

ATTESTATSIYA 2025 (28.04.2025)

$$S_{AB} \omega = 27A = 30$$
$$A = \frac{10}{9}$$

$$S_{AOC} = 3A = 3 \cdot \frac{16}{9} = \frac{16}{3}$$

- A) 10
B) $\frac{5}{2}$
C) $\frac{20}{3}$
D) $\frac{10}{3}$

2) ADC

$$x^2 = 4^2 + 6^2 - 2 \cdot 4 \cdot 6 \cdot \left(-\frac{1}{4}\right)$$

$$x^2 = 16 + 36 + 12$$

$$x^2 = 6y$$

$x = 8$ $\textcircled{B}$

- A) 6
B) 8
C) 7
D) 9

A) 0,6
B) 0,7
C) 0,8
D) 0,2

$$P(\text{1-dish}) = \frac{1}{3} \quad P(\text{yazogli}) = \frac{5}{9}$$

$$p(2-\text{dash}) = \frac{1}{3} \quad p(\text{yarcoph}) = \frac{4}{15}$$

$$P(\text{3-ichsh}) = \frac{1}{3} \quad P(\text{yaroqli}) = \frac{9}{10}$$

$$P(\text{yeneqli} | \text{fdrsh}) = \frac{1}{3} \cdot \frac{5}{10} + \frac{1}{3} \cdot \frac{7}{10} + \frac{1}{3} \cdot \frac{9}{10} = \frac{7}{10}$$

$$P(\text{X-dish} / \text{Yaraghi}) = \frac{\frac{1}{3} \cdot \frac{5}{21}}{\frac{5}{21}} = \frac{1}{3}$$

Bayes .

ATTESTATSIYA ORIGINAL TEST SAVOLLARI

4. 3 ta idish bor. Birinchi idishda 5 ko'k va 3 ta qizil, ikkinchi idishda 4 ta ko'k va 4 ta qizil, uchinchi idishda 5 ta qizil va 3 ta ko'k sharlar bor. Tavakkaliga 1 ta idish olindi. Uning ichidan tanlangan sharning qizil bo'lish ehtimolligini toping.

- A) $\frac{1}{4}$
 B) $\frac{1}{3}$
 C) $\frac{1}{2}$
 D) $\frac{3}{4}$

$$\frac{1}{3} \cdot \frac{3}{8} + \frac{1}{3} \cdot \frac{4}{8} + \frac{1}{3} \cdot \frac{5}{8} = \frac{12}{24} = \frac{1}{2} \quad \textcircled{C}$$

5. $(x + y)^n$ ning koeffitsientlari yig'indisi 4096, ko'phadning eng katta koeffitsientni toping.

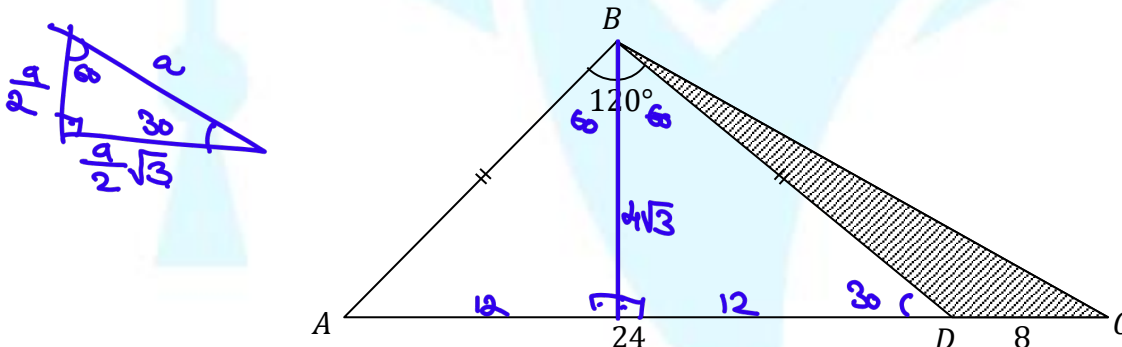
- A) 792
 B) 864
 C) 924
 D) 936

$$2^n = 4096 \quad \boxed{n=12}$$

$$(x+y)^{12} = C_{12}^0 x^{12} + C_{12}^1 x^{11}y + \dots + C_{12}^{12} y^{12}$$

$$C_{12}^6 = \frac{12!}{6! \cdot 6!} = \frac{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot 8 \cdot 9 \cdot 10 \cdot 11 \cdot 12}{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6} = 924 \quad \textcircled{C}$$

