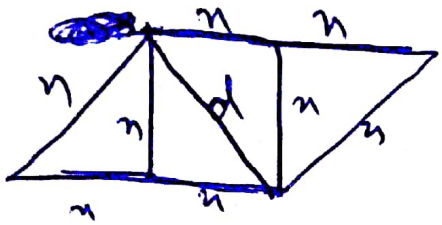
محمد حامدی
مؤلف، طراح، ویراستار و مسئول درس ریاضی کانون
طراح ریاضی چهار آزمون آزمایشی کنکور
insta: math_hamidi
09197133687

۱ ①



$d^2 = x^2 + x^2 = 4$

$d = 2$

$S_{\square} = S_{\Delta} + 3$

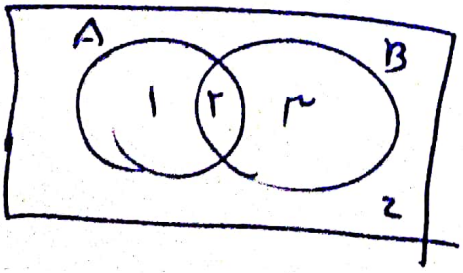
$x \times 2x = \frac{x \times x}{2} + 3 \Rightarrow 2x^2 = \frac{x^2}{2} + 3$

$\frac{3}{2}x^2 = 3 \Rightarrow x^2 = 2$

$x = \sqrt{2}$

---

۲ ②



$A \cap B$

$k^2 - k = 2 \Rightarrow k^2 - k - 2 = 0$ ↳ (3)

$k = -1, \; k = 2$

$3m - 1 = 2 \Rightarrow m = 1$

$$f(x) = \begin{cases} |x| \, Sign(-x) & [x] \geq 0 \\ 2 - Sign(-x) & [x] < 0 \end{cases}$$ 1, (4)

$$f\left(\frac{1}{2}\right) + f\left(-\frac{1}{2}\right)$$

$$\frac{\frac{1}{2}x - 1}{-\frac{1}{2}} + \underbrace{2 - Sig\left(\frac{1}{3}\right)}_{1} = \frac{1}{2}$$

$f(-2) = 3 \rightarrow 2m - h = 3$

$g(-2) = 3 \rightarrow -2a + h = 3$

$\Rightarrow 2m - 2a = 6$

$\rightarrow m - a = 3$

$\boxed{m = a + 3}$

↳ $h = 3 + 2a$

(5)

$m = 4$

$f\left(-\frac{5}{4}\right) = g(-5) \Rightarrow \frac{5}{4}m - h = -5a + h$

$\frac{5}{4}a + \frac{15}{4} = -5a + 6 + 4a$

$\frac{m}{a} = \frac{4}{1} = 4$ ✓ $\qquad \frac{9}{4}a = \frac{9}{4} \Rightarrow a = 1$

$\frac{f}{f \times g} = \{(\sqrt{2}, -1), (\sqrt{3}, \frac{1}{2})\}$ ✓ (6)

$\alpha, \sqrt{3}, \beta$

$3 = \alpha\beta$

$3 = \frac{m^2 - 4}{m}$ ← از این و رابطه

$m^2 - 3m - 4 = 0$

$m = -1, 4$ ✓

$m = 4 \rightarrow 4x^2 - 4x + 12 = 0$ ✗

$\Delta < 0$ (7)

$m = -1 \rightarrow -x^2 - 4x - 3 = 0$

$\alpha + \beta = -4$

گزینه ۳ (8)

x	$\frac{1}{x}$	$\frac{1}{x-4} = \frac{1}{x} + \frac{1}{3}$
$x-4$	$\frac{1}{x-4}$	$\frac{1}{x-4} = \frac{x+3}{3x}$

$x^2 - x - 12 = +3x$

$x^2 - 4x - 12 = 0$

$(x-6)(x+2) = 0$ ✓ $x = -2$ ✗ ، $x = 6$ ✓

$\frac{1}{2} = \frac{1}{6} = \frac{1}{12}$ ✓

8 6 4 2

7 6 4 2

Aj = (9)

$\bar{x} = \frac{19}{4} = 4.75$

$\frac{35}{25+13+35+92+20+25} = \frac{x}{360}$ J=(10)

$\alpha = \frac{9 \times 35}{4} = 78,75$ ✓

---

2 (11)

$b = \frac{9}{4}a$

$\bar{x} = \frac{3}{2}a$

$\theta = \frac{5}{6}b - \frac{3}{2}a = \frac{3}{8}a = \frac{3}{8} \times \frac{24}{5} = \frac{9}{5} = 1,8$

$\frac{5}{36}b = \frac{15}{8}b$

$b = \frac{9}{4}a$

$\bar{X} = \frac{18 + \frac{15}{4}a}{5} = \frac{3}{2}a$

$36 + \frac{15}{2}a = 15a$

$36 = \frac{15}{2}a \rightarrow a = \frac{24}{5}$

$(q \Rightarrow (p \wedge q)) \wedge r$ — 3 — (12)

$U \rightarrow \odot$

$T \wedge r$

r

---

2 — (13)

94	a
95	$a+6$
96	$1,44a$

$\frac{a+6}{a} = \frac{1,44a}{a+6}$

$\Rightarrow 1,44a^2 = a^2 + 12a + 36$

$0,44a^2 - 12a - 36 = 0$

$11a^2 - 30a - 90 = 0$

$\Delta = 900 + 900 \times 0,44 = 900 \times 1,44$

$a = \frac{30 \pm 30 \times 1,2}{0,22} = \frac{30 \times 2,2}{0,22} = 300$

$\frac{36}{30} - 1 = \frac{6}{30} = 20\%$ (×100)

---

3 — (17)

$p(x) = 0$

$x^2 + 540x - 112000 = 0$

$(x - 160)(x + 700) = 0$

$x = 160$ ✓ $\quad x = -700$ ✗

$4 \times 4 \times 2 = 32$ ✓

گزینه ۴ (15)

گزینه ۱ (16)

$$\frac{2 \times 4 \times 4!}{6!} = \frac{4}{15}$$

$$\frac{2}{5} - \frac{1}{10} = \frac{17}{10} = 1,7$$

گزینه ۳ (17)

گزینه ۲ (18)

$$a_3 + a_{28} = 61 + a_5$$

$$a_1 + 2d + a_1 + 27d = 61 + a_1 + 4d$$

$$a_1 + 25d = 61$$

$$a_{16} = 61$$ ✓

09147133687

math-hamidi

گزینه ۱ — (19)

$a_1 = 1458$

$r = \frac{1}{3}$

$a_n = 2 = 1458\left(\frac{1}{3}\right)^{n-1}$

$\frac{1}{729} = \left(\frac{1}{3}\right)^{n-1} \rightarrow n-1 = 6 \Rightarrow n = 7$

گزینه ۱ — (20)

$\frac{(2n)^5 \times 3^3 \times 7^3}{3^3 \times 5^3 \times 5^2} = 7^3$

$(2n)^5 = (5)^5 \Rightarrow 2n = 5 \Rightarrow n = 2/5$

پیوسته دلت برای ریاضی میتپه!

محمد حیدری

مدرّس و مشاور ریاضی کانون

09147133687

تقدیم به پدر و مادر خوبم