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ABITURIYENT 2010.

(2010.9−10.1).

$\oint(x+2)=3x-\alpha$ va $\oint(4)=11$ bo'lsa,

α ning qiymatini toping.

Yechish.

$x+2=4.$

$x=2.$

$\oint(2+2)=3\times2-\alpha. \Rightarrow \oint(4)=6-\alpha.$

$6-\alpha=11.$

$\alpha=-5.$ Javob; $-5.$

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ABITURIYENT 2010.

(2010.9–10.2).

Aka ukaning yoshlari farqi 5 **yosh.**

Akasi ukasining yoshida bo'lgan vaqtda

ikksining yoshlari yig'indisi 23 **ga teng bo'lgan.**

Akaning hozirgi yoshini toping.

Yechish.

$23+5=28.$

$28:2=14.$

$14+5=19.$ Javob; 19.

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(2010.9–10.3).

Ilk n ta hadning yig'indisi $S_n=n^2+n+1$

bo'lgan ketma–ketlikning 6**–hadini toping.**

Yechish.

$n=6.\ \ n=5.$

$S_6=36+6+1=43.$

$S_5=25+5+1=31.$

$S_6-S_5=43-31=12.$ Javob; 12.

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(2010.9−10.4).

$x^3-x^2-4x+m=0$ tenglamaning ildizlaridan biri 1 ga teng. Shu tenglamaning ildizlari ko'paytmasini toping.

Yechish.

$x=1$.

$1-1-4+m=0$.

$m=4$.

$x^3-x^2-4x+4=0$.

$x^2(x-1)-4(x-1)=0$.

$(x^2-4)(x-1)=0$.

$x=\pm 2$. $x=1$.

$-2\times 2\times 1=-4$. Javob; -4.

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(2010.9–10.5).

$a<0<b<c$ bo'lsa $(ax+b)(cx+b)>0$

tengsizlikni yeching.

Y; $a<0 \Rightarrow -a$. $b>0 \Rightarrow b$ $b<c$ $c>b$.

$$ax+b>0. \Rightarrow x<-\frac{b}{a}.$$

$$cx+b>0 \Rightarrow x>-\frac{b}{c}. \left(-\frac{b}{c}; -\frac{b}{a}\right).$$

Javob; $\left(-\frac{b}{c}; -\frac{b}{a}\right)$.

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(2010.9−10.6).

a, b va c raqamlar. cba uch xonali,

ac ikki honali sonlar. $cba+ac=1024$ bo'lsa,

$a+b+c$ ni toping.

Y;

$cba=100c+10b+a$.

$ac=10a+c$.

$100c+10b+a+10a+c=1024$.

$101c+11a+10b=1024$.

$c=9$. da eng katta uch honali son.

$101c=909$.

$1024-909=115$. ....5.

demak $a=5$. $\Rightarrow 11a=55$.

$115-55=60$. $b=6$. $\Rightarrow 10b=60$.

$60-60=0$.

$909+55+60=1024$.

$a+b+c=5+6+9=20$. Javob; 20.

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ABITURIYENT 2010.

(2010.9−10.7).

$a=\left(2-\frac{1}{2}\right)\left(2-\frac{1}{3}\right)\left(2-\frac{1}{4}\right)\times.....\times\left(2-\frac{1}{10}\right).$

$b=\left(1+\frac{1}{3}\right)\left(1+\frac{1}{5}\right)\left(1+\frac{1}{7}\right)\times.....\times\left(1+\frac{1}{19}\right)$

bo'lsa, $a\times b=?$.

Y;

$a=\frac{3\times5\times7\times9\times11\times13\times15\times17\times19}{2\times3\times4\times5\times6\times7\times8\times9\times10}=\frac{11\times13\times17\times19}{2\times4\times2\times8\times2}.$

$a=\frac{11\times13\times17\times19}{2^1\times2^2\times2^1\times2^3\times2^1}=\frac{11\times13\times17\times19}{2^{1+2+1+3+1}}=\frac{11\times13\times17\times19}{2^8}.$

$b=\frac{4\times6\times8\times10\times12\times14\times16\times18\times20}{3\times5\times7\times9\times11\times13\times15\times17\times19}=\frac{4\times4\times8\times2\times2\times2\times2\times4\times16}{11\times13\times17\times19}.$

$b=\frac{2^2\times2^2\times2^3\times2^2\times2^4\times2^4}{11\times13\times17\times19}=\frac{2^{2+2+2+4+4+3}}{11\times13\times17\times19}=\frac{2^9\times2^8}{11\times13\times17\times19}.$

$11\times13\times17\times19=\mathbf{x}.$

$a\times b=\frac{\mathbf{x}}{2^8}\times\frac{2^9\times2^8}{\mathbf{x}}=2^9=512.$ Javob; 512.

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ABITURIYENT 2010.

(2010.9−10.8).

Yig'indini hisoblang.

$0,(2)+0,0(2)+0,00(2)+0,000(2)+.....$

Y;

$b_1=0,(2)=\frac{2}{9}.\ n=2.$

$$q=\sqrt[n-1]{\frac{b_n}{b_1}}=\sqrt[2-1]{\frac{\frac{2}{90}}{\frac{2}{9}}}=\frac{1}{10}.$$

$$S=\frac{b_1}{1-q}=\frac{\frac{2}{9}}{1-\frac{1}{10}}=\frac{2\times10}{9\times9}=\frac{20}{81}.$$ Javob; $\frac{20}{81}$.

ABITURIYENT 2010.

(2010.9−10.9).

$\oint(x)=x^3+3x+5$ **funksiyaning** a **nuqtadagi hosilasi** $6a$ **ga teng bo'lsa,** a **ning qiymatini toping.**

Y;

$y'=(x^3+3x+5)'=3x^2+3=0.$

$x=a.$

$3a^2+3=6a$

$3a^2-6a+3=0.$

$3(a^2-2a+1)=0.$

$(a-1)^2=0.$

$a-1=0.$

$a=1.$ Javob; 1.

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ABITURIYENT 2010.

(2010.9−10.10).

Ifodani soddalashtiring.

$$\frac{a^2+4a+2b-b^2+3}{a+b+1}-3.$$

Y;

$$\frac{a^2-b^2+4a+2b+3-3a-3b-3}{a+b+1}.$$

$$\frac{(a-b)(a+b)+(a-b)}{a+b+1}.$$

$$\frac{(a-b)(a+b+1)}{a+b+1}=a-b.$$ Javob; $a-b$.

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ABITURIYENT 2010.

(2010.9–10.11).

$a-b=5$ va $a\times b=3$ bo'lsa, a^3-b^3 ni hisoblang.

Y;

$a^3-b^3=(a-b)(a^2+ab+b^2)$.

$5(a^2-2ab+b^2+3ab)$.

$5((a-b)^2+3\times 3)=5(5^2+9)$.

$5(25+9)=5\times 34=170$ Javob; 170.

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ABITURIYENT 2010.

(2010.9−10.12).

Hisoblang.

$$\frac{(5\sqrt{3}+\sqrt{50})(5-\sqrt{24})}{\sqrt{75}-5\sqrt{2}}.$$

Y;

$$\frac{(5\sqrt{3}+5\sqrt{2})(5-2\sqrt{6})}{5\sqrt{3}-5\sqrt{2}}=\frac{25\sqrt{3}-10\sqrt{18}+25\sqrt{2}-10\sqrt{12}}{5\sqrt{3}-5\sqrt{2}}.$$

$$\frac{25\sqrt{3}+25\sqrt{2}-30\sqrt{2}-20\sqrt{3}}{5\sqrt{3}-5\sqrt{2}}=\frac{5\sqrt{3}-5\sqrt{2}}{5\sqrt{3}-5\sqrt{2}}=1.$$ **Javob;** 1.

