

Mavzu (Amaliy 1) CHIZIQLI ALGEBRA VA ANALITIK GEOMERIYA FANIDAN TESTLAR

O'quv savollari

1. Talabalarning “Chiziqli algebra va analitik geomeriya” fanining Analitik geometriya va Vektorlar algebrasi bo‘limlaridan o‘tilgan nazariy mavzular orqali olgan bilimlarini misol va masalalar yechish orqali mustahkamlash

2. Talabalarda Analitik gemetriya va Vektorlar algebrasi bo‘limlaridan testlarni yechish ko‘nikmalarini hosil qilish

1. $Ax + By + C = 0$ ko‘rinishdagi tenglama qanday ataladi?

* Tekislikda to‘g‘ri chiziqlarning umumiy tenglamasi.

To‘g‘ri chiziqlarning kanonik tenglamasi

To‘g‘ri chiziqlarning burchak koeffitsienli tenglamasi

To‘g‘ri chiziqlarning normal tenglamasi

2. To‘g‘ri chiziqlarning umumiy tenglamasida x va y o‘zgaruvchilar oldidagi koeffitsienlar qanday geometrik ma‘noga ega.

* To‘g‘ri chiziq normal vektorining koordinatlari.

To‘g‘ri chiziq yo‘naltiruvchi vektorining koordinatlari.

To‘g‘ri chiziqlarning Ox va Oy o‘qlaridan ajratgan kesmalarining uzunliklari.

Ixtiyoriy koordinatlar.

3. $Ax + By = 0, A \neq 0, B \neq 0$ tenglama bilan berilgan to‘g‘ri chiziq tekislikda koordinata sistemasiga nisbatan qanday joylashgan.

* To‘g‘ri chiziq koordinata boshidan o‘tadi.

To‘g‘ri chiziq Oy o‘qiga parallel.

To‘g‘ri chiziq Ox o‘qiga parallel.

To‘g‘ri chiziq Ox o‘qi bilan ustma-ust tushadi.

4. $Ax + B = 0, B \neq 0$ tenglama bilan berilgan to‘g‘ri chiziq tekislikda koordinata sistemasiga nisbatan qanday joylashgan.

* To‘g‘ri chiziq Oy o‘qiga parallel.

To‘g‘ri chiziq koordinata boshidan o‘tadi.

To‘g‘ri chiziq Ox o‘qi bilan usma-ust tushadi.

To‘g‘ri chiziq Oy o‘qi bilan usma-ust tushadi.

5. $\frac{x}{a} + \frac{y}{b} = 1$ tenglama to'g'ri chiziqning qanday ko'rinishdagi tenglamasi deyiladi ?

*To'g'ri chiziqning kesmalarga nisbatan tenglamasi.

To'g'ri chiziqning umumiy tenglamasi.

Kanonik ko'rinishdagi tenglamasi.

Burchak koefitsientli tenglamasi.

6. $\frac{x-x_1}{m} = \frac{y-y_1}{n}$ tenglama to'g'ri chiziqning qanday ko'rinishdagi tenglamasi deyiladi, m, n sonlar qanday geometrik ma'noga ega.

* To'g'ri chiziqning kanonik tenglamasi, m va n yo'naltiruvchi vektorning koordinatalari.

To'g'ri chiziqning kanonik tenglamasi, m va n normal vektorining koordinatalari.

To'g'ri chiziqning parametrik tenglamasi, m va n – haqiqiy sonlar.

To'g'ri chiziqning burchak koefitsientli tenglamasi, m va n haqiqiy sonlar.

7. $\frac{x-x_1}{x_2-x_1} = \frac{y-y_1}{y_2-y_1}$ ko'rinishdagi tenglama qanday ataladi?

* Berilgan ikki nuqtadan o'tuvchi to'g'ri chiziq tenglamasi.

To'g'ri chiziqning kanonik tenglamasi.

To'g'ri chiziqning kesmalarga nisbatan tenglamasi.

To'g'ri chiziqning parametrik tenglamasi.

