

Analitik Geometri

Alıştırma II sonuçları

David Pierce

Mimar Sinan Güzel Sanatlar Üniversitesi

Matematik Bölümü

mat.msgsu.edu.tr/~dpierce/

polytropy.com/

analitik-geometri-ozeti.html

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Giriş

Eğer bir bölümün başlığı (a, b) , (c, d) , (e, f) ise, o zaman

$$\Delta = ad - bc$$

olduğunda bölümün ilk denklemi,

$$\left(\frac{d(x - e) - c(y - f)}{\Delta} \right)^2 - \left(\frac{b(x - e) - a(y - f)}{\Delta} \right)^2 = 1$$

olur. Mümkünse bu denklem sadeleştirilmiştir. İkinci denklem, aynı hiperbolü tanımlar. Aslında başka bir dokümanda yazdığım gibi bu denklem

$$\left(\frac{(d^2 - b^2)(x - e) - (cd - ab)(y - f)}{\Delta \sqrt{d^2 - b^2}} \right)^2 - \left(\frac{y - f}{\sqrt{d^2 - b^2}} \right)^2 = 1$$

olur. Yine mümkünse bu denklem sadeleştirilmiştir. Denkleme uyan köşeler veriliyor; bunlar

$$\left(e \pm \frac{\Delta}{d^2 \pm b^2} \sqrt{d^2 \pm b^2}, f \right), \\ \left(e \pm \frac{cd \pm ab}{d^2 \pm b^2} \sqrt{d^2 \pm b^2}, f \pm \sqrt{d^2 \pm b^2} \right)$$

olur. Eğer bu noktaları bulduysanız, başka bir şey yazmadım; değilse, bulduğunuz noktaları yazdım veya bulmadığınızı yazdım.

İçindekiler

1	$(6, 3), (4, 5), (1, 2)$	6
2	$(3, 1), (1, 2), (2, 3)$	8
3	$(6, 4), (2, 8), (1, 3)$	10
4	$(3, 6), (3, 9), (2, 3)$	12
5	$(10, 2), (4, 8), (6, 4)$	14
6	$(4, 1), (2, 4), (1, 2)$	16
7	$(2, 1), (3, 2), (3, 2)$	18
8	$(4, 1), (2, 3), (2, 1)$	20
9	$(5, 1), (2, 3), (2, 1)$	22
10	$(4, 2), (1, 3), (4, 3)$	24
11	$(5, 1), (2, 3), (4, 2)$	26
12	$(6, 2), (2, 5), (4, 2)$	28
13	$(2, 1), (1, 3), (1, 2)$	30
14	$(3, 2), (2, 4), (2, 2)$	32
15	$(1, 2), (2, 3), (2, 4)$	34

16	$(6, 1), (3, 9), (4, 2)$	36
17	$(5, 2), (3, 4), (3, 2)$	38
18	$(4, 1), (3, 2), (2, 1)$	40
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24	$(1, 4), (3, 8), (4, 9)$	52
25	$(5, 2), (1, 3), (4, 1)$	54
26	$(2, 4), (10, 6), (4, 2)$	56
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30	$(4, 2), (2, 6), (2, 2)$	64
31	$(4, 1), (2, 3), (3, 2)$	66
32	$(3, 6), (15, 9), (6, 3)$	68
33	$(2, 1), (3, 4), (2, 3)$	70

34 $(3, 1), (5, 4), (2, 3)$

72

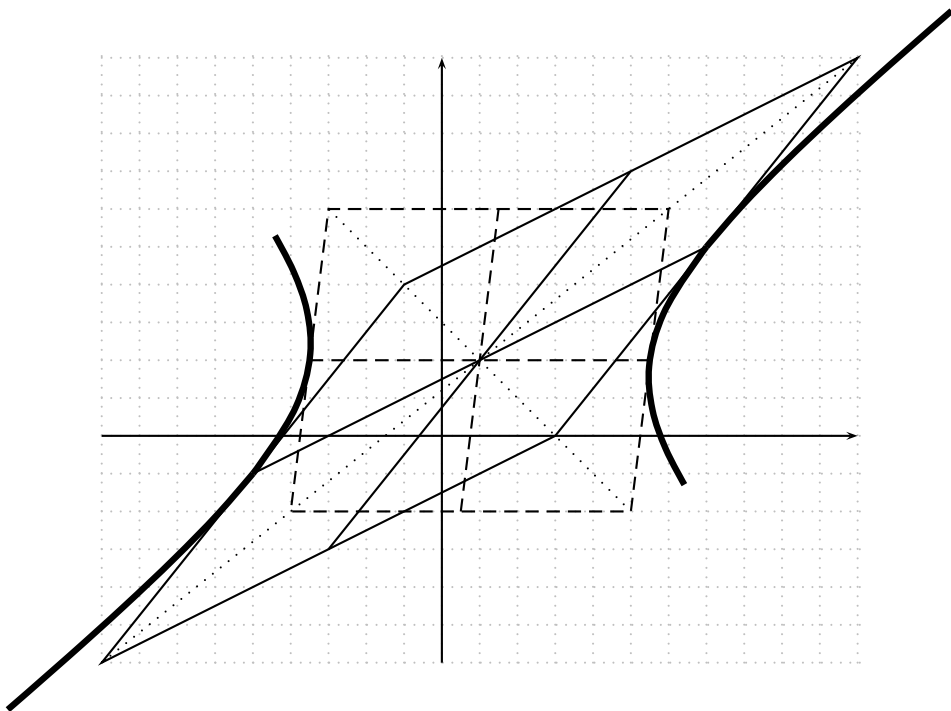
$$\mathbf{1} \quad (6, 3), (4, 5), (1, 2)$$