6. Rasmdagi ma'lumotlar asosida BDC uchburchak yuzini toping.



- A) $18\sqrt{3}$
 B) $16\sqrt{3}$
 C) $15\sqrt{3}$
 D) $24\sqrt{3}$

$$S_{BDC} = \frac{8 \cdot 4\sqrt{3}}{2} = 16\sqrt{3} \quad \textcircled{B}$$

7. $\sin 20^\circ \cdot \sin 40^\circ \cdot \sin 80^\circ$ ni hisoblang.

- A) $\frac{\sqrt{3}}{4}$
 B) $\frac{\sqrt{3}}{8}$
 C) $\frac{\sqrt{3}}{16}$
 D) $\frac{\sqrt{3}}{2}$

$$\sin 20^\circ \cdot \sin (60^\circ - 20^\circ) \cdot \sin (60^\circ + 20^\circ) = \frac{1}{4} \sin 3 \cdot 20 = \frac{1}{4} \sin 60 =$$

$$= \frac{1}{4} \cdot \frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{8} \quad \textcircled{B}$$

Formula $\sin \alpha \sin (60^\circ - \alpha) \sin (60^\circ + \alpha) = \frac{1}{4} \sin 3\alpha$

ATTESTATSIYA ORIGINAL TEST SAVOLLARI

8. 4 xil ruchkadan 7 ta ruchkani necha xil usulda tanlab olish mumkin.

A) 120

B) 56

C) 16384

D) 2401

$$C_{7+4-1}^7 = C_{10}^7 = \frac{10!}{3! \cdot 7!} = \frac{10 \cdot 9 \cdot 8}{1 \cdot 2 \cdot 3} = 120$$

(A)