8. To'g'ri chiziqning parametrik tenglamasi qanday ko'rinishga ega?.

$$* \begin{cases} x = x_1 + \lambda m \\ y = y_1 + \lambda n \end{cases}$$

$$\frac{x-x_1}{x_2-x_1} = \frac{y-y_1}{y_2-y_1}$$

$$\frac{x}{a} + \frac{y}{b_1} = 1$$

$$y = kx + b$$

9. $y = kx + b$ ko'rinishdagi tenglama to'g'ri chiziqning qanday ko'rinishdagi tenglamasi va k, b sonlar qanday geometrik ma'noga ega?

* To'g'ri chiziqning burchak koeffitsienli tenglamasi , k son to'g'ri chiziqning Ox o'qi bilan tashkil kilgan burchak tangensiga teng, b - son to'g'ri chiziqning Oy o'qidan ajratgan kesmasi.

To'g'ri chiziqning burchak koeffitsienli tenglamasi , k son to'g'ri chiziqning Ox o'qi bilan tashkil kilgan burchak kotangensiga teng, b - son to'g'ri chiziqning Ox o'qidan ajratgan kesmasi.

To'g'ri chiziqning burchak koeffitsienli tenglamasi, $k = \cos \varphi$, b - ixtiyoriy son.

To'g'ri chiziqning parametrik tenglamasi, $k = \operatorname{ctg} \varphi$, b - to'g'ri chiziqning Oy o'qidan ajratgan kesmasining uzunligi.

10. $A_1x + B_1y + C_1 = 0$ va $A_2x + B_2y + C_2 = 0$ to'g'ri chiziqlar orasidagi burchakni qanday formula yordamida topiladi?

$$\cos \varphi = \frac{A_1A_2 + B_1B_2}{\sqrt{A_1^2 + B_1^2} \cdot \sqrt{A_2^2 + B_2^2}}$$

$$\sin \varphi = \frac{A_1A_2 + B_1B_2}{\sqrt{A_1^2 + B_1^2} \cdot \sqrt{A_2^2 + B_2^2}}$$

$$\cos \varphi = \frac{A_1B_2 + A_2B_1}{\sqrt{A_1^2 + A_2^2} + \sqrt{B_1^2 + B_2^2}}$$

$$\operatorname{tg} \varphi = \frac{k_2 + k_1}{1 + k_1k_2}$$

11. $A_1x + B_1y + C_1 = 0$ va $A_2x + B_2y + C_2 = 0$ to'g'ri chiziqlarning parallellik va perpendikulyarlik shartlari mos ravishda quyidagicha:

$$* \frac{A_1}{A_2} = \frac{B_1}{B_2}, \quad A_1A_2 + B_1B_2 = 0$$

$$\frac{A_1}{B_2} = \frac{A_2}{B_1}, \quad A_1A_2 + B_1B_2 = 0$$

$$\frac{A_1}{B_2} = \frac{A_2}{B_1}, \quad A_1A_2 + B_1B_2 = 0$$

$$\frac{A_1}{A_2} = \frac{B_1}{B_2}, \quad A_1A_2 + B_1B_2 = 0$$

12. $\frac{x-x_1}{m_1} = \frac{y-y_1}{n_1}$ va $\frac{x-x_2}{m_2} = \frac{y-y_2}{n_2}$ tenglamalar bilan berilgan to'g'ri chiziqlar orasidagi burchak qanday formula yordamida aniqlanadi?

$$* \cos \varphi = \frac{m_1 m_2 + n_1 n_2}{\sqrt{m_1^2 + n_1^2} \cdot \sqrt{m_2^2 + n_2^2}}$$

$$\cos \varphi = \frac{m_1 m_2 + n_1 n_2}{\sqrt{m_1^2 + n_1^2} - \sqrt{m_2^2 + n_2^2}}$$

$$\sin \varphi = \frac{m_1 m_2 + n_1 n_2}{\sqrt{m_1^2 + n_1^2} \cdot \sqrt{m_2^2 + n_2^2}}$$

$$\cos \varphi = \frac{m_1 m_2 + n_1 n_2}{\sqrt{m_1^2 + n_1^2} + \sqrt{m_2^2 + n_2^2}}$$