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ABITURIYENT 2010.

(2010.9−10.13).

Quydagulardan qaysi biri noto'g'ri?

A) $a>0, b<0, c>0$ bo'lsa, $\sqrt[3]{(abc)^3}=abc$.

B) $a,b\in R$ bo'lsa, $\sqrt{ab}=\sqrt{a}\times\sqrt{b}$.

C) $a>0, b<0, c>0$ bo'lsa, $\sqrt{(abc)^2}=-abc$.

D) $3^4+3^4+3^4=3^5$.

Y;

$R\in(-\infty;\infty)$.

A, C, D lar to'g'ri tenglik.

$a>0\Rightarrow a.\ b<0.\Rightarrow -b.\ c>0.\Rightarrow c.$

$\sqrt[3]{(abc)^3}=abc.$

$\sqrt{(abc)^2}=|abc|=-abc.$

$3^4+3^4+3^4=3^4(1+1+1)=3^4\times 3=3^5.$

B noto'g'ri tenglik.

$R\in(-\infty;\infty).\Rightarrow$ bundan.

ikki holni ko'ramiz.

$a>0.\Rightarrow a\ \ b>0.\Rightarrow b.\ \sqrt{ab}=\sqrt{a}\times\sqrt{b}.$

$a<0.\Rightarrow -a.\ b<0.\Rightarrow -b.\ \sqrt{ab}\neq\sqrt{a}\times\sqrt{b}.$

ildiz ostidagi manfiy sonlarni ajratib yozish mumkun emas. Javob; B.

ABITURIYENT 2010.

(2010.9−10.14).

$\begin{cases} \frac{4}{a}+\frac{1}{b}=3 \\ \frac{1}{a}+\frac{4}{b}=7 \end{cases}$ **bo'lsa,** $\frac{a+b}{ab}$ **ning**

qiymatini toping.

Y;

$$-\begin{cases} \frac{16}{a}+\frac{4}{b}=12 \\ -\frac{1}{a}-\frac{4}{b}=-7. \end{cases} \Rightarrow \frac{15}{a}=5. \Rightarrow a=3.$$

$$\frac{4}{3}+\frac{1}{b}=3. \Rightarrow \frac{4b+3}{3b}=3. \Rightarrow 4b+3=9b.$$

$$4b-9b=-3. \Rightarrow -5b=-3. \; b=\frac{3}{5}.$$

$$\frac{a+b}{ab}=\frac{3+\frac{3}{5}}{3\times\frac{3}{5}}=\frac{\frac{15+3}{5}}{\frac{9}{5}}=\frac{18}{9}=2. \quad \text{Javob; 2.}$$

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(2010.9−10.15).

$a>0,\ b<0,\ c<0$ bo'lsa,

$|a-b|+\sqrt[3]{27a^3}-|4a|+\sqrt{9b^2}-\sqrt[3]{c^3}$ ni hisoblang.

Y;

$a>0.\ b<0.\ c<0.$

$|a-b|=a-b.\ +\sqrt[3]{27a^3}=3a.$

$-|4a|=-4a.\ +\sqrt{9b^2}=|3b|=-3b.$

$-\sqrt[3]{c^3}=-c.$

$a-b+3a-4a-3b-c=-4b-c.$ Javob; $-4b-c.$

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ABITURIYENT 2010.

(2010.9−10.16).

Tenglamaning ildizlari yig'indisini toping.

$$\sqrt{x+1}+\frac{7}{\sqrt{x+1}+4}=4$$

Y;

$\sqrt{x+1}=t.$

$$t+\frac{7}{t+4}=4. \Rightarrow t^2+4t+7=4t+16.$$

$t^2=16-7=9.$

$x+1=9. \Rightarrow x=8.$ Javob; 8.

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ABITURIYENT 2010.
(2010.9–10.17).

Bir necha sonning arifmetik o'rtachasi ularning soniga teng. Agar bu sonlarning har biriga 2 qo'shilsa, ularning arifmetik o'rtachasi 10 ga teng bo'lib qoladi. Nechita son borligini aniqlang.

Y;

$$\frac{S}{n}=n \Rightarrow S=n^2.$$

$$\frac{S+2n}{n}=10. \Rightarrow n^2=10n-2n.$$

$n^2=8n.$ $n=8.$ Javob; 8.

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ABITURIYENT 2010.

(2010.9−10.18).

$\oint\left(\frac{3x+1}{x-1}\right)=x+2$ **bog'lanish**

berilgan. $\oint(x)$ **ga teskari funksiyaning** -1 **nuqtadagi qiymatini toping.**

Y;

$$\frac{3x+1}{x-1}=y \Rightarrow 3x+1=yx-y.$$

$$3x-yx=-y-1. \Rightarrow x(3-y)=-y-1.$$

$$x=\frac{-y-1}{3-y}=-\frac{y+1}{3-y}=\frac{y+1}{y-3}. \Rightarrow y=\frac{x+1}{x-3}.$$

$$\oint(x)=\frac{x+1}{x-3}+2=\frac{x+1+2x-6}{x-3}=\frac{3x-5}{x-3}.$$

$$y=\frac{3x-5}{x-3}. \Rightarrow yx-3y=3x-5.$$

$$-3x+yx=-5+3y. \Rightarrow x(-3+y)=-(5-3y).$$

$$x=\frac{5-3y}{3-y}. \quad \oint(x)=\frac{5-3x}{3-x}.$$

$$\oint(-1)=\frac{5+3}{3+1}=\frac{8}{4}=2. \quad \text{Javob; 2.}$$

ABITURIYENT 2010.

(2010.9–10.19).

$a=\log_3 33$, $b=\log_4 44$, va $c=\log_5 55$

bo'lsa, quydagilardan qaysi biri o'rinli?

A) $c<b<a$. B) $a=b=c$.

C) $a<b<c$. D) $b<a<c$.

Y;

Asosi eng kichigi $a=\log_3 33$ eng katta

qiymatga erishadi.

Shuning uchun $c<b<a$. Javob; $c<b<a$.

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ABITURIYENT 2010.

(2010.9–10.20).

m ning qanday eng katta butun qiymatida

$x^2-2x+\lg(m+2)=0$ tenglama ikkita haqiqiy ildizga ega bo'ladi?

Y;

Varyantga qaralsin.

A) $10. \Rightarrow \varnothing.$

B) $8. \Rightarrow x=1.$

C) $3. \Rightarrow x_{1,2}=\frac{2\pm\sqrt{4-4\lg 5}}{2}$

Eng katta qiymat so'ralgani uchun.

D) $7.\ x_{1,2}=\frac{2\pm\sqrt{4-8\lg 3}}{2}.$ Javob; 7.

Bunday misollarni varyantda berilgan javoblar orqali ishlash bir muncha osonroq.

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ABITURIYENT 2010.

(2010.9−10.21).

Tenglamani yeching.

$$\sqrt{\frac{15}{4^{1-x}}+4^{x-1}}=32$$

Y;

Varyantga qaralsin.