9. Tenglamaning $[0; \pi]$ kesmadagi ildizlari yig'indisini hisoblang.

A) π

B) $\frac{3\pi}{2}$

C) $\frac{2\pi}{3}$

D) ildizi yo'q

$$\sin 3x \cdot \cos 2x - \cos 3x \cdot \sin 2x = \frac{1}{2}$$

$$\frac{1}{2}[\sin x + \sin 5x] - \frac{1}{2}[-\sin x + \sin 5x] = \frac{1}{2}$$

$$\sin x + \sin 5x + \sin x - \sin 5x = 1$$

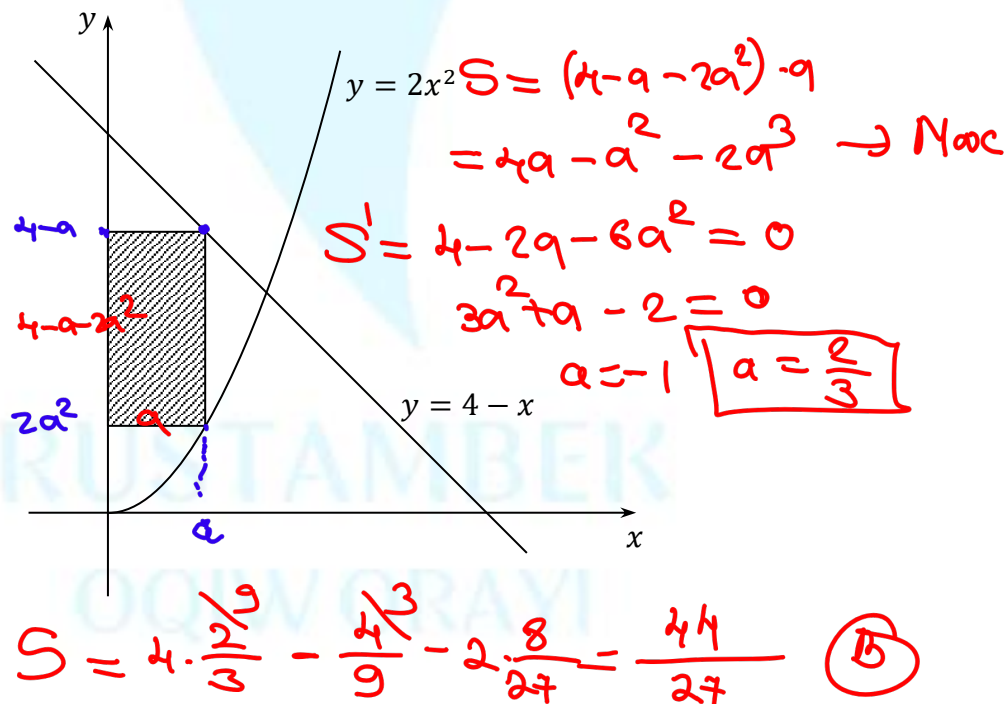
$$2\sin x = 1$$

$$\sin x = \frac{1}{2}$$

$$x = (-1)^n \frac{\pi}{6} + \pi n$$

(A)

10. Rasmda $y = 2x^2$ va $y = 4 - x$ funksiya grafiklari tasvirlangan. To'g'ri to'rtburchakning eng katta qiymatini toping.



A) $\frac{35}{22}$

B) $\frac{44}{27}$

C) $\frac{47}{26}$

D) $\frac{49}{35}$

ATTESTATSIYA ORIGINAL TEST SAVOLLARI

11. $\sqrt{-x^2 + 6x - 4} > x - 4$ nechta butun son tengsizlikni qanoatlantiradi?

A) 1

B) 2

C) 3

D) 4

$$\begin{cases} x-4 \geq 0 \\ -x^2+6x-4 > x^2-8x+16 \end{cases} \quad \begin{cases} x-4 \leq 0 \\ -x^2+6x-4 \geq 0 \end{cases} \quad \begin{cases} x \leq 4 \\ x^2-6x+4 \leq 0 \end{cases}$$

$2x^2 - 14x + 20 < 0 \quad (2; 5)$ $x^2 - 7x + 10 < 0 \quad (2; 5)$ $4; 2, 3$ $4+9$

12. $y = -x^2 + 2x$ funksiyani Ox o'qi atrofida aylantirishdan hosil bo'lgan jism hajmini toping.

A) $\frac{15\pi}{14}$ B) $\frac{17\pi}{16}$ C) $\frac{16\pi}{15}$ D) $\frac{13\pi}{12}$

$$-x^2 + 2x = 0 \quad x=0 \quad x=2$$

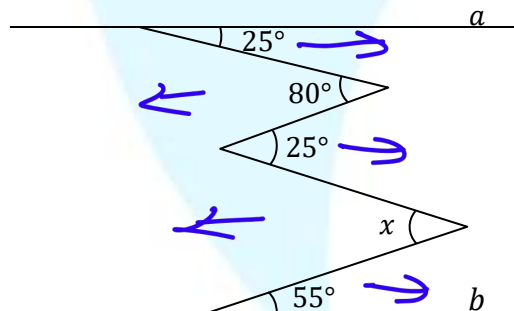
$$x_0 = -\frac{b}{2a} = -\frac{2}{-2} = 1 \quad y_0 = -1+2=1$$

$$V = \pi \int_0^2 (-x^2 + 2x)^2 dx =$$

$$= \pi \int_0^2 (x^4 - 4x^3 + 4x^2) dx = \pi \left(\frac{x^5}{5} - x^4 + \frac{4x^3}{3} \right) \Big|_0^2 =$$

$$= \pi \left(\frac{32}{5} - 16 + \frac{32}{3} \right) = \frac{(256 - 240)}{15} \pi = \frac{16\pi}{15} \quad \text{C}$$

13. $a \parallel b$ bo'lsa, $x = ?$



A) 35

B) 20

C) 25

D) 30

$$80 + x = 25 + 25 + 55$$

$$80 + x = 105 \quad x = 25 \quad \text{C}$$

14. $g(x) = x^3 f(x)$ kamayuvchi funksiya bo'lsa, quyidagilardan qaysi biri doimo o'rinli bo'ladi?