13. $\frac{x-x_1}{l_1} = \frac{y-y_1}{m_1}$ va $\frac{x-x_2}{l_2} = \frac{y-y_2}{m_2}$ ko'rinishdagi tenglamalar bilan berilgan to'g'ri chiziqlarning parallellik va perpendikulyarlik shartlarini ko'rsating.

$$* \frac{l_1}{l_2} = \frac{m_1}{m_2}, \quad l_1 l_2 + m_1 m_2 = 0$$

$$\frac{l_1}{l_2} + \frac{m_1}{m_2} = 0, \quad l_1 l_2 - m_1 m_2 = 0$$

$$\frac{l_1}{l_2} = -\frac{m_1}{m_2}, \quad l_1 m_2 + l_2 m_1 = 0$$

$$\frac{l_1}{m_2} = \frac{l_2}{m_1}, \quad l_1 m_1 - l_2 m_2 = 0$$

14. $y = k_1 x + b_1$ va $y = k_2 x + b_2$ ko'rinishdagi tenglamalar bilan berilgan to'g'ri chiziqlar orasidagi burchak qanday formula yordamida aniqlanadi?

$$* \operatorname{tg} \varphi = \frac{k_2 - k_1}{1 + k_1 k_2}$$

$$\operatorname{tg} \varphi = \frac{k_2 - k_1}{1 - k_1 k_2}$$

$$\operatorname{tg} \varphi = \frac{k_2 + k_1}{1 + k_1 k_2}$$

$$\operatorname{tg} \varphi = \frac{1 - k_2 k_1}{k_1 + k_2}$$

15. $y = k_1 x + b_1$ va $y = k_2 x + b_2$ tenglamalari bilan berilgan ikki to'g'ri chiziqning parallellik va perpendikulyarlik shartlarini ko'rsating.

$$* k_1 = k_2, k_1 k_2 = -1$$

$$k_1 + k_2 = 0, k_1 k_2 = 1$$

$$k_1 = -k_2, \frac{k_1}{k_2} = 1$$

$$-k_1 = k_2, k_1 = \frac{1}{k_2}$$

16. $x \cos \alpha + y \sin \alpha - p = 0$ tenglama to'g'ri chiziqning qanday ko'rinishdagi tenglamasi, p - sonning geometrik ma'nosi qanday?

* To'g'ri chiziqning normal tenglamasi, p - koordinata boshidan to'g'ri chiziqgacha masofa.

To'g'ri chiziqning umumiy tenglamasi, p - koordinata boshidan to'g'ri chiziqgacha masofa.

To'g'ri chiziqning burchak koeffitsienli tenglamasi, p - koordinata boshidan to'g'ri chiziqgacha masofa.

To'g'ri chiziqning kanonik tenglamasi, p - ixtiyoriy son.

17. $M_1(x_1, y_1)$ nuqtadan $x \cdot \cos \varphi + y \cdot \sin \varphi - p = 0$ to'g'ri chiziqgacha bo'lgan masofa qanday formula orqali hisoblanadi?

$$* d = |x_1 \cos \varphi + y_1 \sin \varphi - p|$$

$$d = x_1 \cos \varphi - y_1 \sin \varphi - p$$

$$d = |x_1 \cos \varphi + y_1 \cos \varphi - p|$$

$$d = \frac{\sqrt{A^2 + B^2}}{|Ax_1 + By_1 - C|}$$

18. $M_1(x_1, y_1)$ nuqtadan $Ax + By + C = 0$ to'g'ri chiziqgacha bo'lgan masofa qanday formula yordamida hisoblanadi?

$$* d = \frac{|Ax_1 + By_1 + C|}{\sqrt{A^2 + B^2}}$$

$$d = \frac{|Ax_1 + By_1 + C|}{\sqrt{A^2 - B^2}}$$

$$d = \frac{\sqrt{A^2 - B^2}}{|Ax_1 + By_1 + C|}$$

$$d = |x_1 \cos \alpha + y_1 \cos \alpha - p|$$

19. $Ax + By + C = 0$ to'g'ri chiziq tenglamasi qanday shartda normal ko'rinishda bo'ladi?