A) 4,5. $\Rightarrow 32\sqrt{2}$.

B) 4. $\Rightarrow 32$.

C) 5,5. $\Rightarrow 64\sqrt{2}$.

D) 5. $\Rightarrow 64$.

B) 4. $x=4$.

$$\sqrt{\frac{15}{4^{1-4}}+4^{4-1}}=32 \Rightarrow \sqrt{\frac{15}{4^{-3}}+4^3}=32.$$

$$\sqrt{\frac{15}{\frac{1}{4^3}}+4^3}=32. \Rightarrow \sqrt{15\times 4^3+4^3}=32.$$

$$\sqrt{4^3(15+1)}=32. \Rightarrow \sqrt{2^6\times 16}=32.$$

$2^3\times 2^2=32 \Rightarrow 2^5=32. \Rightarrow 32=32$ Javob; 4.

Bunday misollarni varyantda berilgan javoblar orqali ishlash bir muncha osonroq.

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ABITURIYENT 2010.

(2010.9−10.22).

ABC ucburchak $\sin A=\frac{4}{5}$,

$\sin B=\frac{5}{13}$ bo'lsa, sinC ning qiymati

nechaga teng?

Y;

$$\cos A=\sqrt{1-\sin^2 A}=\sqrt{1-\left(\frac{4}{5}\right)^2}=\frac{3}{5}.$$

$$\cos B=\sqrt{1-\sin^2 B}=\sqrt{1-\left(\frac{5}{13}\right)^2}=\frac{12}{13}.$$

$$\sin C=\sin A\times\cos B+\sin B\times\cos A.$$

$$\sin C=\frac{4\times12}{5\times13}+\frac{5\times3}{13\times5}=\frac{48+15}{65}=\frac{63}{65}.$$ Javob; $\frac{63}{65}$.

Eslatma; cosA va cosB larga

– yozish shart emas.

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ABITURIYENT 2010.

(2010.9–10.23).

Tenglamani yeching.

$$\mathbf{tg^2x}-\left(\frac{\sqrt{3}}{3}+1\right)\mathbf{tgx}+\frac{\sqrt{3}}{3}=0.$$

Y;

$$\mathbf{tgx}_{1,2}=\frac{\frac{\sqrt{3}}{3}+1\pm\sqrt{\left(\frac{\sqrt{3}}{3}+1\right)^2-4\times\frac{\sqrt{3}}{3}}}{2}.$$

$$\mathbf{D}=\sqrt{\frac{1}{3}+\frac{2\sqrt{3}}{3}+1-\frac{4\sqrt{3}}{3}}=\sqrt{\left(\frac{\sqrt{3}}{3}-1\right)^2}=\frac{\sqrt{3}}{3}-1.$$

$$\mathbf{tgx}_{1,2}=\frac{\frac{\sqrt{3}+3}{3}\pm\frac{\sqrt{3}-3}{3}}{2}.$$

$$\mathbf{tgx}_1=\frac{\frac{\sqrt{3}+3}{3}+\frac{\sqrt{3}-3}{3}}{2}=\frac{\sqrt{3}+3+\sqrt{3}-3}{6}=\frac{\sqrt{3}}{3}.$$

$$\mathbf{tgx}_2=\frac{\frac{\sqrt{3}+3}{3}-\frac{\sqrt{3}-3}{3}}{2}=\frac{\sqrt{3}+3-\sqrt{3}+3}{6}=1.$$

$$\mathbf{tgx}_1=\frac{1}{\sqrt{3}}.\ \Rightarrow\ \mathbf{x}=30^\circ.\Rightarrow\frac{\pi}{6}+\pi\mathbf{k},\ \mathbf{k}\in\mathbb{Z}.$$

$$\mathbf{tgx}_2=1.\Rightarrow\mathbf{x}=45^\circ.\Rightarrow\ \frac{\pi}{4}+\pi\mathbf{k}.\ \mathbf{k}\in\mathbb{Z}.$$

Javob; $\frac{\pi}{4}+\pi\mathbf{k};\ \frac{\pi}{6}+\pi\mathbf{k},\ \mathbf{k}\in\mathbb{Z}.$

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ABITURIYENT 2010.

(2010.9−10.24).

Hisoblang.

$$\cos\frac{\pi}{5}\times\cos\frac{2\pi}{5}.$$

Y; $\cos\alpha\times\cos\beta=\frac{1}{2}(\cos(\alpha-\beta)+\cos(\alpha+\beta))$.

$$\cos\frac{\pi}{5}\times\cos\frac{2\pi}{5}=\frac{1}{2}\left(\cos\left(\frac{2\pi}{5}-\frac{\pi}{5}\right)+\cos\left(\frac{2\pi}{5}+\frac{\pi}{5}\right)\right).$$

$$\frac{1}{2}\cos\frac{\pi}{5}+\frac{1}{2}\cos\frac{3\pi}{5}=\frac{\cos\frac{\pi}{5}+\cos\frac{3\pi}{5}}{2}.$$

$$\cos\frac{\pi}{5}+\cos\frac{3\pi}{5}=\frac{1}{2}.$$

$$\frac{\frac{1}{2}}{2}=\frac{1}{4}.$$ Javob; $\frac{1}{4}$.

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ABITURIYENT 2010.

(2010.9−10.25).

$\oint(x)=\frac{1}{x^2-4}$ funksiyaning

boshlang'ichini toping.

Y;

$$\int\frac{1}{x^2-a^2}dx=\frac{1}{2\times a}\times\ln\left(\left|\frac{x-a}{x+a}\right|\right).$$

$$\int\frac{1}{x^2-4}dx=\frac{1}{2\times 2}\times\ln\left(\left|\frac{x-2}{x+2}\right|\right)+C.$$

Javob; $\frac{1}{4}\ln\left(\left|\frac{x-2}{x+2}\right|\right)+C.\ C\in\mathbb{R}.$

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ABITURIYENT 2010.

(2010.9–10.26).

ABC uchburchakning medianalari kesishish nuqtasi G nuqtada joylashgan. BGC burchak 90° ga teng. Agar AG kesma uzunligi 12 sm bo'lsa, BC tomon uzunligini toping.

Y;

Qoida; Medianalar kesishish nuqtasida 2:1 nisbatta bo'ladi.

Demak bizdagi holga ko'ra 12:6 nisbatta ekanligi malum bo'ladi.