A) $f(x) > f'(x)$ B) $xf'(x) < -3f(x)$ C) $f'(x) > f(x)$ D) $x^2 f(x) > xf'(x)$

$$g'(x) < 0. \quad g'(x) = 3x^2 f(x) + x^3 f'(x) < 0$$

$$3x^2 f(x) < -x^3 f'(x)$$

$$-3f(x) > x f'(x) \quad \text{B}$$

ATTESTATSIYA ORIGINAL TEST SAVOLLARI

15. Maktab oshxonasida 4 xil shirinlik bor. O'quvchi 5 ta shirinlikni necha xil usul bilan tanlashi mumkin?

A) 1024

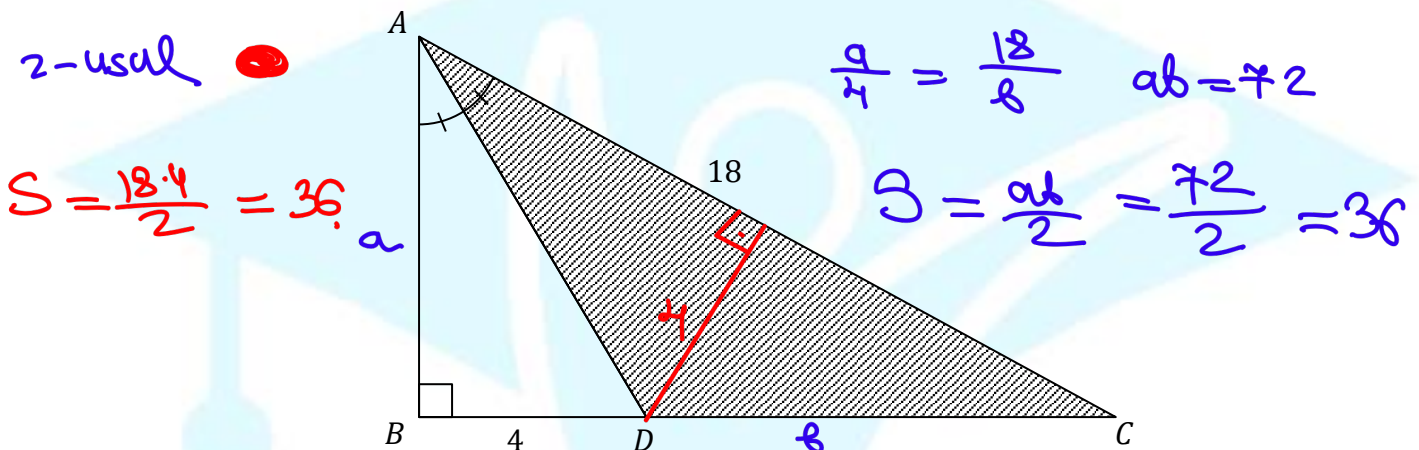
B) 625

C) 56

D) 120

$$C_{4+5-1}^5 = C_8^5 = \frac{8!}{3! \cdot 5!} = \frac{8 \cdot 7 \cdot 6}{1 \cdot 2 \cdot 3} = 56 \quad \textcircled{C}$$

16. Quyidagi rasmda ABC to'g'ri burchakli uchburchak tasvirlangan:



AD — bissektirisa, $BD = 4$ va $AC = 18$ bo'lsa, bo'yalgan sohaning yuzini toping.

A) 72

B) 18

C) 27

D) 36

17. Hisoblash laboratoriyasida 6 ta klavishli avtomat va 4 ta yarimavtomat bor. Biror hisoblash ishini bajarish davomida avtomatning ishdan chiqmaslik ehtimoli 0,95 ga teng; yarim avtomat uchun bu ehtimol 0,8 ga teng. Student hisoblash ishini t $\bar{a}$ vakkaliga tanlagan mashinada bajardi. Hisoblash tugaguncha mashinaning ishdan chiqmaslik ehtimolini toping.

A) 0,89

B) 0,76

C) 0,19

D) 0,04

$$P(A) = \frac{6}{10} \quad P(A|ish) = \frac{6}{10} \cdot 0,95$$

$$P(B) = \frac{4}{10} \quad P(B|ish) = \frac{4}{10} \cdot 0,8$$

$$0,6 \cdot 0,95 + 0,8 \cdot 0,4 = 0,89 \quad \textcircled{A}$$

18. $2^{80} + 3^{80}$ yig'indining 11 ga bo'lgandagi qoldiqni toping.

