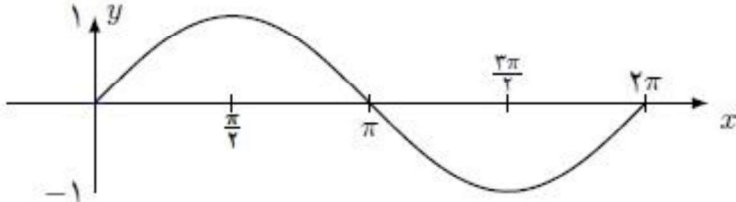
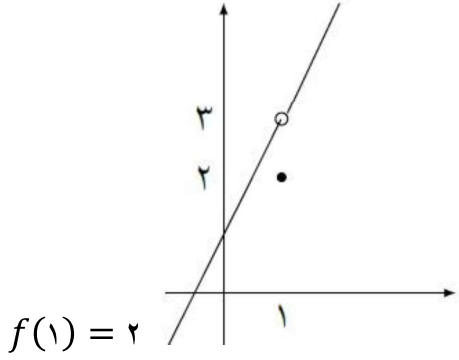
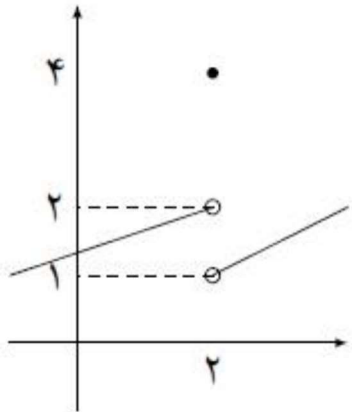


۱	الف) درست	ب) درست	پ) نادرست	ت) درست	۱
۲	الف) یک نقطه	ب) $\frac{4}{5}$	پ) $-1$	ت) $\frac{2}{3}$	۱
۳	الف) $(0, +\infty)$	ب) ۲	پ) راست		۰/۷۵
۴				$\begin{cases} a_v = \frac{1}{2} a_r \Rightarrow 2a + 12d = a + 2d \Rightarrow a = -10d \\ S_n = \frac{n}{2} [2a + (n-1)d] \Rightarrow \frac{n}{2} [2(-10d) + (n-1)d] = \\ \frac{n}{2} [d(n-21)] = 0 \Rightarrow n = 21 \end{cases}$	۱/۵
۵				$M = (0, 2) \quad m_{AB} = \frac{2-1}{-2-2} = -\frac{1}{4} \Rightarrow m_d = 2$ $y - 2 = 2(x - 0) \Rightarrow y = 2x + 2$	۱/۵
۶				$a^2 - 1 = 3 \Rightarrow a^2 = 4 \Rightarrow a = \pm 2$ $2b = 4 \Rightarrow b = 2$	۰/۷۵
۷				$1 - x \geq 0 \Rightarrow x \leq 1 \Rightarrow D_f = (-\infty, 1]$ $x - 1 \geq 0 \Rightarrow x \geq 1 \Rightarrow [1, +\infty)$ $D_{f \circ g} = \{x \in D_g \mid g(x) \in D_f\} =$ $\{x \in [1, +\infty) \mid \sqrt{x-1} \in (-\infty, 1]\} = [1, 2]$	۱/۲۵
۸				$\log_2(0 + a) = 1 \Rightarrow \log_2 a = 1 \Rightarrow a = 2$	۰/۷۵
۹				$\log_{0.75} = \log_{\frac{3}{4}} = \log 3 - \log 4 = 0.5 - \log 2^2 = 0.5 - 2(0.3)$ $= -0.1$	۰/۷۵
۱۰				$\log_2(x+2)(x-1) = 2 \Rightarrow \log_2(x^2 + x - 2) = 2 \Rightarrow x^2 + x - 2 = 4$ $\Rightarrow x^2 + x - 6 = 0 \Rightarrow (x+3)(x-2) = 0 \Rightarrow$ $\begin{cases} x = -3 \\ x = 2 \end{cases}$ <p style="text-align: right;">۳- جواب نیست.</p>	۱/۲۵

0/5	$5 \times 45^\circ = 225^\circ$	11
0/75	$\cos\left(2\pi + \frac{\pi}{r}\right) = -\cos\frac{\pi}{r} = -\frac{1}{r}$	12
1		13
1/5	$\cos(\alpha - \beta) = \cos\alpha \cos\beta + \sin\alpha \sin\beta = \frac{12}{13} \times \frac{4}{5} + \frac{5}{13} \times \frac{-3}{5} = \frac{22}{65}$	14
1		15
0/75	$\begin{cases} x - 2 < 2 \Rightarrow x < 4 \\ 2x + 2 > 2 \Rightarrow x > 0 \end{cases} \Rightarrow 0 < x < 4$	16
0/75		17

٢/٢٥	<p>الف) <math>\lim_{x \rightarrow 1} \frac{(x+2)(x-1)}{(x-1)(x+1)} = \frac{2}{2}</math></p> <p>ب) <math>\lim_{x \rightarrow 3} \frac{(x-3)(x+3)(\sqrt{3x-5}+2)}{(\sqrt{3x-5}-2)(\sqrt{3x-5}+2)}</math>  <math>= \lim_{x \rightarrow 3} \frac{(x-3)(x+3)(\sqrt{3x-5}+2)}{(3x-9)}</math>  <math>= \lim_{x \rightarrow 3} \frac{(x-3)(x+3)(\sqrt{3x-5}+2)}{3(x-3)} = 8</math></p> <p>ج) <math>\lim_{x \rightarrow \frac{\pi}{2}} \frac{(1-\sin x)(1+\sin x)}{\cos x(1+\sin x)} = \lim_{x \rightarrow \frac{\pi}{2}} \frac{1-\sin^2 x}{\cos x(1+\sin x)}</math>  <math>= \lim_{x \rightarrow \frac{\pi}{2}} \frac{\cos^2 x}{\cos x(1+\sin x)} = \lim_{x \rightarrow \frac{\pi}{2}} \frac{\cos x}{1+\sin x} = \frac{0}{2} = 0</math></p>	١٨
١	$\lim_{x \rightarrow 2^-} (x^2 + 2x - 7) = 4 + 4 - 7 = 1$ $\lim_{x \rightarrow 2^+} (x + 2b) = 2 + 2b = 1 \Rightarrow b = \frac{-1}{2}$ $2a = 1 \Rightarrow a = \frac{1}{2}$ <p>طراح : نقدي</p>	١٩