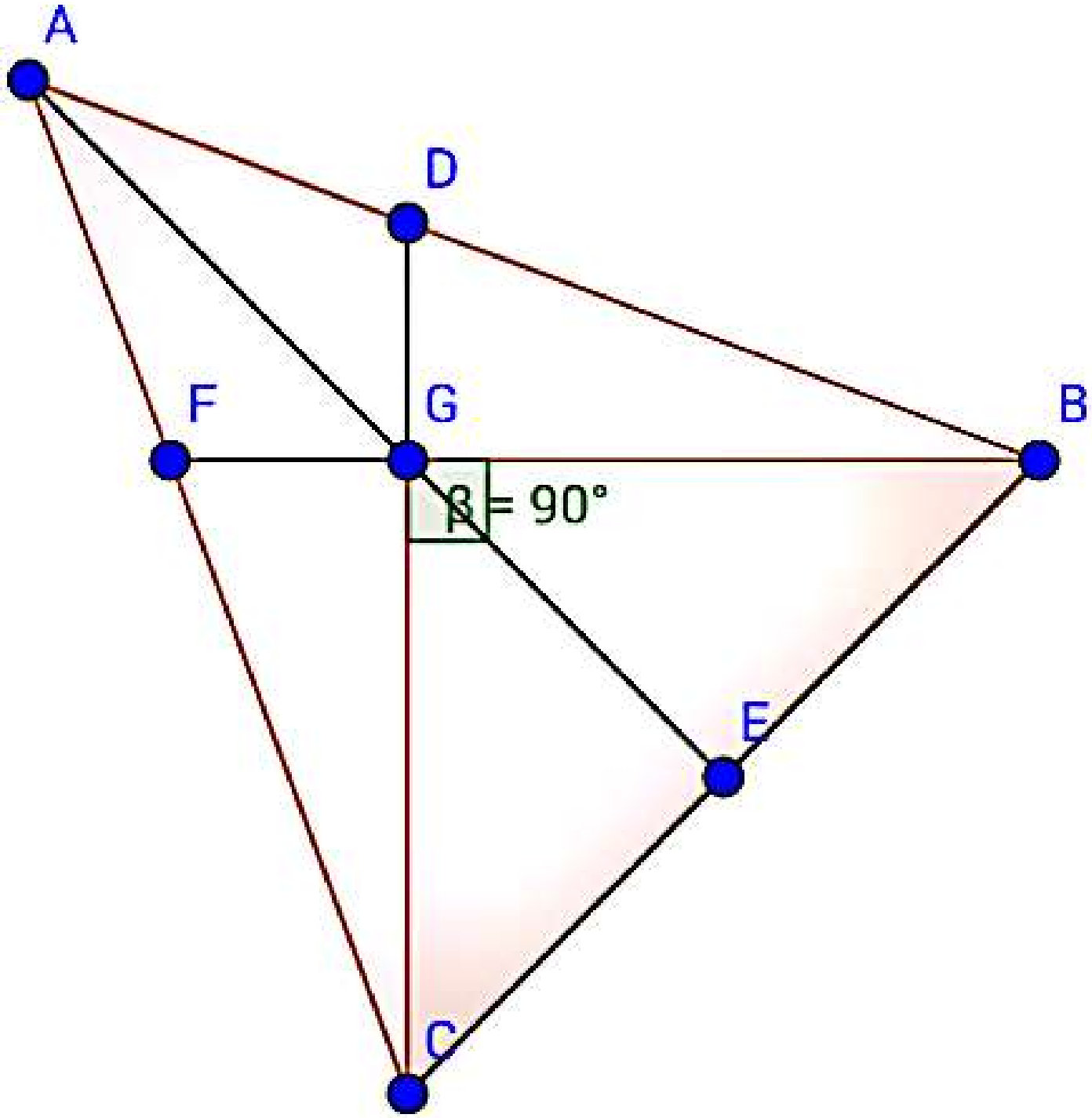
6 sm bo'lgan kesma 90° burchakdan gipotenuzaga tushurilgan mediana bo'ladi.

Qoida; To'g'ri burchakli uchburchakda mediana gipotenuzaning yarmiga teng.

Demak $m_c=\frac{c}{2}$ bo'lganligi uchun

$c=BC$.

$6=\frac{c}{2}. \Rightarrow c=2\times 6=12.$ Javob; 12.



Chizmada ozgina kamchilik bor.

2010.9-10.26

ABITURIYENT 2010.

(2010.9–10.27).

ABC teng yonli uchburchakning A burchagi 90°. Uning AB tomonida E nuqta, BC tomonidan F nuqta olingan. $|EA|=2|EB|$ va EF kesma BC tomonga perependikular. EFC uchburchak yuzining ABC uchburchak yuziga nisbatini toping.

Y;

$|AB|=|AC|=2|EB|+|EB|=3|EB|$.

$$S_{ABC}=\frac{3|\overset{x}{EB}|\times 3|\overset{x}{EB}|}{2}=\frac{9x^2}{2}.$$

$$S_{ACE}=3x^2.\quad S_{EFB}=\frac{x^2}{4}.$$

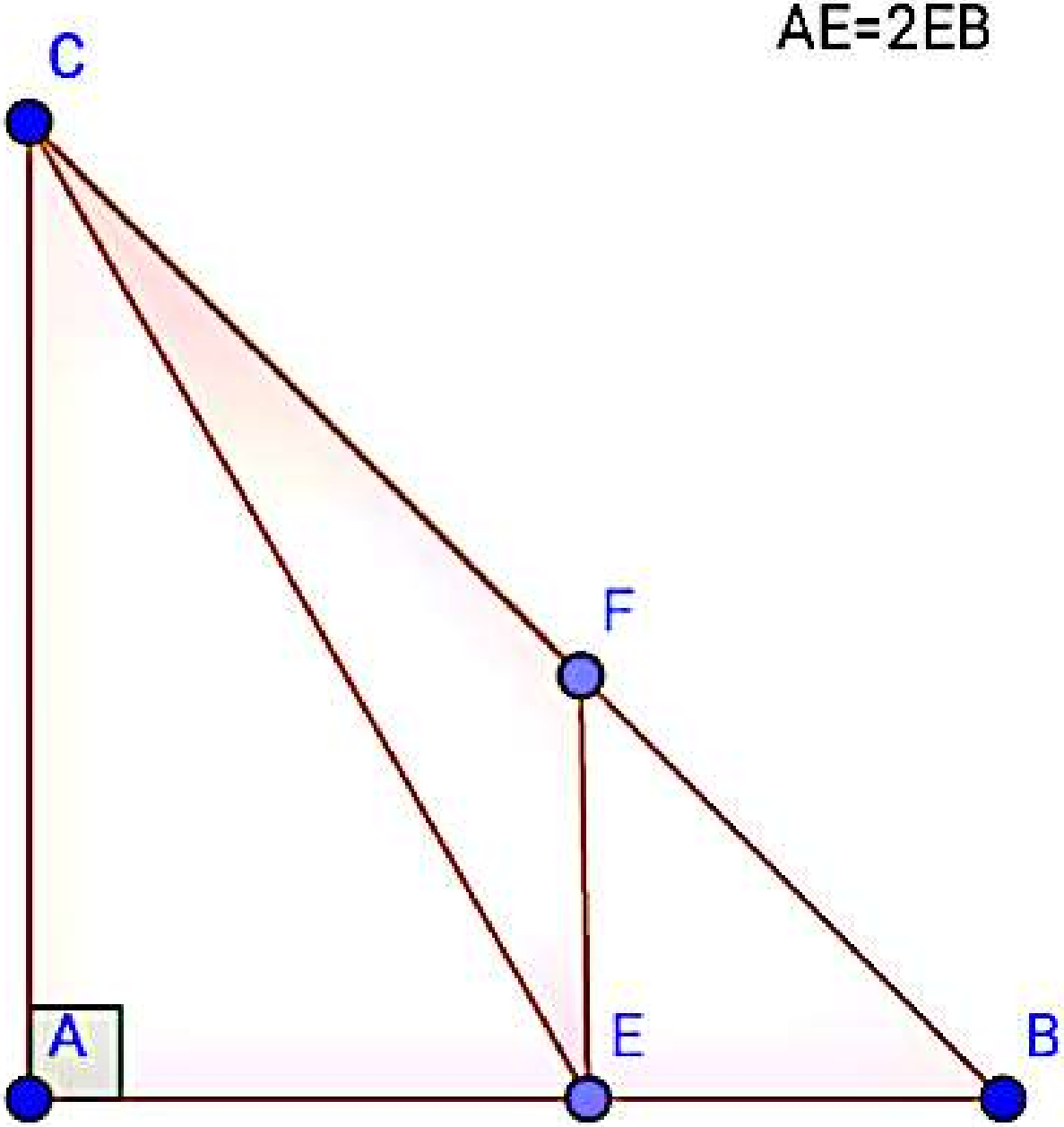
$$S_{EFC}=\frac{9x^2}{2}-3x^2-\frac{x^2}{4}=\frac{18x^2-12x^2-x^2}{4}=\frac{5x^2}{4}.$$

$$\frac{S_{EFC}}{S_{ABC}}=\frac{\frac{5x^2}{4}}{\frac{9x^2}{2}}=\frac{2\times 5x^2}{4\times 9x^2}=\frac{5}{2\times 9}=\frac{5}{18}.$$ Javob; $\frac{5}{18}$.