A) 0

B) 1

C) 10

D) 2

$$2^{80} : 11 \Rightarrow \text{qoldiq}$$

$2^1 : 11 = 2$	$2^2 : 11 = 4$	$2^3 : 11 = 8$	$2^4 : 11 = 5$	$2^5 : 11 = 10$	$2^6 : 11 = 9$	$2^7 : 11 = 7$
$2^8 : 11 = 3$	$2^9 : 11 = 6$	$2^{10} : 11 = 1$				

$$2^{80} : 11 = 2$$

$3^1 : 11 = 3$	$3^2 : 11 = 9$	$3^3 : 11 = 5$	$3^4 : 11 = 4$	$3^5 : 11 = 1$
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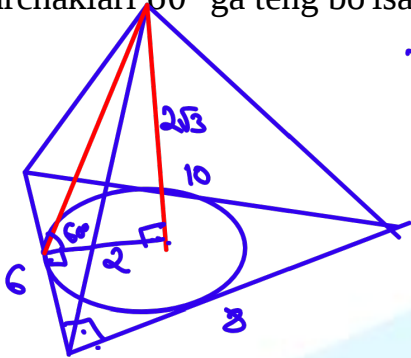
$$3^{80} : 11 = 2$$

$$2 + 2 = 4 \quad \textcircled{B}$$

ATTESTATSIYA ORIGINAL TEST SAVOLLARI

19. Piramida asosi tomonlari 6, 8 va 10 bo'lgan uchburchakdan iborat. Piramidaning barcha ikki yoqli burchaklari 60° ga teng bo'lsa, uning hajmini toping.

- A) 16
B) 32
C) $48\sqrt{3}$
D) $16\sqrt{3}$



$$r = \frac{6+8-10}{2} = 2$$

$$V = \frac{1}{3} S_{\text{as}} h = \frac{1}{3} \cdot \frac{6 \cdot 8}{2} \cdot 2\sqrt{3} = 16\sqrt{3}$$

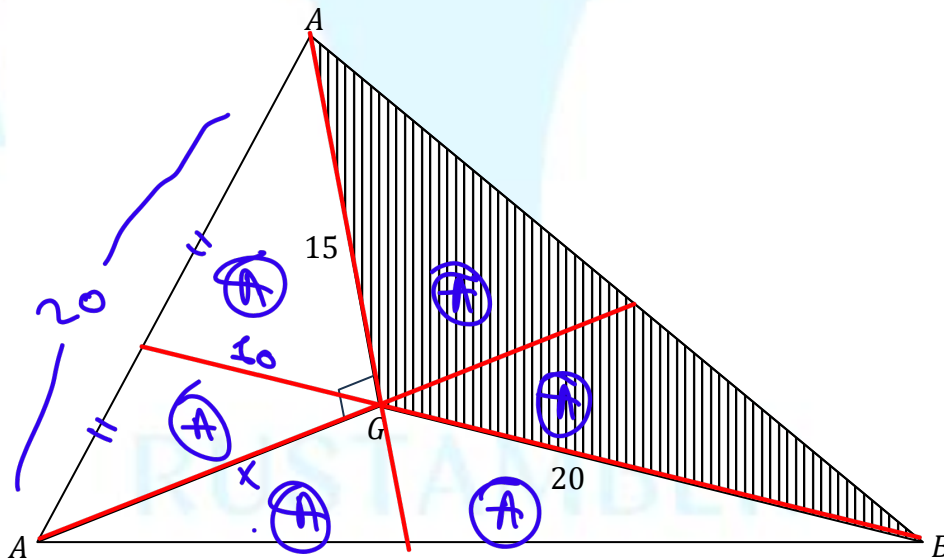
20. $\sqrt{(\sqrt{5} - \sqrt{3})} \sqrt{\sqrt{8 + \sqrt{60}}(\sqrt{5} + \sqrt{3})}$ ni hisoblang.
- A) 2
B) $\sqrt{2}$
C) $2\sqrt{2}$
D) 4

$$\sqrt{8 + 2\sqrt{15}} = \sqrt{(\sqrt{5} + \sqrt{3})^2} = \sqrt{5 + \sqrt{3}}$$

$$= \sqrt{(\sqrt{5} - \sqrt{3})(\sqrt{5} + \sqrt{3})} = \sqrt{5 - 3} = \sqrt{2}$$

(B)

21. ABC uchburchakda G og'irlik markazi. Bunda $AG \perp CG$, $CG = 15$ va $BG = 20$ ga teng bo'lsa, BGC uchburchak yuzini toping.



