

الف) $x = \frac{1}{4}$ هر مورد ۰/۵ نمره

ب) $x = \frac{1}{2}$

۱- الف) $\frac{1}{2}$

ب) نادریست هر مورد (۰/۵) نمره

۲- الف) نادریست

ب) نرینه ۲ = هر مورد (۱) نمره

۳- الف) نرینه ۱

۴- $x^2 - x = x^2_{(1/2)}$ $x^2 + x - 2 = 0_{(1/2)}$ $(x-1)(x+2) = 0$ $x = 1$ و 3 (۱/۵)

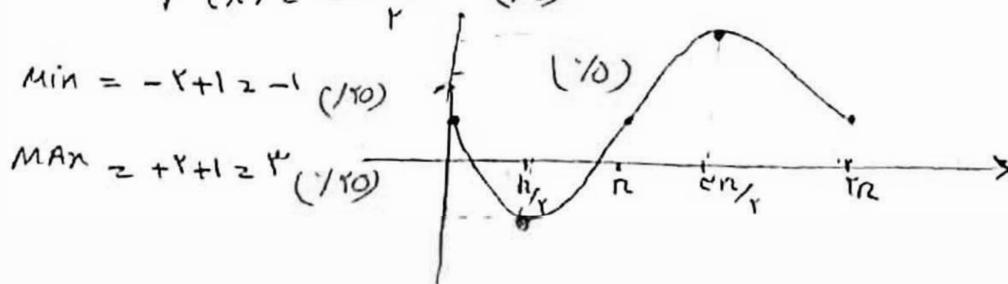
۵- $\left\{ \begin{array}{l} AH^2 + BH^2 = AB^2 \rightarrow 9 + BH^2 = 25, BH = 4 \text{ (۱/۵)} \\ AB^2 = BH \times BC \rightarrow 25 = 4 \times BC \rightarrow BC = \frac{25}{4} \text{ (۱/۵)} \end{array} \right.$

۶- الف) $\left(\frac{f}{g}\right)(x) = \frac{\frac{x+2}{x-1}}{\frac{x^2-5}{1}} = \frac{(x+2)}{(x-1)(x^2-5)} = \frac{1}{(x-1)(x-2)(1/5)}$

$D_{f/g} = \{R - \{ \pm 2 \} \} \text{ (۱/۵)}$

ب) $(f + \frac{1}{g})(-1) = f(-1) + \frac{1}{g}(-1) = -\frac{1}{4} + 2(-5) = -\frac{1}{4} - 10 = -\frac{41}{4}$ (۰/۱)

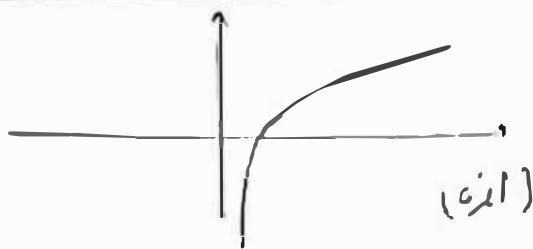
$f^{-1}(x) = \frac{x+1}{2} \text{ (۱/۵)}$



$\cos(2\pi + \frac{\pi}{4}) = \cos \frac{\pi}{4} = \frac{1}{\sqrt{2}} \text{ (۱/۵)}$ $(\frac{1}{\sqrt{2}})(-1) - (+1) = -\frac{1}{\sqrt{2}} - 1 = -\frac{1}{\sqrt{2}} - \frac{\sqrt{2}}{\sqrt{2}} = -\frac{1+\sqrt{2}}{\sqrt{2}}$

$\sin(\frac{11\pi}{4}) = \sin(4\pi - \frac{\pi}{4}) = -\sin \frac{\pi}{4} = -\frac{1}{\sqrt{2}} \text{ (۱/۵)}$

$\tan(\frac{11\pi}{4}) = \tan(4\pi - \frac{\pi}{4}) = -\tan \frac{\pi}{4} = -1 \text{ (۱/۵)}$



(10)

$$\log \sqrt{r \times r} \rightarrow \log r^{1/2} + \log r^{1/2} = \frac{1}{2} \log r + \frac{1}{2} \log r = \frac{a+b}{2} \quad (11)$$

$$1) \lim_{x \rightarrow 1^+} f(x) = 2 \quad (10) \quad 2) \lim_{x \rightarrow 1^-} f(x) = 1 \quad (12 - الف)$$

ب) دالة [الف] و حدود موجودات من حدود دالة (10)

$$\lim_{x \rightarrow 2} \frac{x^2 - 2x}{x^2 - 4} = \frac{0}{0} \quad (10) \rightarrow \lim_{x \rightarrow 2} \frac{x(x-2)}{(x-2)(x+2)} = \frac{2}{4} = \frac{1}{2} \quad (13)$$

$$f(-1) = a(-1) + b = -a + b \quad (14)$$

$$\lim_{x \rightarrow -1} f(x) = -1 \quad (10) \quad \lim_{x \rightarrow -1^+} f(x) = (-1)^2 - 3b = 1 - 3b$$

$$\begin{cases} 1 - 3b = -1 \rightarrow -3b = -2 \rightarrow b = \frac{2}{3} \quad (10) \\ -a + b = -1 \rightarrow -a = -1 - \frac{2}{3} \rightarrow -a = -\frac{5}{3} \rightarrow a = \frac{5}{3} \end{cases}$$

$$الف) P(A \cap B) = P(A) \times P(B) = \frac{1}{5} \times \frac{1}{5} = \frac{1}{25} \quad (15)$$

$$ب) P(A \cup B) = P(A) + P(B) - P(A \cap B) = \frac{1}{5} + \frac{1}{5} - \frac{1}{25} = \frac{9}{25} \quad (16)$$

$$\bar{x} = 10 \quad (10)$$

$$\bar{x} = \frac{8+11+10+12+14}{5} = \frac{55}{5} = 11 \quad (10) \quad s^2 = \frac{(8-11)^2 + (11-11)^2 + (10-11)^2 + (12-11)^2 + (14-11)^2}{5}$$

$$s^2 = \frac{9+0+1+1+9}{5} = \frac{20}{5} = 4 \quad (10) \quad [s = 2] \quad (10)$$