AC=3EB

AB=3EB

AE=2EB



2010.9-10.27

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ABITURIYENT 2010.
(2010.9−10.28).
Ketma−ket uchlari ABCDE bo'lgan muntazam ko'pburchakning AB va DE tomonlarini davom ettirganda 108° burchak ostida kesishdi.
Ko'pburchakning nechta tomoni mavjud?
Y;
Varyantga qaralsin.
A) 18. Bunda.
Tashqi burchak $\frac{360^\circ}{18}=20^\circ$. Ichki. $180^\circ-20=160^\circ$.
$360^\circ-160^\circ=200^\circ$. $360^\circ-(200^\circ+20^\circ+20^\circ)=360^\circ-240^\circ=120^\circ$.
C) 12. Bunda.
Tashqi burchak. $\frac{360^\circ}{12}=30^\circ$. Ichki$\Rightarrow 180^\circ-30^\circ=150^\circ$.
$360^\circ-150^\circ=210^\circ$. $360^\circ-(210^\circ+30^\circ+30^\circ)=360^\circ-270^\circ=90^\circ$.
D) 10. Bunda.
Tashqi burchak. $\frac{360^\circ}{10}=36^\circ$. Ichki$\Rightarrow 180^\circ-36^\circ=144^\circ$.
$360-144^\circ=216^\circ$. $360^\circ-(216^\circ+36^\circ+36^\circ)=360^\circ-288^\circ=72^\circ$
B) 15. Bunda.
Tashqi burchak. $\frac{360^\circ}{15}=24^\circ$. Ichki$\Rightarrow 180^\circ-24^\circ=156^\circ$.
$360^\circ-156^\circ=204^\circ$. $360^\circ-(204^\circ+24^\circ+24^\circ)=360^\circ-252^\circ=108^\circ$. Javob; 15.

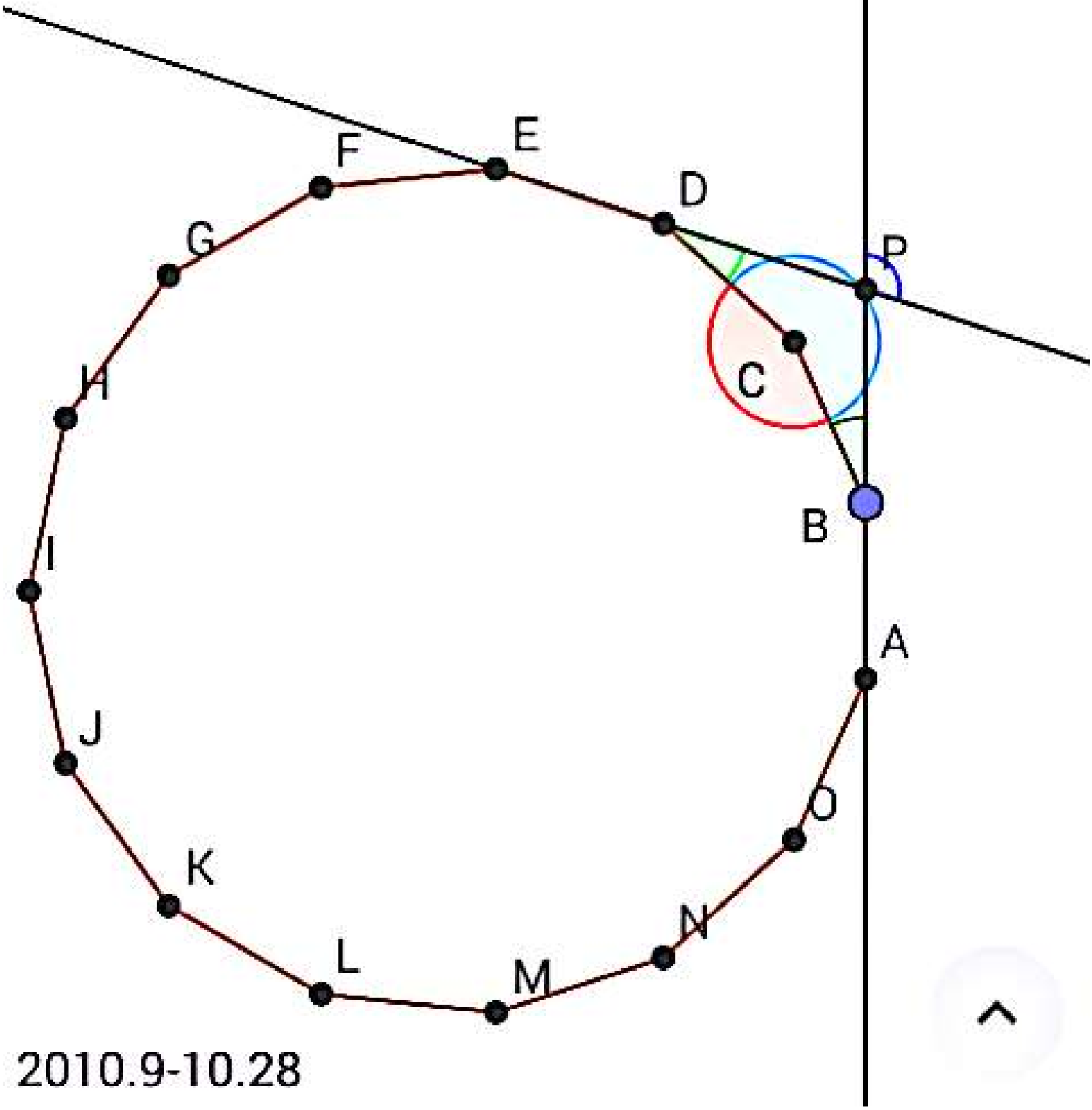
D=γ=24°

B=δ=24°

C=ζ=204° tashqi.

C=η=156° ichki.

P=ε=108°



2010.9-10.28

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ABITURIYENT 2010.

(2010.9−10.29).

ABCD trapetsiyaning AB katta asosi 15 ga, AD yon tomoni 10 ga teng. AC dioganal A burchakning bissekterissasi 16 ga teng. Trepetsiyaning yuzini toping.