$$* A^2 + B^2 = 1, C \leq 0$$

$$A^2 + B^2 \neq 1, C \leq 0$$

$$A^2 - B^2 = 1$$

$$A + B = 1, C \leq 0$$

20. $A_1x + B_1y + C_1 = 0$ va $A_2x + B_2y + C_2 = 0$ to'g'ri chiziqlarning bir nuqtada kesishish shartini ko'rsating.

$$* \begin{vmatrix} A_1 & B_1 \\ A_2 & B_2 \end{vmatrix} \neq 0$$

$$\begin{vmatrix} A_1 & B_1 \\ A_2 & B_2 \end{vmatrix} = 0$$

$$\begin{vmatrix} A_1 & C_1 \\ A_2 & C_2 \end{vmatrix} = 0$$

$$\begin{vmatrix} B_1 & C_1 \\ B_2 & C_2 \end{vmatrix} = 0$$

21. $Ax + By + Cz + D = 0$ tekislikning umumiy tenglamasida A, B, C koeffisientlar qanday geometrik ma'noga ega?

* Tekislikning normal vektorining koordinatlari.

Tekislik yo'naltiruvchi vektorinig koordinatlari.

Tekislikda joylashgan vektorning koordinatlari.

Tekislikka parallel vektorning koordinatalari.

22. $Ax + By + Cz = 0$ tenglama bilan berilgan tekislik koordinata sistemasiga nisbatan qanday joylashgan?

*Koordinata boshidan o'tadi.

Ox o'qiga parallel.

Oy o'qiga parallel .

Oz o'qiga parallel.

23. $By + Cz + D = 0$ tenglama bilan berilgan tekislik koordinata sistemasiga nisbatan qanday joylashgan?

* Ox o'qiga parallel.

Oz o'qiga parallel.

Oy o'qiga parallel.

Koordinata boshi orqali o'tadi.

24. $Cz + D = 0$ tenglama bilan berilgan tekislik koordinata sistemasiga nisbatan qanday joylashgan?

* xOy koordinata tekisligiga parallel.

Ox o'qiga parallel.

Oy o'qiga parallel.

Koordinata boshidan o'tadi.

25. Tenglamasi $By + D = 0$ bo'lgan tekislik koordinata tekisliklariga nisbatan qanday joylashgan?

* xOz koordinata tekisligiga parallel.

yOz koordinata tekisligiga parallel.

xOy koordinata tekisligiga parallel.

Oy o'qiga parallel.

26. $Ax + D = 0$ tenglama bilan berilgan tekislik koordinata tekisliklariga nisbatan qanday joylashgan?

* yOz koordinata tekisligiga parallel.

Ox o'qiga parallel.

xOy koordinata tekisligiga parallel.

Oy o'qiga parallel.

27. $Cz = 0$ tenglama bilan berilgan tekislik koordinata sistemasiga nisbatan qanday joylashgan?

* xOy koordinata tekisligi bilan ustma-ust tushadi.

xOz koordinata tekisligi bilan ustma-ust tushadi.

Oy o'qidan iborat.

Ox o'qidan iborat.

28. $By = 0$ tenglama bilan berilgan tekislik koordinata sistemasiga nisbatan qanday joylashgan?

* xOz tekisligidan iborat.

xOy tekisligidan iborat.

Ox o'qidan iborat.

Oy o'qidan iborat.

29. $Ax = 0$ tenglama bilan berilgan tekislik koordinata sistemasiga nisbatan qanday joylashgan?

* yOz tekisligi bo'ladi.

xOy tekisligi bo'ladi.

Ox o'qidan iborat bo'ladi.

Oy o'qidan iborat bo'ladi.

30. $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$ ko'rinishdagi tenglama qanday ataladi va a, b, c sonlar qanday geometrik ma'noga ega?

* Tekislikning kesmalariga nisbatan tenglamasi, a, b, c -sonlar mos ravishda, Ox , Oy , Oz o'qlardan ajratgan kesmalarining uzunliklari.

Tekislikning umumiy tenglamasi; a, b, c - ixtiyoriy sonlar.

Tekislikning kesmalarga nisbatan tenglamasi, a, b, c -tekislik normal vektorining koordinatalari.

Tekislikning normal tenglamasi; a, b, c mos ravishda, Ox , Oy , Oz o'qlardan ajratgan kesmalarning uzunliklari.