- A) $\frac{75\sqrt{7}}{2}$
B) $\frac{77\sqrt{7}}{2}$
C) $36\sqrt{5}$
D) $37\sqrt{5}$

$$x^2 + 225 = 400$$

$$x^2 = 175$$

$$x = 5\sqrt{7}$$

$$2A = \frac{15 \cdot 5\sqrt{7}}{2}$$

$$A = \frac{75\sqrt{7}}{4}$$

$$S_{\text{BGC}} = 2A = \frac{75\sqrt{7}}{2}$$

(A)

ATTESTATSIYA ORIGINAL TEST SAVOLLARI

22. $\log_3(3^x - 1) \cdot \log_3(3^{x+1} - 3) = 6$ tenglama nechta haqiqiy ildizga ega?

A) 0

B) 1

C) 2

D) 3

$$\log_3(3^x - 1) \cdot \log_3(3 \cdot (3^x - 1)) = 6$$

$$\log_3(3^x - 1) \cdot (\log_3 3 + \log_3(3^x - 1)) = 6$$

$$a(1+a) = 6$$

$$a^2 + a - 6 = 0$$

$$a = -3 \quad a = 2$$

$$\log_3(3^x - 1) = -3$$

$$3^x - 1 = \frac{1}{27}$$

$$3^x = \frac{28}{27}$$

$$x = \log_3 \frac{28}{27}$$

$$\log_3(3^x - 1) = 2$$

$$3^x - 1 = 9$$

$$3^x = 10$$

$$x = \log_3 10$$

23. Agar $\pi \int_0^1 \frac{1}{1+e^{-x}} dx = A$ bo'lsa, $\int_{-1}^0 \frac{1}{1+e^{-x}} dx$ ni A orqali ifodalang.

A) $\frac{\pi+A}{\pi}$ B) $\frac{\pi-A}{\pi}$ C) $\frac{\pi-A}{\pi}$ D) $\frac{\pi+A}{\pi}$

$$\pi \int_0^1 \frac{e^x}{e^x + 1} dx = A$$

$$-\int_0^1 \frac{1}{1+e^x} dx = -\int_0^1 \frac{1}{1+e^x} d(-x) =$$

$$= \int_0^1 \frac{1}{1+e^x} dx = B \quad B = ?$$

$$\pi \int_0^1 \left(1 - \frac{1}{e^x + 1}\right) dx = A$$

$$\pi \times 1 - \pi \int_0^1 \frac{1}{e^x + 1} dx = A$$

$$\pi - \pi B = A$$

$$\pi - A = \pi B$$

$$B = \frac{\pi - A}{\pi}$$

24. Agar $P(0) = 5$ va $(2x - 3) \cdot P(x - 2) - (x + 1) \cdot P(x - 2) = 2x + 3$ ga teng bo'lsa, $P(-1)$ ning qiymatini toping.

A) $-\frac{2}{3}$ B) $\frac{2}{3}$

C) 1

D) $\frac{1}{3}$

$$P(x-2)(2x-3-x-1) = 2x+3$$

$$P(x-2) = \frac{2x+3}{x-4}$$

$$x=1 \Rightarrow P(-1) = \frac{2+3}{1-4} = \frac{5}{-3}$$

25. Agar $f(x) = \begin{cases} 2x + 3, & x \geq 2 \\ 2x - 5, & x < 2 \end{cases}$ ga teng bo'lsa, $\int_2^4 f(x-1) dx$ ni hisoblang.

A) 10

B) 12

C) 14

D) 16

$$f(x-1) = \begin{cases} 2(x-1)+3 & x-1 \geq 2 \\ 2(x-1)-5 & x-1 < 2 \end{cases}$$

$$f(x-1) = \begin{cases} 2x+1 & x \geq 3 \\ 2x-7 & x < 3 \end{cases}$$

$$\int_2^4 f(x-1) dx = \int_2^3 (2x-7) dx + \int_3^4 (2x+1) dx$$

$$= \left(\frac{x^2-7x}{2}\right) \Big|_2^3 + \left(\frac{x^2+x}{2}\right) \Big|_3^4$$

$$= -2 + 8 = 6$$

26. Guruhda 8 ta o'g'il bola va 5 ta qiz bola bor. Guruhdan 6 ta bolani nechta xil usulda ajratib olish mumkin (ajratilgan bolalardan ikkitasi qiz bola bo'lishi shart)