Y;

$10^2-\mathbf{x}^2=16^2-(10+\mathbf{x})^2.$

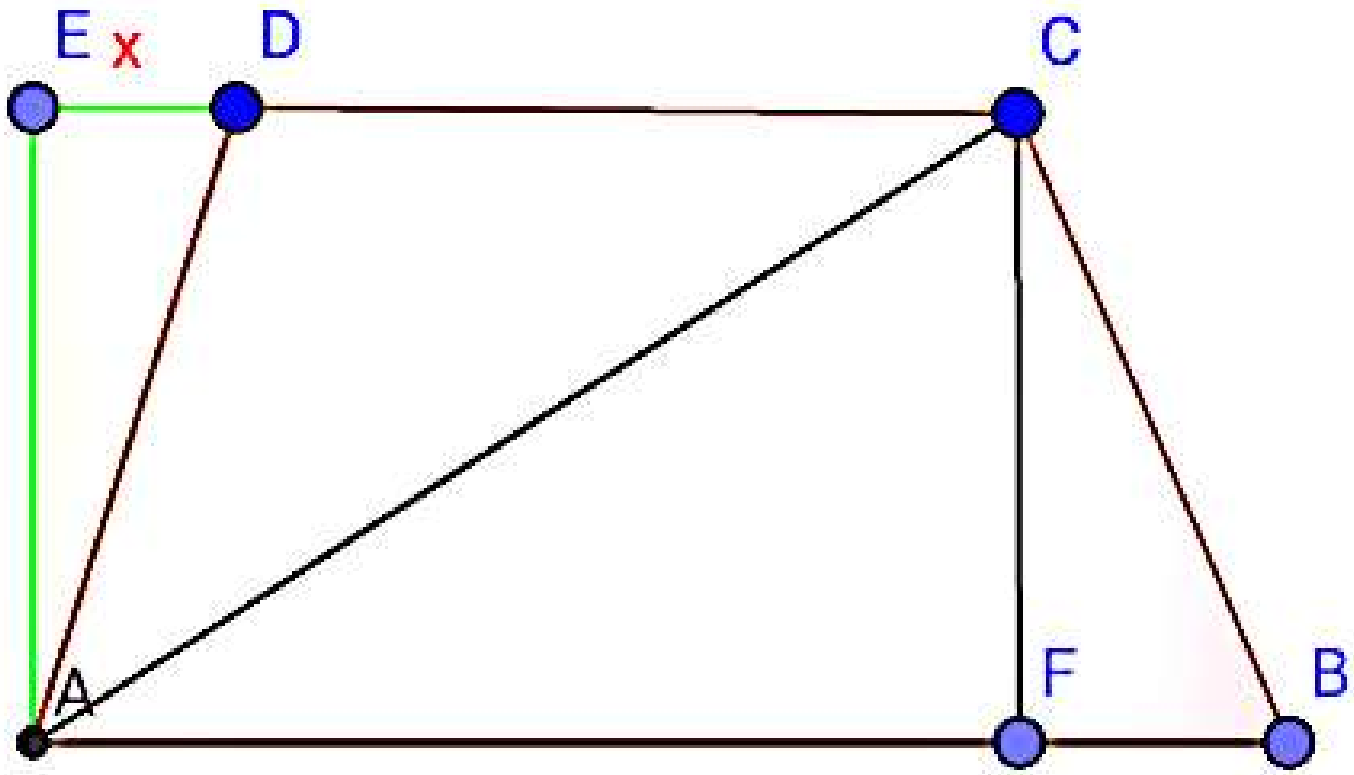
$100-\mathbf{x}^2=256-100-20\mathbf{x}-\mathbf{x}^2.$

$20\mathbf{x}=56. \Rightarrow \mathbf{x}=\frac{56}{20}=\frac{14}{5}=2{,}8.$

$\mathbf{h}^2=10^2-2{,}8^2=\frac{2304}{25}.$

$\mathbf{h}=\frac{48}{5}=9{,}6.$

$\mathbf{S}=9{,}6\times\frac{10+15}{2}=120.$ Javob; 120.



AB=15
AC=16
AD=10
EA=CF

2010.9-10.29

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ABITURIYENT 2010.

(2010.9−10.30).

ABCD kvadrat. Unga markazlari A va B nuqtada bo'lgan chorak doiralar ichki chizilgan va bu chorak doiralar E nuqtada kesishadi. Bo'yalgan soha yuzasini toping. ($\pi=3$).

Y; 1 chi chizma.

Kvadrat yuzi; $S_{kv}=a^2=4^2=16$.

Ihtiyori ikki yoy o'tqizamiz va quydagi 2 chi chizmaga ega bo'lamiz.

$B^1A^1E^2=B^1D^1E^1=D^1C^1E^4=C^1A^1E^3=t$.

$$S_t=\left(4-\sqrt{3}-\frac{2\pi}{3}\right)a^2=\left(4-\sqrt{3}-\frac{2\times 3}{3}\right)\times 4^2=32-16\sqrt{3}.$$

$$S_{BDE}=\frac{32-16\sqrt{3}}{4}=8-4\sqrt{3}.$$

$B^1E^1E^2=A^1E^2E^3=C^1E^3E^4=D^1E^4E^1=x$.

$$S_x=\left(2\sqrt{3}-4+\frac{\pi}{3}\right)a^2=\left(2\sqrt{3}-4+\frac{3}{3}\right)4^2=32\sqrt{3}-48.$$

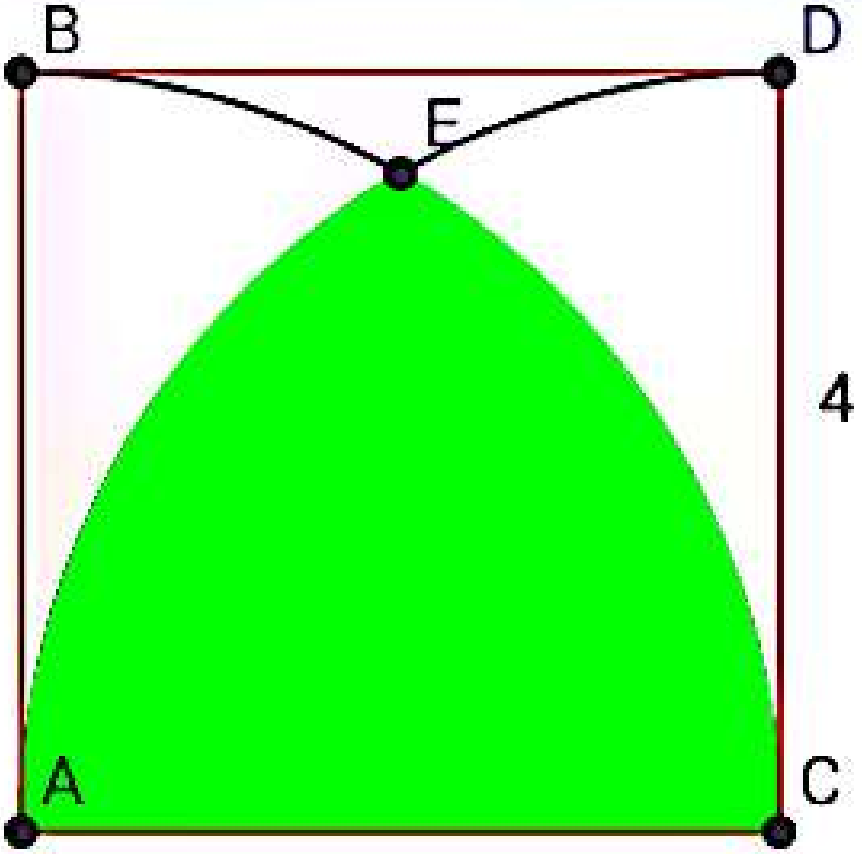
$B^1E^1E^2=D^1E^1E^4=k$.