31. $A_1x + B_1y + C_1z + D_1 = 0$ va $A_2x + B_2y + C_2z + D_2 = 0$ tekisliklar orasidagi burchak quyidagi formula yordamida topiladi:

$$* \cos \varphi = \frac{A_1A_2 + B_1B_2 + C_1C_2}{\sqrt{A_1^2 + B_1^2 + C_1^2} \cdot \sqrt{A_2^2 + B_2^2 + C_2^2}}$$

$$\cos \varphi = \frac{A_1 A_2 + B_1 B_2 + C_1 C_2}{\sqrt{A_1^2 + B_1^2 + C_1^2} + \sqrt{A_2^2 + B_2^2 + C_2^2}}$$

$$\cos \varphi = \frac{A_1 A_2 + B_1 B_2 + C_1 C_2}{\sqrt{A_1^2 + B_1^2 + C_1^2} - \sqrt{A_2^2 + B_2^2 + C_2^2}}$$

$$\cos \varphi = \frac{A_1 A_2 + B_1 B_2 - C_1 C_2}{\sqrt{A_1^2 + B_1^2 + C_1^2} \cdot \sqrt{A_2^2 + B_2^2 + C_2^2}}$$

32. $A_1 x + B_1 y + C_1 z + D_1 = 0$ va $A_2 x + B_2 y + C_2 z + D_2 = 0$ tenglamalar bilan berilgan tekisliklarning parallellik va perpendikulyarlik shartlarini ko'rsating.

$$* \frac{A_1}{A_2} = \frac{B_1}{B_2} = \frac{C_1}{C_2}, A_1 A_2 + B_1 B_2 + C_1 C_2 = 0:$$

$$\frac{A_1}{A_2} = \frac{B_1}{B_2} = \frac{C_1}{C_2}, A_1 A_2 - B_1 B_2 - C_1 C_2 = 0$$

$$\frac{A_1}{A_2} = \frac{B_1}{B_2} = \frac{C_1}{C_2}, A_1 A_2 + B_1 B_2 - C_1 C_2 = 0$$

$$\frac{A_1}{A_2} = \frac{B_1}{B_2} = \frac{C_1}{C_2}, A_1 A_2 + B_1 B_2 + C_1 C_2 = 1$$

33. Bir to'g'ri chiziqda yotmaydigan uchta $M_1(x_1, y_1, z_1)$, $M_2(x_2, y_2, z_2)$ va $M_3(x_3, y_3, z_3)$ nuqtalardan o'tuvchi to'g'ri chiziq tenglamasini yozing.

$$* \begin{vmatrix} x - x_1 & y - y_1 & z - z_1 \\ x_2 - x_1 & y_2 - y_1 & z_2 - z_1 \\ x_3 - x_1 & y_3 - y_1 & z_3 - z_1 \end{vmatrix} = 0$$

$$\frac{x - x_1}{x_3 - x_2} = \frac{y - y_1}{y_3 - y_2} = \frac{z - z_1}{z_3 - z_2}$$

$$\begin{vmatrix} x - x_1 & y - y_1 & z - z_1 \\ l_1 & m_1 & n_1 \\ l_2 & m_2 & n_2 \end{vmatrix} = 0$$

$$\begin{vmatrix} x - x_1 & y - y_1 & z - z_1 \\ a & b & c \\ A & B & C \end{vmatrix} = 0$$

34. $x \cdot \cos \alpha + y \cdot \cos \beta + z \cdot \cos \gamma - p = 0$ ko'rinishdagi tenglama tekislikning qanday ko'rinishdagi tenglamasi deyiladi va p soni qanday geometrik ma'noga ega?

*Tekislikning normal tenglamasi; p - koordinata boshidan tekislikgacha bo'lgan masofa.

Tekislikning normal ko'rinishdagi tenglamasi; p - ixtiyoriy son.

Tekislikning umumiy tenglamasi; p - koordinata boshidan tekislikgacha masofa.

Tekislikning normal ko'rinishdagi tenglamasi; p - normal vektorining koordinatlari.