Hiperbolün denklemleri:

$$\begin{aligned} \left(\frac{5(x-1) - 4(y-2)}{18} \right)^2 - \left(\frac{x-1 - 2(y-2)}{6} \right)^2 &= 1, \\ \left(\frac{8(x-1) - (y-2)}{36} \right)^2 - \left(\frac{y-2}{4} \right)^2 &= 1. \end{aligned}$$

Yeni eşlenik köşeler:

$$\left(1 \pm \frac{9}{2}, 2 \right), \quad \left(1 \pm \frac{1}{2}, 2 \pm 4 \right).$$



$$\mathbf{2} \quad (3, 1), (1, 2), (2, 3)$$

Hiperbolün denklemleri:

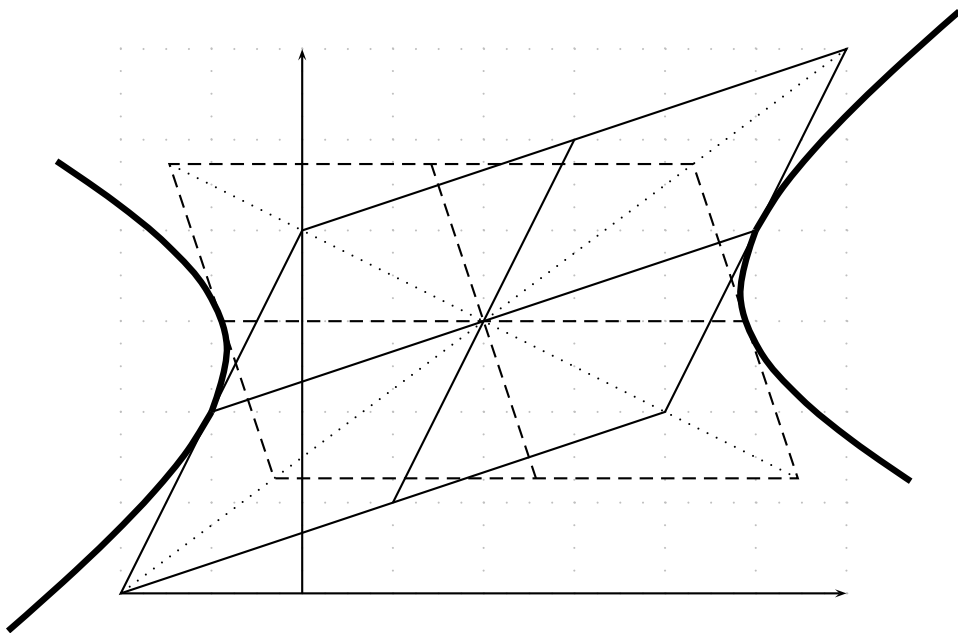
$$\begin{aligned} \left(\frac{2(x-2) - (y-3)}{5} \right)^2 - \left(\frac{x-2 - 3(y-3)}{5} \right)^2 &= 1, \\ \left(\frac{3(x-2) + y-3}{5\sqrt{3}} \right)^2 - \left(\frac{y-3}{\sqrt{3}} \right)^2 &= 1. \end{aligned}$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{5}{3}\sqrt{3}, 3 \right), \quad \left(2 \mp \frac{1}{3}\sqrt{3}, 3 \pm \sqrt{3} \right).$$

Ödevde bulunan değerler:

$$\left(2 \pm \frac{5\sqrt{3}}{3}, 3 \right), \quad \left(2 \pm \frac{\sqrt{3}}{3}, 3 \pm \sqrt{3} \right).$$



3 $(6, 4), (2, 8), (1, 3)$

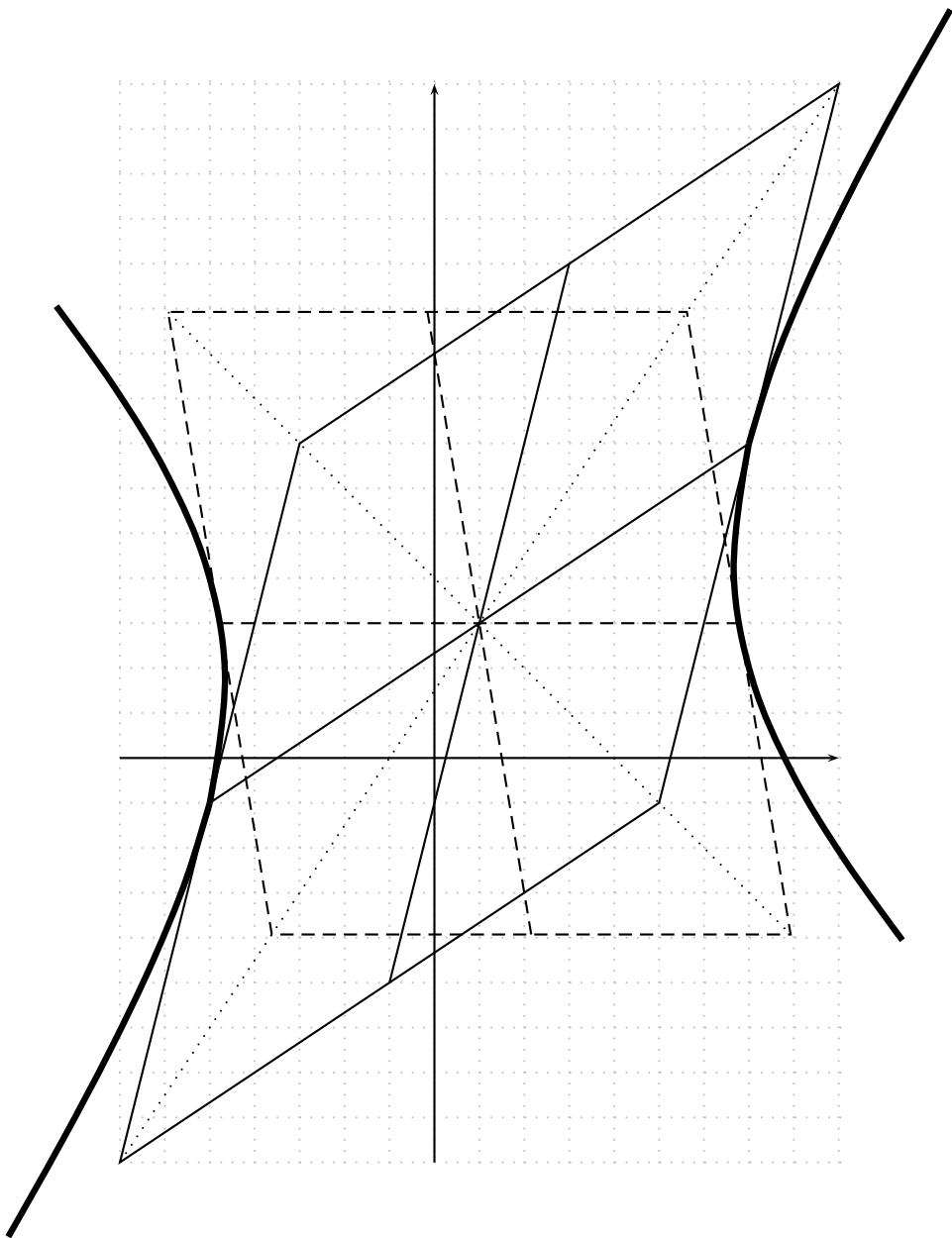
Hiperbolün denklemleri:

$$\begin{aligned}\left(\frac{4(x-1)-(y-3)}{20}\right)^2 - \left(\frac{2(x-1)-3(y-3)}{20}\right)^2 &= 1, \\ \left(\frac{6(x-1)+y-3}{20\sqrt{3}}\right)^2 - \left(\frac{y-3}{4\sqrt{3}}\right)^2 &= 1.\end{aligned}$$

Yeni eşlenik köşeler:

$$\left(1 \pm \frac{10}{3}\sqrt{3}, 3\right), \quad \left(1 \mp \frac{2}{3}\sqrt{3}, 3 \pm 4\sqrt{3}\right).$$

Ödevde bulunan değerler yok.



4 $(3, 6), (3, 9), (2, 3)$

Hiperbolün denklemleri:

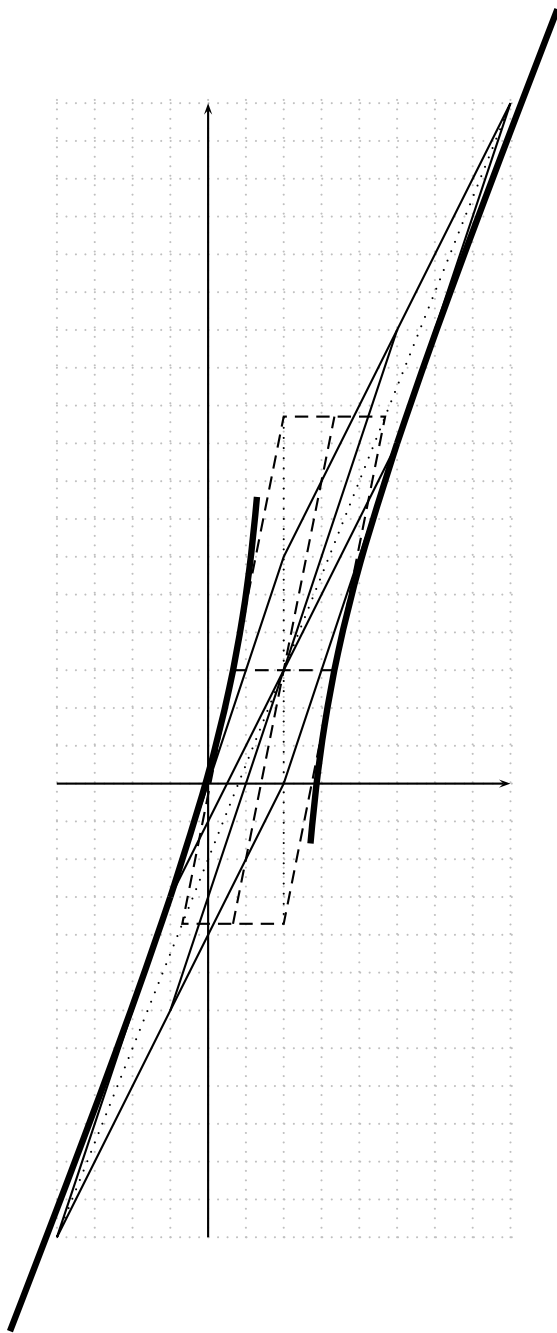
$$\left(\frac{3(x-2)-(y-3)}{3}\right)^2 - \left(\frac{2(x-2)-(y-3)}{3}\right)^2 = 1,$$
$$\left(\frac{5(x-2)-(y-3)}{3\sqrt{5}}\right)^2 - \left(\frac{y-3}{3\sqrt{5}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{3}{5}\sqrt{5}, 3\right), \quad \left(2 \pm \frac{3}{5}\sqrt{5}, 3 \pm 3\sqrt{5}\right).$$

Ödevde bulunan değerler:

$$\left(2 \mp \frac{3}{\sqrt{5}}, 3\right), \quad \left(2 \mp \left(-3\sqrt{\frac{2}{5}} + \frac{3}{\sqrt{5}}\right), 3 \mp 3\sqrt{5}\right).$$