$$S_k=\frac{32\sqrt{3}-48}{2}=16\sqrt{3}-24.$$

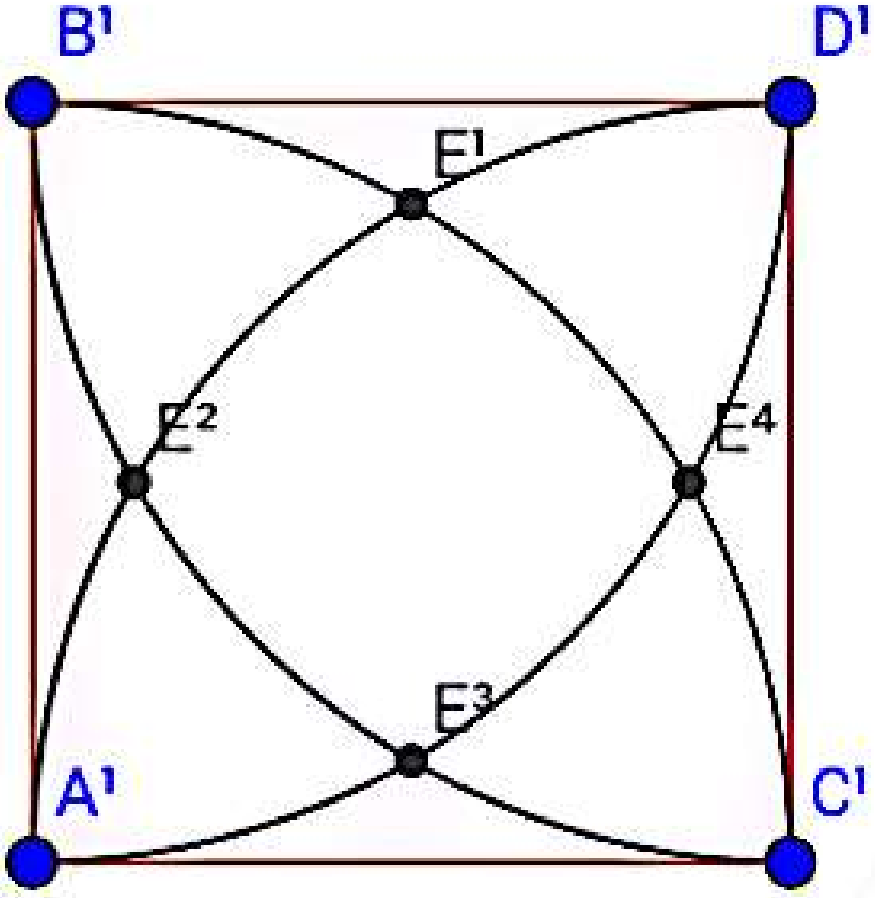
$$S_k+S_{3t}=16\sqrt{3}-24+3(8-4\sqrt{3})=4\sqrt{3}.$$

$S_{EAB}=S_{kv}-(S_k+S_{3t})=16-4\sqrt{3}$. Javob; $16-4\sqrt{3}$.

2010.9-10.30



1 chi chizma.



2 chi chizma.

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ABITURIYENT 2010.

(2010.9–10.31).

Odam g'ildirakni aylantirib ketmoqda. U g'ildirakni 8 marta to'liq aylantirganda manzilga yana 12 metr qoladi, 15 marta to'liq aylantirganda esa manzildan 9 metr o'tib ketadi. G'ildirakning diametri nechaga teng? ($\pi=3$).

Y;

$8\pi d+12=15\pi d-9.$

$8\pi d-15\pi d=-9-12.$

$-7\pi d=-21.$

$d=\frac{-21}{-7\times 3}=1.$ Javob; 1.

ABITURIYENT 2010.

(2010.9−10.32).

$(x+1)^2+(y+3)^2=5$ aylananing y o'qidan ajiratgan kesmasi uzunligini toping.

Y; $x=0$

$(y+3)^2=5-(0+1)^2$.

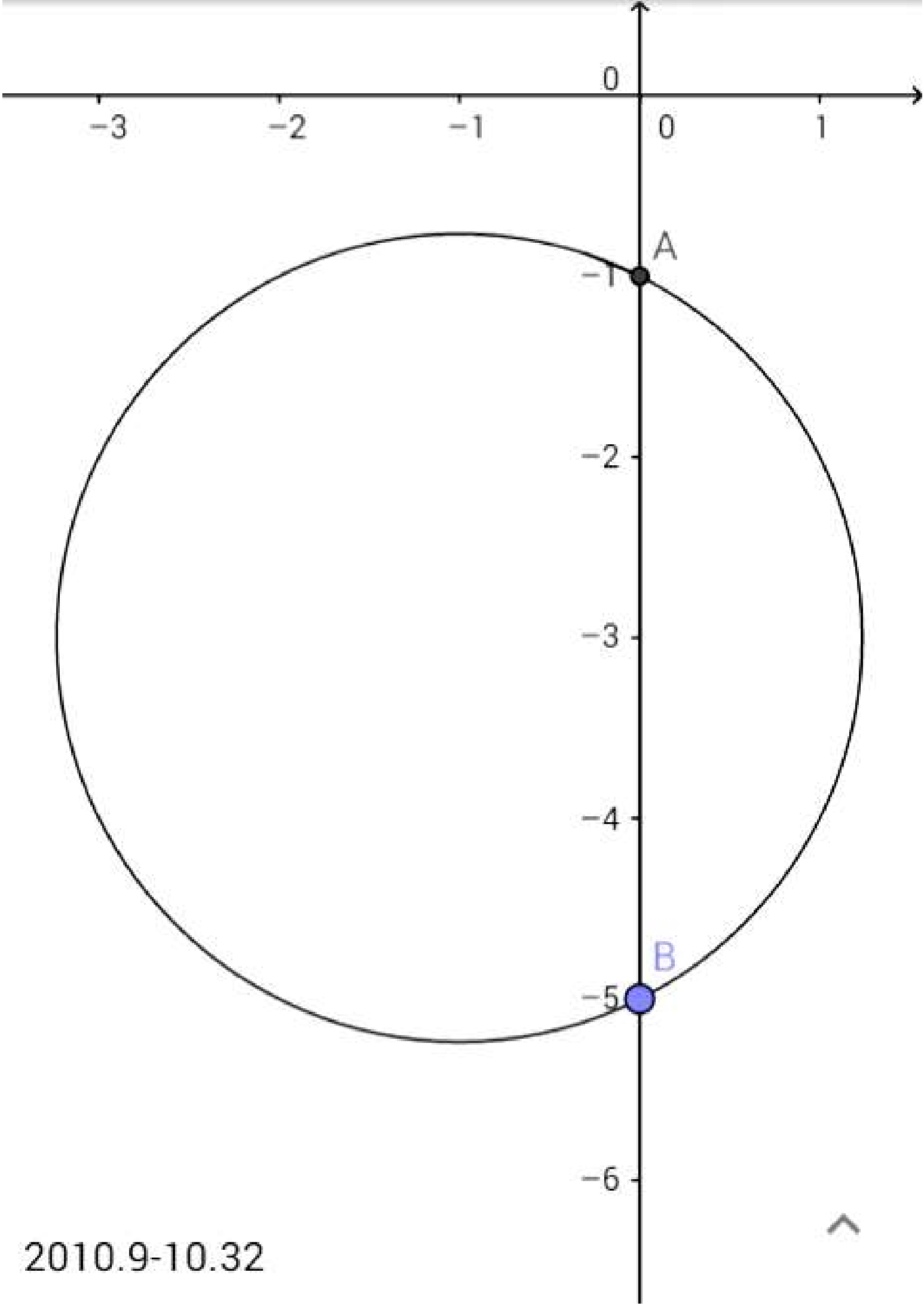
$(y+3)^2=5-1$.