35. $M_1(x_1, y_1, z_1)$ nuqtadan berilgan $x \cdot \cos \alpha + y \cdot \cos \beta + z \cdot \cos \gamma - p = 0$ tekislikgacha masofa qanday formula bilan hisoblanadi?

$$* d = |x_1 \cos \alpha + y_1 \cos \beta + z_1 \cos \gamma - p|$$

$$d = |x_1 \cos \alpha - y_1 \cos \beta - z_1 \cos \gamma|$$

$$d = |x_1 \cos \alpha + y_1 \cos \beta + z_1 \cos \gamma + p|$$

$$d = |x_1 \cos \alpha + y_1 \cos \beta - z_1 \cos \gamma - p|$$

36. $M_1(x_1, y_1, z_1)$ nuqtadan $Ax + By + Cz + D = 0$ tekislikgacha masofa qanday formula yordamida hisoblanadi.

$$* d = \frac{|Ax_1 + By_1 + Cz_1 + D|}{\sqrt{A^2 + B^2 + C^2}}$$

$$d = \frac{Ax_1 + By_1 + Cz_1 + D}{\sqrt{A^2 + B^2 + C^2}}$$

$$d = \frac{|Ax_1 + By_1 + Cz_1|}{\sqrt{A^2 + B^2 + C^2}}$$

$$d = |x_1 \cos \alpha + y_1 \cos \beta - z_1 \cos \gamma|$$

37. $\frac{x - x_0}{l} = \frac{y - y_0}{m} = \frac{z - z_0}{n}$ ko'rinishdagi tenglama fazoda to'g'ri chiziqning

qanday ko'rinishdagi tenglamasi deyiladi va l, m, n sonlarning geometrik ma'nosi qanday bo'ladi?

*Fazoda to'g'ri chiziqning kanonik tenglamasi l, m, n to'g'ri chiziq yo'naltiruvchi vektorining koordinatlari.

Fazoda to'g'ri chiziqning kanonik tenglamasi l, m, n to'g'ri chiziq normal vektorining koordinatlari.

To'g'ri chiziqning umumiy tenglamasi; l, m, n yo'naltiruvchi vektorning koordinatlari.

To'g'ri chiziqning geometrik tenglamasi; l, m, n - ixtiyoriy sonlar.

38. Fazoda ikki $M_1(x_1 y_1 z_1)$ va $M_2(x_2 y_2 z_2)$ nuqtalardan o'tuvchi to'g'ri chiziq tenglamasini yozing.

$$* \frac{x - x_1}{x_2 - x_1} = \frac{y - y_1}{y_2 - y_1} = \frac{z - z_1}{z_2 - z_1}$$

$$\frac{x + x_1}{x_2 + x_1} = \frac{y + y_1}{y_2 + y_1} = \frac{z + z_1}{z_2 + z_1}$$

$$\frac{x - x_1}{y_2 - y_1} = \frac{y - y_1}{x_2 - x_1} = \frac{z - z_1}{1}$$

$$\frac{x - x_1}{l} = \frac{y - y_1}{m} = \frac{z - z_1}{n}$$

39. Fazoda to'g'ri chiziqning vektor shaklidagi tenglamasi quyidagi tenglamalardan qaysi biri bo'ladi?

$$* \vec{r} = \vec{r}_0 + t\vec{a}$$

$$\left. \begin{aligned} A_1 x + B_1 y + C_1 z + D &= 0 \\ A_2 x + B_2 y + C_2 z + D &= 0 \end{aligned} \right\}$$

$$\frac{x - x_0}{l} = \frac{y - y_0}{m} = \frac{z - z_0}{n}$$

$$\frac{x - x_1}{x_2 - x_1} = \frac{y - y_1}{y_2 - y_1} = \frac{z - z_1}{z_2 - z_1}$$

40. $\left. \begin{aligned} A_1 x + B_1 y + C_1 z + D &= 0 \\ A_2 x + B_2 y + C_2 z + D &= 0 \end{aligned} \right\}$ tenglama fazoda qaysi holda to'g'ri chiziqni

ifodalaydi ?