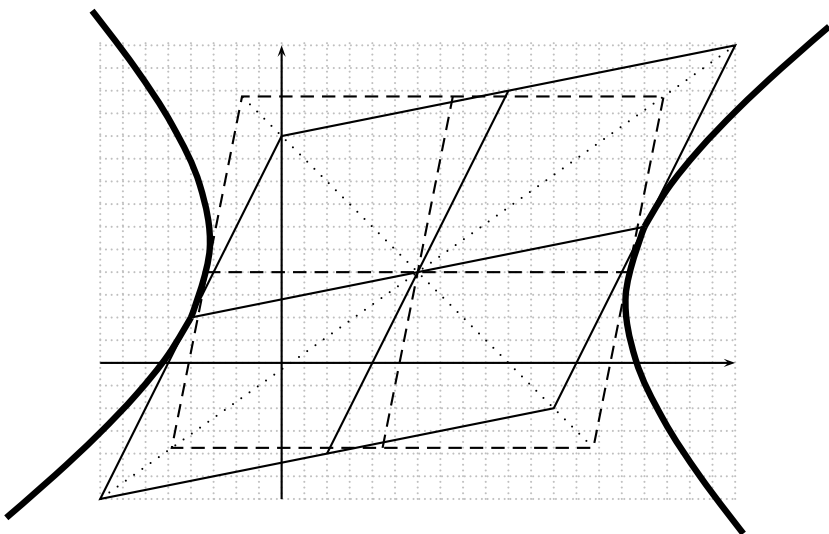
5 $(10, 2), (4, 8), (6, 4)$

Hiperbolün denklemleri:

$$\left(\frac{2(x-6)-(y-4)}{18}\right)^2 - \left(\frac{x-6-5(y-4)}{36}\right)^2 = 1,$$
$$\left(\frac{5(x-6)-(y-4)}{12\sqrt{15}}\right)^2 - \left(\frac{y-4}{2\sqrt{15}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(6 \pm \frac{12}{5}\sqrt{15}, 4\right), \quad \left(6 \pm \frac{2}{5}\sqrt{15}, 4 \pm 2\sqrt{15}\right).$$



6 $(4, 1), (2, 4), (1, 2)$

Hiperbolün denklemleri:

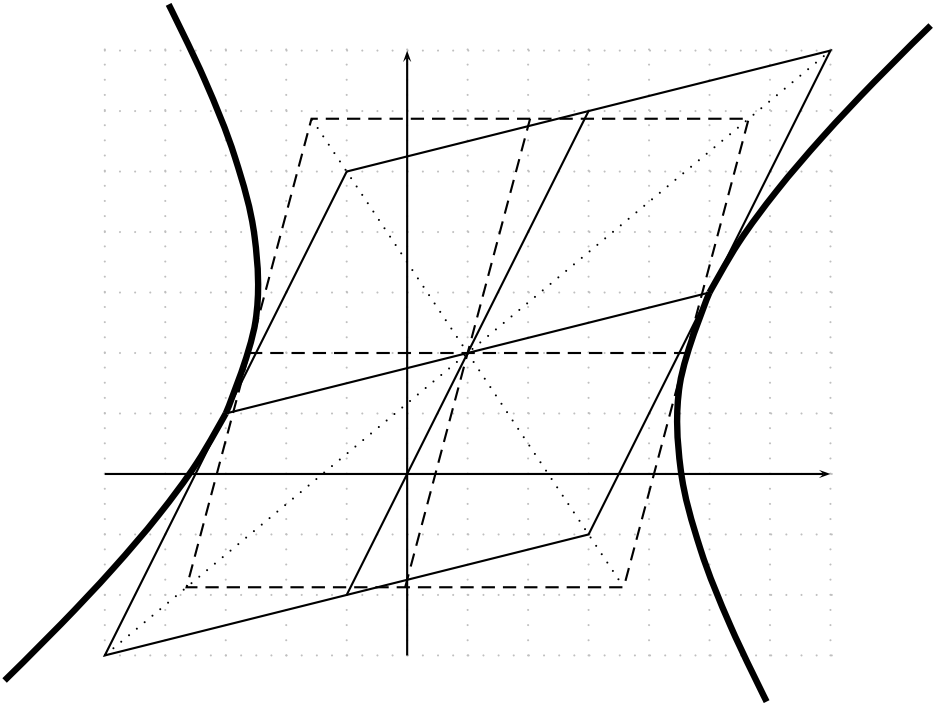
$$\begin{aligned}\left(\frac{2(x-1)-(y-2)}{7}\right)^2 - \left(\frac{x-1-4(y-2)}{14}\right)^2 &= 1, \\ \left(\frac{15(x-1)-4(y-2)}{14\sqrt{15}}\right)^2 - \left(\frac{y-2}{\sqrt{15}}\right)^2 &= 1.\end{aligned}$$

Yeni eşlenik köşeler:

$$\left(1 \pm \frac{14}{15}\sqrt{15}, 2\right), \quad \left(1 \pm \frac{4}{15}\sqrt{15}, 2 \pm \sqrt{15}\right).$$

Ödevde bulunan değerler:

$$\left(\frac{11 \pm \sqrt{301}}{30}, \frac{24}{5}\right), \quad \left(\dots, \frac{24}{7} \pm 3\sqrt{5}\right).$$



$$7 \quad (2, 1), (3, 2), (3, 2)$$

Hiperbolün denklemleri:

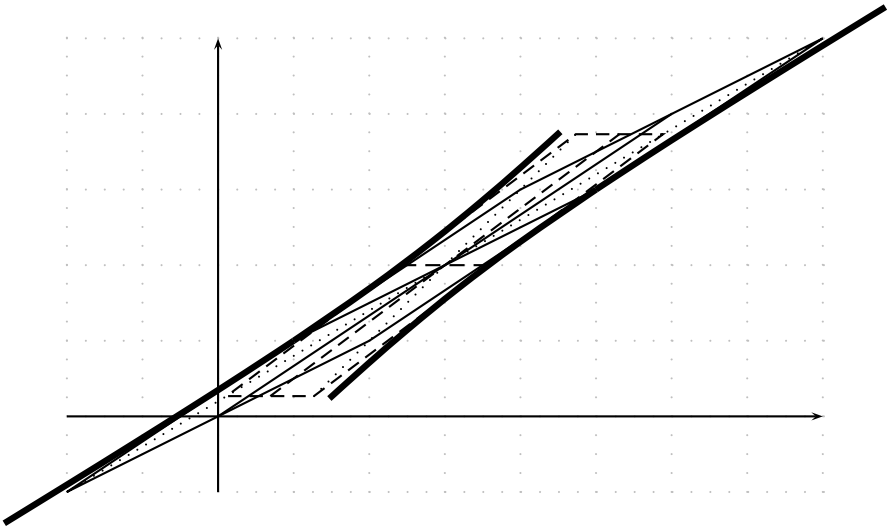
$$\begin{aligned} (2(x-3) - 3(y-2))^2 - (x-3 - 2(y-2))^2 &= 1, \\ \left(\frac{3(x-3) - 4(y-2)}{\sqrt{3}} \right)^2 - \left(\frac{y-2}{\sqrt{3}} \right)^2 &= 1. \end{aligned}$$

Yeni eşlenik köşeler:

$$\left(3 \pm \frac{1}{3}\sqrt{3}, 2 \right), \quad \left(3 \pm \frac{4}{3}\sqrt{3}, 2 \pm \sqrt{3} \right).$$

Ödevde bulunan değerler:

$$\left(59 \pm \frac{\sqrt{1713}}{3}, 40 \right), \quad \left(59 \pm \frac{\sqrt{1713}}{3}, 40 \pm \sqrt{1713} \right).$$



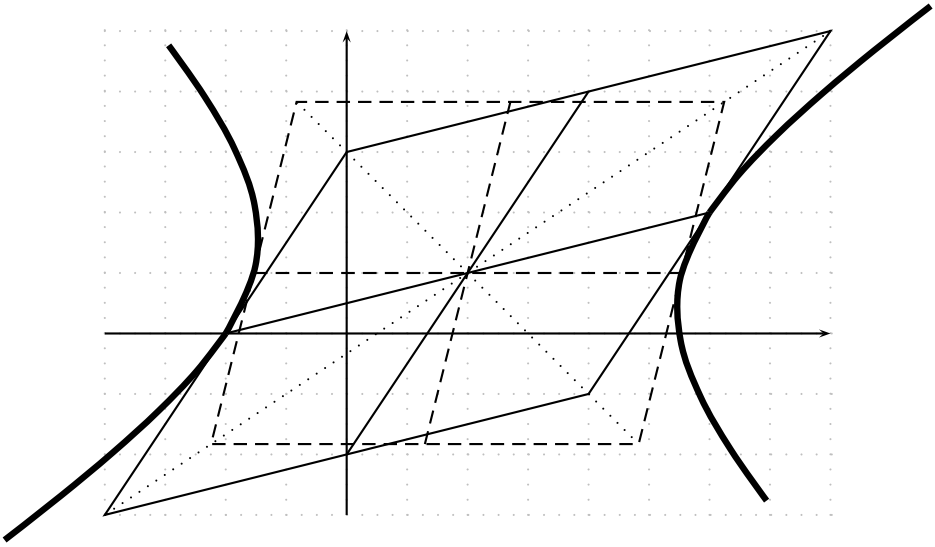
8 $(4, 1), (2, 3), (2, 1)$

Hiperbolün denklemleri:

$$\left(\frac{3(x-2)-2(y-1)}{10}\right)^2 - \left(\frac{x-2-4(y-1)}{10}\right)^2 = 1,$$
$$\left(\frac{4(x-2)-(y-1)}{10\sqrt{2}}\right)^2 - \left(\frac{y-1}{2\sqrt{2}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{5}{2}\sqrt{2}, 1\right), \quad \left(2 \pm \frac{1}{2}\sqrt{2}, 1 \pm 2\sqrt{2}\right).$$



9 $(5, 1), (2, 3), (2, 1)$

Hiperbolün denklemleri:

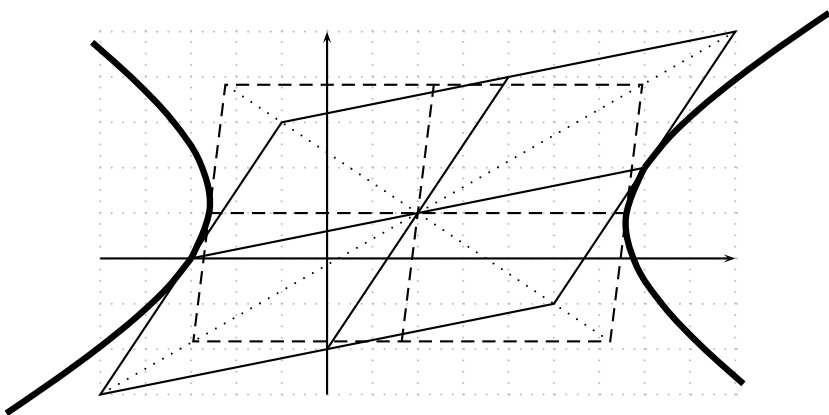
$$\left(\frac{3(x-2)-2(y-1)}{13}\right)^2 - \left(\frac{x-2-5(y-1)}{13}\right)^2 = 1,$$
$$\left(\frac{8(x-2)-(y-1)}{26\sqrt{2}}\right)^2 - \left(\frac{y-1}{2\sqrt{2}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{13}{4}\sqrt{2}, 1\right), \quad \left(2 \pm \frac{1}{4}\sqrt{2}, 1 \pm 2\sqrt{2}\right).$$