$y+3=\pm 2$.

$y=\pm 2-3$.

$y_1=-1$. $y_2=-5$.

$-1.....-5$. Javob; 4.



2010.9-10.32

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ABITURIYENT 2010.

(2010.9–10.33).

ABC uchburchak AB katet 3 ga teng. Uning BC katetiga AD kesma o'tkazilgan. $\overrightarrow{AB}\times(\overrightarrow{AD}+\overrightarrow{AC})$ ko'paytmaning qiymatini toping.

Y;

$|\vec{a}|=3.$

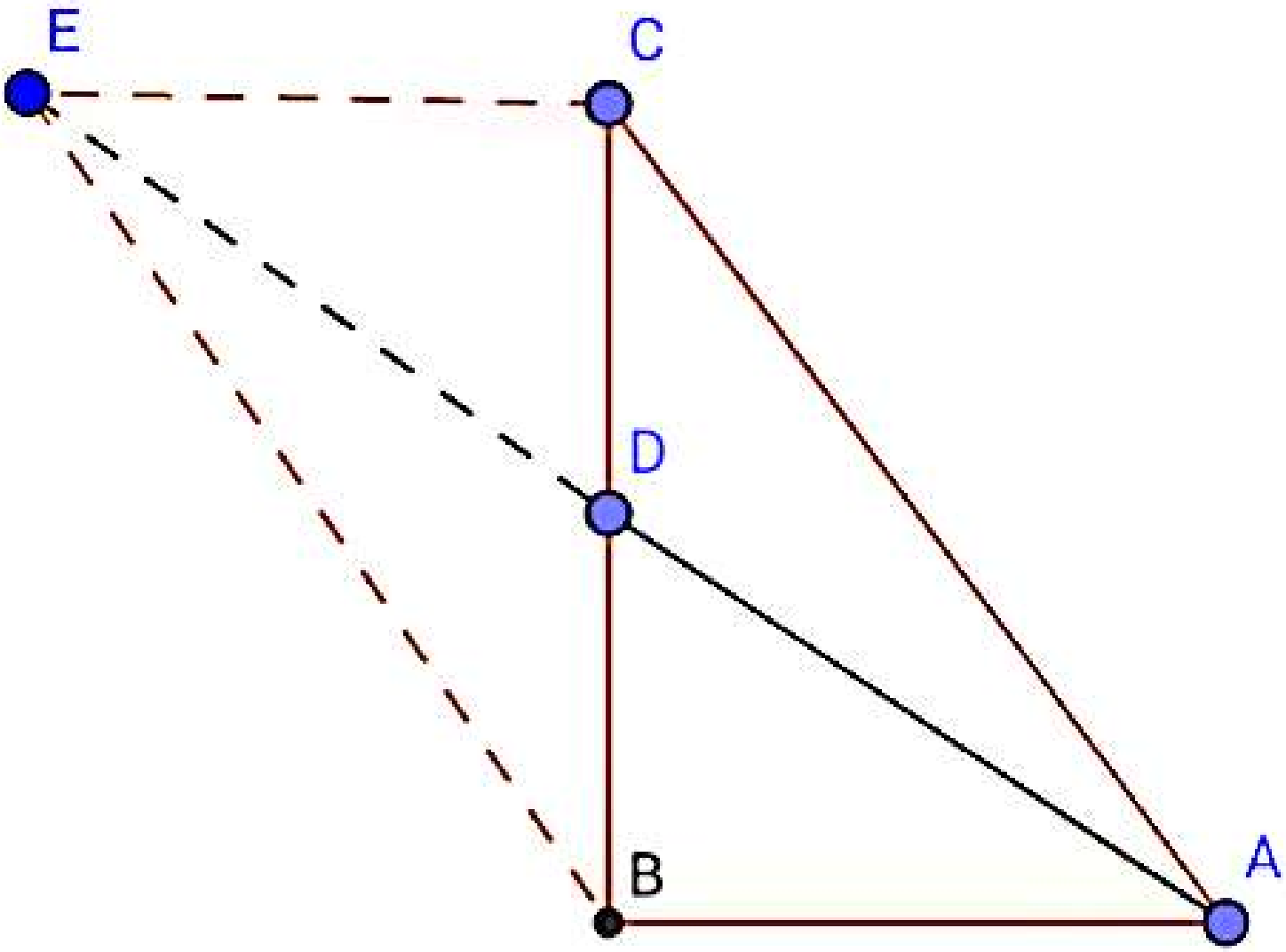
$AB=|\vec{a}|=3.$

$AD+DE=AE=\vec{a}+\vec{b}=2\vec{a}$

$\vec{b}=\vec{a}.$

$AC=\vec{a}.\quad \vec{a}\times 2\vec{a}=2|\vec{a}|^2=2\times 3^2=18.$

Javob; 18.



2010.9-10.33

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ABITURIYENT 2010.
(2010.9–10.34).

Quydagi fikirlardan qaysi biri noto'g'ri?

A) Ikki chiziq kesishishidan to'g'ri chiziq hosil bo'ladi.

B) Fazoda kesishmaydigan chiziqlar ayaqsh chiziqlar hisoblanadi.

C) Fazoda bir chiziqning bir nuqtasiga ko'plab perependikular chiziqlar o'tkazish mumkin.

D) Tekislik va to'g'ri chiziq kesishishidan nuqta hosil bo'ladi.

Javob; B.

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ABITURIYENT 2010.

(2010.9−10.35).

Tomonlari uzunliklari $1, 3$ va 5 sonlarga mutanosib bo'lgan to'g'ri burchakli parallelepipedning dioganali uzunligi $3\sqrt{35}$=sm. Shu parallelepiedning hajmini toping.

Y;

$x\sqrt{35}=3\sqrt{35}$.

$x=3$.

$V=1\times3\times5\times x^3=81\times5=405$. Javob; 405.

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ABITURIYENT 2010.

(2010.9–10.36).

ABCD trapetsiyaning B va C burchaklari to'g'ri. AB=8, BC=6 va CD=2.

Bu trapetsiyani BC tomon atrofida 360° ga aylantirganda hosil bo'lgan jisimning hajmi V_1 ga, AB tomon atrofida 360° ga aylantirganda hosil bo'lgan jisimning hajmi V_2 ga teng. V_1-V_2 ni toping.

Y;

$$V_1=\frac{h_x}{3}\times\left(S_1+\sqrt{S_1S_2}+S_2\right)=\frac{6}{3}(4\pi+16\pi+64\pi)=168\pi.$$

$$V_2=\pi R^2h_s+\frac{1}{3}\times\pi R^2h_k=72\pi+72\pi=144\pi.$$

$V_1-V_2=168\pi-144\pi=24\pi$. Javob; 24π.