$$* \text{rang} \begin{pmatrix} A_1 & B_1 & C_1 \\ A_2 & B_2 & C_2 \end{pmatrix} = 2 \text{ bo'lsa,}$$

$$\text{rang} \begin{pmatrix} A_1 & B_1 & C_1 \\ A_2 & B_2 & C_2 \end{pmatrix} = 1 \text{ bo'lsa,}$$

$$D_1 = 0, D_2 = 0 \text{ bo'lsa,}$$

$$D_1 \neq 0, D_2 \neq 0 \text{ bo'lsa.}$$

41. Quyidagi tenglamalardan qaysi biri to'g'ri chiziqning parametrik tenglamasi deyiladi?

$$* \left. \begin{aligned} x &= x_0 + lt \\ y &= y_0 + mt \\ z &= z_0 + nt \end{aligned} \right\}$$

$$\left. \begin{aligned} A_1x + B_1y + C_1z + D &= 0 \\ A_2x + B_2y + C_2z + D &= 0 \end{aligned} \right\}$$

$$\frac{x - x_0}{l} = \frac{y - y_0}{m} = \frac{z - z_0}{n}$$

$$r = r_0 + \lambda t$$

42. Berilgan ikkita $\frac{x - x_1}{l_1} = \frac{y - y_1}{m_1} = \frac{z - z_1}{n_1}$ **va** $\frac{x - x_2}{l_2} = \frac{y - y_2}{m_2} = \frac{z - z_2}{n_2},$

to'g'ri chiziqlar orasidagi burchak qanday formula yordamida topiladi?

$$* \cos \varphi = \frac{l_1 l_2 + m_1 m_2 + n_1 n_2}{\sqrt{l_1^2 + m_1^2 + n_1^2} \cdot \sqrt{l_2^2 + m_2^2 + n_2^2}}$$

$$\sin \varphi = \frac{l_1 l_2 + m_1 m_2 + n_1 n_2}{\sqrt{l_1^2 + m_1^2 + n_1^2} \cdot \sqrt{l_2^2 + m_2^2 + n_2^2}}$$

$$\cos \varphi = \frac{l_1 l_2 + m_1 m_2 + n_1 n_2}{\sqrt{l_1^2 + m_1^2 + n_1^2} + \sqrt{l_2^2 + m_2^2 + n_2^2}}$$

$$\cos \varphi = \frac{l_1 l_2 + m_1 m_2 + n_1 n_2}{\sqrt{l_1^2 + m_1^2 + n_1^2} - \sqrt{l_2^2 + m_2^2 + n_2^2}}$$

$$43. \frac{x - x_1}{l_1} = \frac{y - y_1}{m_1} = \frac{z - z_1}{n_1} \quad \text{va} \quad \frac{x - x_2}{l_2} = \frac{y - y_2}{m_2} = \frac{z - z_2}{n_2},$$

ko'rinishdagi tenglamalari bilan berilgan to'g'ri chiziqlarning parallellik va perpendikulyarlik shartlarini ko'rsating.

$$* \frac{l_1}{l_2} = \frac{m_1}{m_2} = \frac{n_1}{n_2}, \quad l_1 l_2 + m_1 m_2 + n_1 n_2 = 0$$

$$\frac{l_1}{l_2} = \frac{m_1}{m_2} = \frac{n_1}{n_2}, \quad l_1 l_2 + m_1 m_2 + n_1 n_2 \neq 0$$

$$\frac{l_1}{l_2} = \frac{m_1}{m_2} = \frac{n_1}{n_2}, \quad l_1 l_2 + m_1 m_2 + n_1 n_2 = 1$$

$$\frac{l_1}{l_2} = \frac{m_1}{m_2} = \frac{n_1}{n_2}, \quad l_1 l_2 - m_1 m_2 - n_1 n_2 \neq 0$$

$$44. Ax + By + Cz + D = 0 \text{ tekislik va } \frac{x - x_0}{l} = \frac{y - y_0}{m} = \frac{z - z_0}{n} \text{ to'g'ri chiziq}$$

orasidagi burchak qanday formula yordamida hisoblanadi?