Ödevde bulunan değerler:

$$\left(2 \pm \frac{13\sqrt{2}}{4}, -1\right), \quad \left(2 \pm \frac{\sqrt{2}}{4}, -1 \pm 2\sqrt{2}\right).$$



$$\mathbf{10} \quad (4, 2), (1, 3), (4, 3)$$

Hiperbolün denklemleri:

$$\begin{aligned} \left(\frac{3(x-4) - (y-3)}{10} \right)^2 - \left(\frac{x-4 - 2(y-3)}{5} \right)^2 &= 1, \\ \left(\frac{x-4 + (y-3)}{2\sqrt{5}} \right)^2 - \left(\frac{y-3}{\sqrt{5}} \right)^2 &= 1. \end{aligned}$$

Yeni eşlenik köşeler:

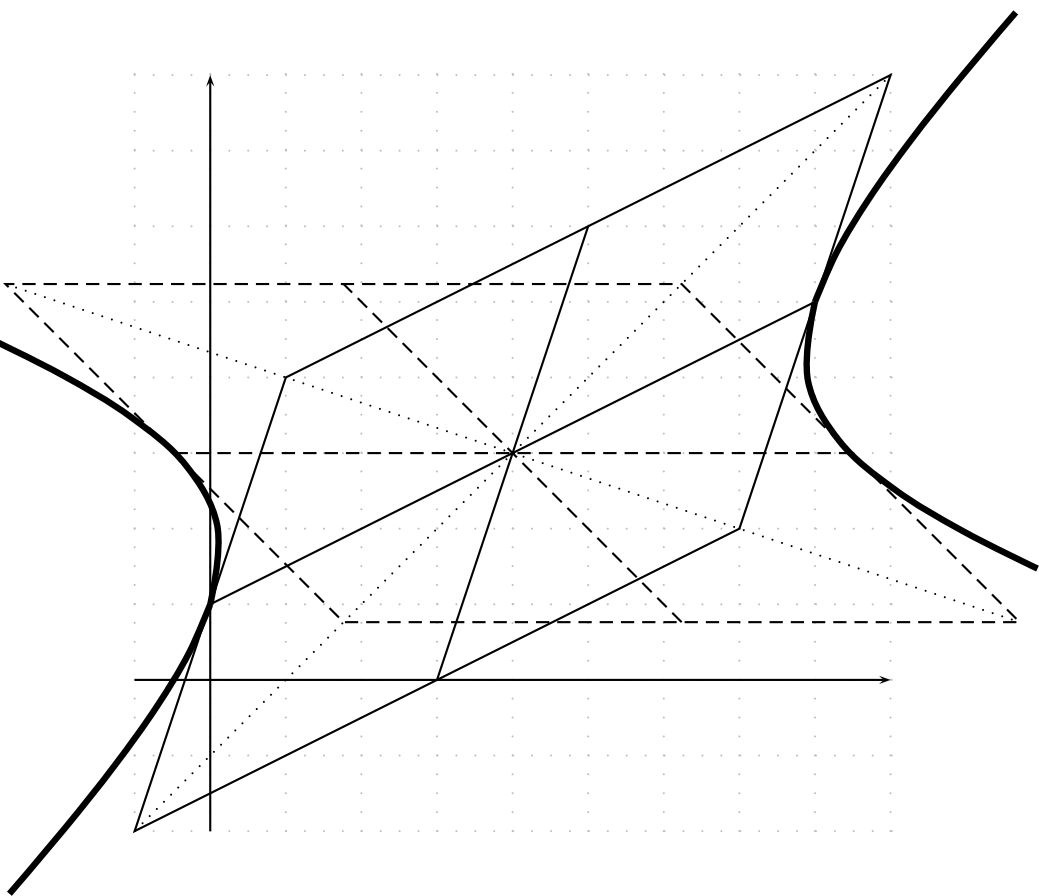
$$(4 \pm 2\sqrt{5}, 3), \quad (4 \mp \sqrt{5}, 3 \pm \sqrt{5}).$$

Ödevde bulunan değerler:

$$(4 \pm 2\sqrt{5}, 3), \quad (4 \mp \sqrt{5}, 3 \mp \sqrt{5}),$$

veya (birinden)

$$(4 \pm 2\sqrt{5}, 3), \quad (4 \mp \sqrt{5}, 3 \pm \sqrt{5}).$$



11 $(5, 1), (2, 3), (4, 2)$

Hiperbolün denklemleri:

$$\left(\frac{3(x-4)-2(y-2)}{13}\right)^2 - \left(\frac{(x-4)-5(y-2)}{13}\right)^2 = 1,$$

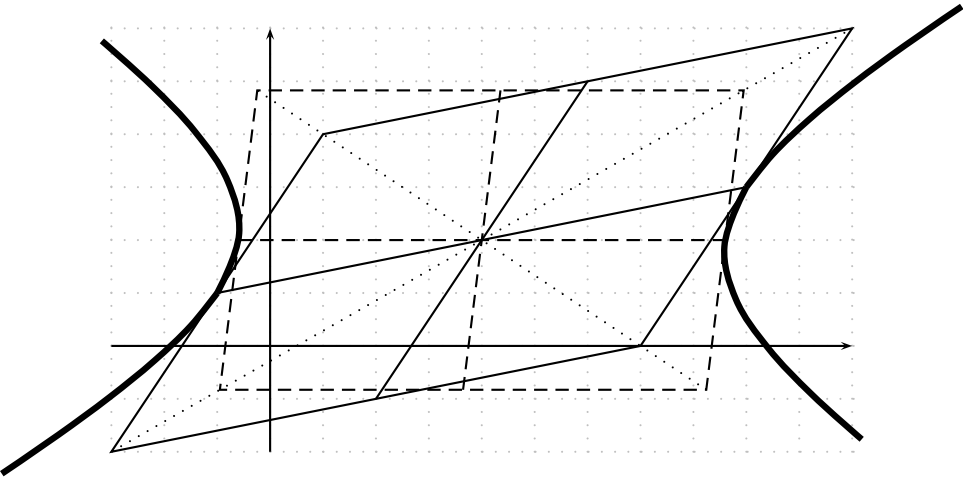
$$\left(\frac{8(x-4)-(y-2)}{26\sqrt{2}}\right)^2 - \left(\frac{y-2}{2\sqrt{2}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(4 \pm \frac{13}{4}\sqrt{2}, 2\right), \quad \left(4 \pm \frac{1}{4}\sqrt{2}, 2 \pm 2\sqrt{2}\right).$$

