Subject. ۲۴ تست   دهم ریاضی ۲   ایلیا [illegible]

Day. Month. Year.

①

$$x^2 - Sx + P = y$$

$S = a = 4 \qquad b = P = 3 \times 1 = 3$

$a + b = 7$

②

x		-1		4	
P	$+$	0	$+$	0	$-$

$((k-2)x + m - 1)(x - 3n)^2$

$(x - 3n)^2 = y \to (-1 - 3n)^2 = 0$

$-1 - 3n = 0$

$-1 = 3n$

$-\frac{1}{3} = n$

$k - 2 < 0 \qquad (k-2)x + m - 1 = y$

$k < 2 \qquad 4k - 8 + m - 1 = 0$

$k \in \mathbb{N}$

$k = 1 \Rightarrow 4 - 8 + m - 1 = 0$

$m = 5$

$\frac{5}{-\frac{1}{3}} + k = -14$

③

$$-\frac{1}{2}x^2 + 2x + 6 = f(x)$$

$x^2 + 2x - 3 = 0$

$x = \frac{+3}{-\frac{1}{2}} = 6 \qquad \frac{1}{-\frac{1}{2}} = -2$

	-2		6	
$-$	0	$+$	0	$-$

$6 - (-2) = 8$

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(ج) $f(x) = x^{٣} - ٣x^{٢} - x + ٣ = x^{٢}(x - ٣) - x + ٣$

$(x^{٢} - ١)(x - ٣) = (x - ١)(x + ١)(x - ٣)$

	−١		١		٣	
−		+		−		+

$x > ٠$ قق ع

$(١،٣) \to ٢$: نقطه مشترك

$٨ - ١٢ - ٢ + ٣ = -٥$

$-٤ \quad -١$

(ه)

$a - ١ < ٠$

$a < ١$

$(a - ١)^{٢} - ٤a + ٤ = a^{٢} + ١ - ٢a - ٤a + ٤$

$a^{٢} - ٦a + ٥ < ٠$

	١		٥	
+		−		+

$a \in \varnothing$

(و)

$$\frac{m^{٣}(m^{٢} + n)}{m - ٢}$$

$\to ٥$

$\to ٢$

	٥		٢	
−		−		+

$m \in (٢, +\infty)$

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٧

$$\frac{(x-٣)(x+٢)(x-١)^٢}{(x^٢+x+١)(٢-x)^٢} < ٠$$

دائماً +

١					
	-٢	١	٢	٣	
+	٠	—	—	٠ +	—

$[-٢,٢) \cup [٣+\infty)$

٨

$$f(x) = y$$

$$\frac{٣x^٢-٢x-٢x^٢-٨}{x^٢+٤} < ٠$$

$$\frac{x^٢-٢x-٨}{x^٢+٤} < ٠$$

	-٢		+٤	
+	٠	-	٠	+

$(-٢,٤) \rightarrow ٤-(-٢) = ٦$

٩

$$٠ < \frac{٣x^٢-٤x+x+١}{x+١}$$

$$٠ < \frac{٣x^٢-٣x+١}{x+١} \rightarrow \text{دائماً} + \quad \mathbb{R}$$

$$\frac{٣x^٢-٤x}{x+١} < ٠ \rightarrow \frac{x(٣x-٤)}{x+١} < ٠$$

	-١	٠	$\frac{٤}{٣}$	
-	+	-		+

$(-\infty,-١) \cup (٠,\frac{٤}{٣})$

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۱۰

$$\frac{x^{۲}-۱۰-۳x}{x} \geq ۰$$

	-۲		۰		۵	
$-$		$+$		$-$		$+$

$(-\infty, -۲] \cup (۰, ۵]$