

① $X(D) \quad X(C) \quad \checkmark(B) \quad \checkmark(A) \quad (1)$

② $\frac{1}{2}(C) \quad (B) \quad (-\infty, -1) \cup [2, +\infty) \quad (A) \quad (2) \quad -5(D)$

③ الف $n(A \cup B) = n(A) + n(B) - n(A \cap B)$
 $40 = 30 + 20 - n(A \cap B) \rightarrow n(A \cap B) = 50 - 40 = 10$

ب $n(A \cap B') = n(A - B) = n(A) - n(A \cap B) = 30 - 10 = 20$

④ الف $a_1 = 2 \quad a_2 = 2a_1 + 3 = 4 + 3 = 7 \quad a_3 = 2a_2 + 3 = 14$

ب $\frac{2n-3}{n+1} = \frac{17}{11} \rightarrow 22n - 33 = 17n + 17 \quad n = 10$
 جمله دهم

⑤ د $a_n = 3n - 2$ ب (الف) (ب) (ج) (د)

⑥ $a_{11} = 78 \rightarrow d = \frac{198 - 78}{24 - 11} = \frac{120}{13} = 8$
 $a_{24} = 198$
 $a_{11} = a + 10d \rightarrow 78 = a + 10(8) \quad a = -58$

⑦ $b^2 = ac \rightarrow (2n-1)^2 = x(4n+3)$
 $4n^2 + 1 - 4n = 4n^2 + 3n$
 $-7n = -1 \quad n = \frac{1}{7}$

⑧ الف $2\left(\frac{\sqrt{x}}{y}\right)^2 - 3(1) + \left(\frac{\sqrt{y}}{x}\right)^2 = 2\left(\frac{y}{x}\right) - 3 + \frac{x}{y} = -2 + \frac{x}{y} = \frac{-5}{4}$

ب $S = \frac{1}{r}(\sqrt{r})(4) \sin 60^\circ = \frac{4\sqrt{r}}{r} \left(\frac{\sqrt{3}}{2}\right) = \frac{12}{r} = 3$

γ_0 $\sin \theta = \frac{-r}{a} = \frac{y}{r}$ $x^2 + y^2 = r^2$ (9)
 (10) $\cos \theta = \frac{-\sqrt{r^2 - y^2}}{a}$ $x^2 + r^2 = r^2$ $x^2 = r^2$ $x = -\sqrt{r^2}$
 $\tan \theta = \frac{-r}{-\sqrt{r^2}} = \frac{r\sqrt{r^2}}{r^2}$ $\theta = \frac{-\sqrt{r^2}}{-r} = \frac{\sqrt{r^2}}{r}$

$m = \tan \gamma = \sqrt{r}$ $A \mid -r$ $y = mx + b$ (10)
 $r = \sqrt{r}(-r) + b$ $b = r + r\sqrt{r}$
 $y = \sqrt{r}x + r + r\sqrt{r}$

(10) $\frac{1}{\cos u} - \frac{\sin u}{\cos u} = \frac{1 - \sin u}{\cos u} \times \frac{1 + \sin u}{1 + \sin u} = \frac{1 - \sin^2 u}{\cos u (1 + \sin u)}$ (11)
 $= \frac{\cos^2 u}{\cos u (1 + \sin u)} = \frac{\cos u}{1 + \sin u}$

(10) $r\sqrt{a^2} - |a| + \sqrt{a^2} = r|a| - |a| + a = -ra + a + a = 0$ (الف) (12)
 $a < 0 \Rightarrow -a - a + a = 0$
 $-\sqrt{r^2 a^2} < -\sqrt{r^2 a^2} < -\sqrt{r^2 a^2} \Rightarrow -r < -\sqrt{r^2 a^2} < -r$ (ب)

(10) $\frac{(\sqrt{x+r} + \sqrt{x-r})}{r} (\sqrt{x+r} - \sqrt{x-r}) = x+r - (x-r) = r$ (13)
 $\Rightarrow \sqrt{x+r} - \sqrt{x-r} = r$

(10) A) $\sqrt{(r\sqrt{r}+r)(r\sqrt{r}-r)} = \sqrt{r^2 - r^2} = \sqrt{-1} = -1$ (14)
 B) $\sqrt[r]{r^r} = r^{\frac{1}{r}} \times r^{\frac{1}{r}} = r^{\frac{2}{r}} = r^{\frac{1}{r}} = \sqrt[r]{r}$

(Y) $x^2 - 8x + r = 0$ $(x-r)(x-r) = 0$ $\begin{cases} x=r \\ x=r \end{cases}$ (الف) (15)

$A = \frac{r}{r\sqrt{r}-r} \times \frac{r\sqrt{r}+r}{r\sqrt{r}+r} = \frac{r(\sqrt{r}+r)}{r^2 - r^2} = r\sqrt{r}+r$ (ب)
 B) $\frac{x}{\sqrt{xr}} \times \frac{\sqrt{x}}{\sqrt{x}} = \frac{x\sqrt{x}}{x} = \sqrt{x}$

ص ۳

$$\underbrace{x^4 - 2x^3 + x - 2}_{(16 \text{ الف})} = x^3(x-2) + (x-2) \\ = (x-2)(x^3+1) = (x-2)(x+1)(x^2-x+1)$$

$$1.2^2 - 9.8^2 = \underbrace{(1.2 - 9.8)}_4 \underbrace{(1.2 + 9.8)}_{200} = 800 \quad (ب)$$

جمع بارم

۲۰ نفر

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