$$* \sin \varphi = \frac{Al + Bm + Cn}{\sqrt{A^2 + B^2 + C^2} \cdot \sqrt{l^2 + m^2 + n^2}}$$

$$\cos \varphi = \frac{Al + Bm + Cn}{\sqrt{A^2 + B^2 + C^2} \cdot \sqrt{l^2 + m^2 + n^2}}$$

$$\sin \varphi = \frac{Al + Bm + Cn}{\sqrt{A^2 + B^2 + C^2} + \sqrt{l^2 + m^2 + n^2}}$$

$$\cos \varphi = \frac{Al + Bm + Cn}{\sqrt{A^2 + B^2 + C^2} + \sqrt{l^2 + m^2 + n^2}}$$

$$45. \frac{x - x_0}{l} = \frac{y - y_0}{m} = \frac{z - z_0}{n} \text{ to'g'ri chiziq va } Ax + By + Cz + D = 0 \text{ tekislik}$$

umumiy nuqtaga ega bo'lmaslik (parallellik) shartini ko'rsating.

$$* Al + Bm + Cn = 0, \quad Ax_0 + By_0 + Cz_0 + D \neq 0$$

$$Al + Bm + Cn = 0, \quad Ax_0 + By_0 + Cz_0 + D = 0$$

$$\frac{A}{l} + \frac{B}{m} + \frac{C}{n} = 1$$

$$\frac{A}{l} = \frac{B}{m} = \frac{C}{n}$$

46. $\frac{x - x_0}{l} = \frac{y - y_0}{m} = \frac{z - z_0}{n}$ to'g'ri chiziqning $Ax + By + Cz + D = 0$,

tekislikka perpendikulyarlik shartini ko'rsating.

$$* \frac{A}{l} = \frac{B}{m} = \frac{C}{n}$$

$$Al + Bm + Cn = 0, Ax_0 + By_0 + Cz_0 + D \neq 0$$

$$Al + Bm + Cn = 0, Ax_0 + By_0 + Cz_0 + D = 0$$

$$\frac{A}{l} + \frac{B}{m} + \frac{C}{n} = 1$$

47. $\frac{x - x_0}{l} = \frac{y - y_0}{m} = \frac{z - z_0}{n}$ to'g'ri chiziqning $Ax + By + Cz + D = 0$,

tekislikda yotish shartini ko'rsating.

$$* Al + Bm + Cn = 0, Ax_0 + By_0 + Cz_0 + D = 0$$

$$Al + Bm + Cn = 0, Ax_0 + By_0 + Cz_0 + D \neq 0$$

$$\frac{A}{l} + \frac{B}{m} + \frac{C}{n} = 1$$

$$\frac{A}{l} = \frac{B}{m} = \frac{C}{n}$$

48. $\frac{x - x_0}{l} = \frac{y - y_0}{m} = \frac{z - z_0}{n}$ to'g'ri chiziqning $Ax + By + Cz + D = 0$ tekislik

bilan bir nuqtada kesishish shartini ko'rsating.

$$* Al + Bm + Cn \neq 0$$

$$Al + Bm + Cn = 0, Ax_0 + By_0 + Cz_0 + D \neq 0$$

$$\frac{A}{l} + \frac{B}{m} + \frac{C}{n} = 1$$

$$Al + Bm + Cn = 0, Ax_0 + By_0 + Cz_0 + D = 0$$

49. $A_1x + B_1y + C_1z + D = 0, A_2x + B_2y + C_2z + D_2 = 0$ **va**
 $A_3x + B_3y + C_3z + D_3 = 0$ **tenglamalar bilan berilgan tekisliklarning bir**
nuqtada kesishish shartini ko'rsating.

$$* \begin{vmatrix} A_1 & B_1 & C_1 \\ A_2 & B_2 & C_2 \\ A_3 & B_3 & C_3 \end{vmatrix} = 0$$

$$\begin{vmatrix} A_1 & B_1 & C_1 \\ A_2 & B_2 & C_2 \\ A_3 & B_3 & C_3 \end{vmatrix} \neq 0$$

$$\frac{A_1}{A_2} = \frac{B_1}{B_2} = \frac{C_1}{C_2}$$

$$\frac{A_1}{A_3} = \frac{B_1}{B_3} = \frac{C_1}{C_3}$$

Mashg'ulot rahbari

Fizika-matematika fanlari nomzodi , dotsent

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