Ödevde bulunan değerler:

$$\left(-4 \mp \frac{26\sqrt{2}}{8}, 2\right), \quad \left(-4 \mp \frac{\sqrt{2}}{8}, 2 \mp 2\sqrt{2}\right).$$



12 $(6, 2), (2, 5), (4, 2)$

Hiperbolün denklemleri:

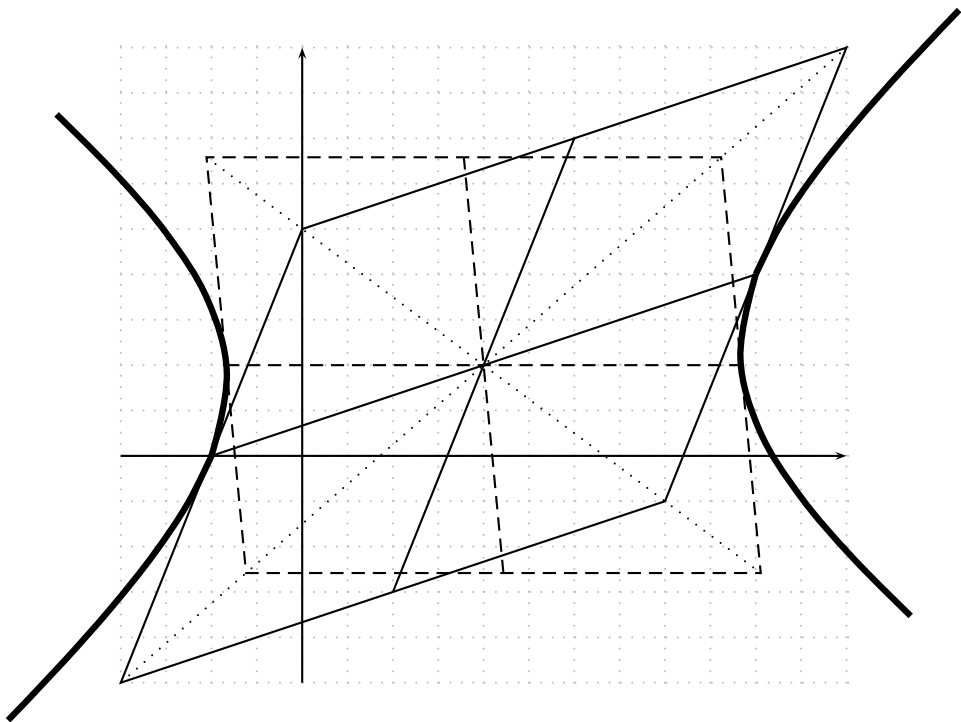
$$\left(\frac{5(x-4)-2(y-2)}{26}\right)^2 - \left(\frac{x-4-3(y-2)}{13}\right)^2 = 1,$$

$$\left(\frac{21(x-4)+2(y-2)}{26\sqrt{21}}\right)^2 - \left(\frac{y-2}{\sqrt{21}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(4 \pm \frac{26}{21}\sqrt{21}, 2\right), \quad \left(4 \mp \frac{2}{21}\sqrt{21}, 2 \pm \sqrt{21}\right).$$

