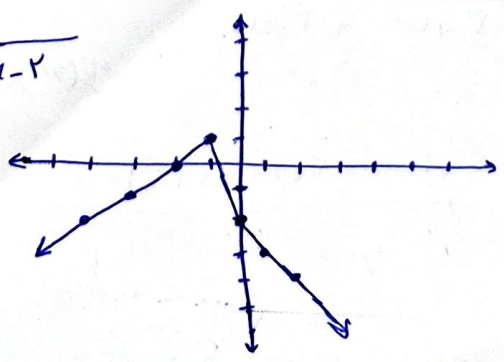




کمترین مقدار $= ۲$

۵





$R_f = (-\infty, ۱]$

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

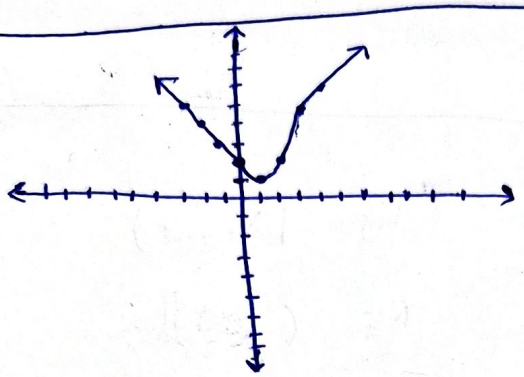
بما أن $x = -1$

$x^2 + 5x + m = 0$

$1 - 5 + m = 0$

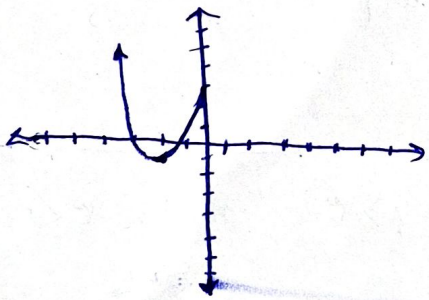
$m = 4$

٦



$R_f = [1, +\infty)$

٧



$R_f [x^2] - 2x = (-1, 0]$

اجتماع المجالين

$R_f = [-1, +\infty)$

٨

$2x + 3 \geq 0$

$2x \geq -3$

$x \geq \frac{-3}{2}$

$[\frac{-3}{2}, +\infty) = [b, +\infty)$

$b = \frac{-3}{2}$

$a + 1 - \sqrt{0} = 5$

$a = 4$

$ab = \frac{-3}{2} \times 4 = -6$

٩

$f(x) + g(x) = 3\sqrt{(\sqrt{1-x} + \sqrt{1+x})^2} = 3\sqrt{1-x} + 3\sqrt{1+x}$

$g(x) = \sqrt{x+1} - \sqrt{1-x}$

$\frac{f(x) - 2g(x)}{6} = \frac{2\sqrt{x+1} + 4\sqrt{1-x} - 2\sqrt{x+1} + 2\sqrt{1-x}}{6} = \frac{6\sqrt{1-x}}{6} = \sqrt{1-x}$

١٠

$D_f = [-1, 1]$ $\sqrt{1+1} = \sqrt{2}$ $\sqrt{1-1} = 0$ $R_f = [0, \sqrt{2}]$