A) 100

B) 640

C) 700

D) 30

$$C_5^2 \cdot C_8^4 = \frac{5!}{2! \cdot 3!} \cdot \frac{8!}{4! \cdot 4!} = \frac{4 \cdot 5}{1 \cdot 2} \cdot \frac{5 \cdot 4 \cdot 3 \cdot 2}{1 \cdot 2 \cdot 3 \cdot 4} = 700$$

ATTESTATSIYA ORIGINAL TEST SAVOLLARI

27. a va b natural sonlar uchun $EKUB(a; b) = 6$ va $EKUK(a; b) = 60$ bo'lsa, $a + b$ ning qabul qilishi mumkin bo'lgan qiymatlar yig'indisini toping.

A) 66

B) $12\sqrt{10}$

C) 108

D) 160

$$\begin{aligned} a &= 6x \\ b &= 6y \\ (x; y) &= 1 \end{aligned}$$

$$6xy = 60$$

$$xy = 10$$

$$\begin{array}{c|c|c|c|c} a & 6 & 12 & 30 & 60 \\ \hline b & 60 & 30 & 12 & 10 \end{array}$$

$$\begin{array}{c|c|c|c|c} x & 1 & 2 & 5 & 10 \\ \hline y & 10 & 5 & 2 & 1 \end{array}$$

$$\begin{aligned} a+b &= 66; 42 \\ 66+42 &= 108 \end{aligned}$$

C

28. a va b natural sonlar uchun $EKUB(a; b) = 6$ va $EKUK(a; b) = 60$ bo'lsa, $a + b$ ning eng katta qiymatini toping.

A) 66

B) $12\sqrt{10}$

C) 42

D) 82

27-savol

66

29. $\cos^2 x - \frac{\sqrt{2}}{2} < \sin^2 x$ tengsizlikning $[0; \pi]$ kesmadagi ildizlari yig'indisini toping.

A) $\frac{\pi}{6}$ B) $\frac{5\pi}{6}$ C) $\frac{2\pi}{3}$ D) π

$$\cos^2 x - \sin^2 x < \frac{\sqrt{2}}{2}$$

$$\cos 2x < \frac{\sqrt{2}}{2}$$



$$\frac{\pi}{4} + 2\pi n < 2x < \frac{7\pi}{4} + 2\pi n$$

$$\frac{\pi}{8} + \pi n < x < \frac{7\pi}{8} + \pi n$$

$$\frac{\pi}{8} + \frac{7\pi}{8} = \pi$$

D

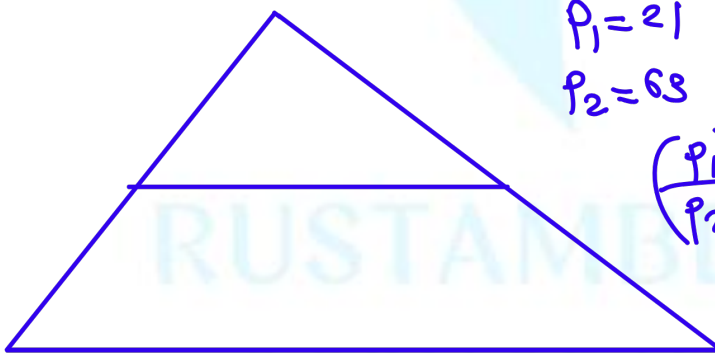
30. Perimetri 63 cm bo'lgan uchburchak asosiga parallel to'g'ri chiziqli orqali kichik uchburchak ajratilgan. Kichik uchburchak perimetri 21 cm, yuzasi esa 18 cm^2 bo'lsa, katta uchburchak yuzasini toping.

A) 63

B) 81

C) 144

D) 162



$$p_1 = 21 \quad S_1 = 18$$

$$p_2 = 63 \quad S_2$$

$$\left(\frac{p_1}{p_2}\right)^2 = \frac{S_1}{S_2}$$

$$\frac{18}{S_2} = \left(\frac{21}{63}\right)^2$$

$$\frac{18}{S_2} = \frac{1}{9} \quad S_2 = 162$$

D