Ödevde bulunan değerler okunamaz ama yanlış



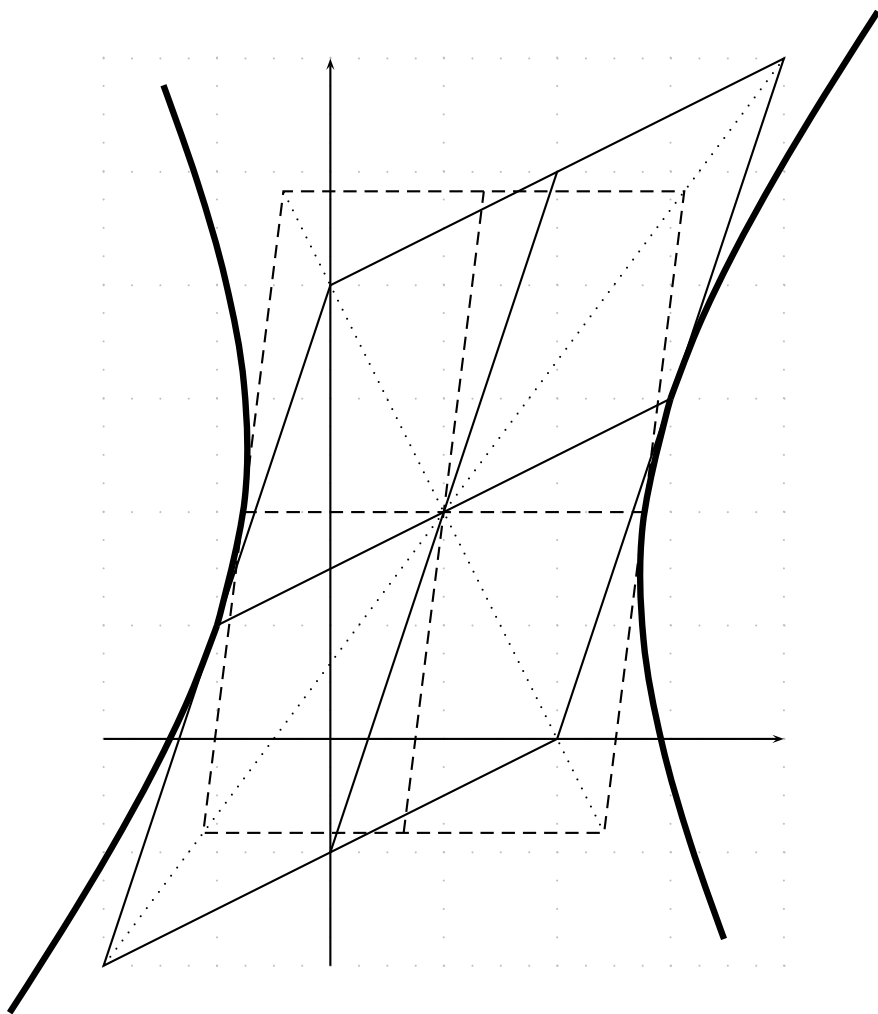
13 $(2, 1), (1, 3), (1, 2)$

Hiperbolün denklemleri:

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

Yeni eşlenik köşeler:

$$\left(1 \pm \frac{5}{4}\sqrt{2}, 2\right), \quad \left(1 \pm \frac{1}{4}\sqrt{2}, 2 \pm 2\sqrt{2}\right).$$



14 $(3, 2), (2, 4), (2, 2)$

Hiperbolün denklemleri:

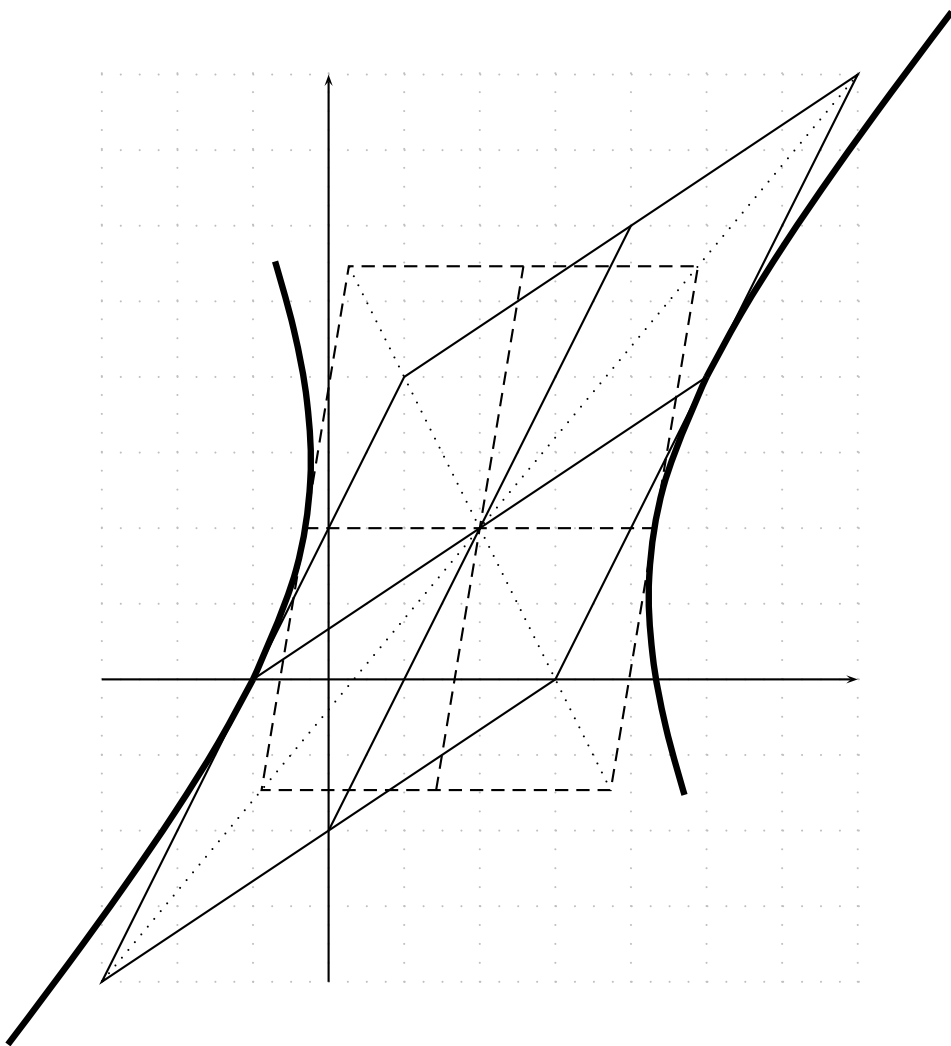
$$\left(\frac{2(x-2)-(y-2)}{4}\right)^2 - \left(\frac{2(x-2)-3(y-2)}{8}\right)^2 = 1,$$
$$\left(\frac{6(x-2)-(y-2)}{8\sqrt{3}}\right)^2 - \left(\frac{y-2}{2\sqrt{3}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{4}{3}\sqrt{3}, 2\right), \quad \left(2 \pm \frac{1}{3}\sqrt{3}, 2 \pm 2\sqrt{3}\right).$$

Ödevde bulunan değerler:

$$\left(\pm\frac{1}{3} \pm \frac{\sqrt{226}}{12}, 6\right), \quad \left(\frac{1}{3}, \frac{\sqrt{226}}{2} \pm 6\right).$$



15 $(1, 2), (2, 3), (2, 4)$

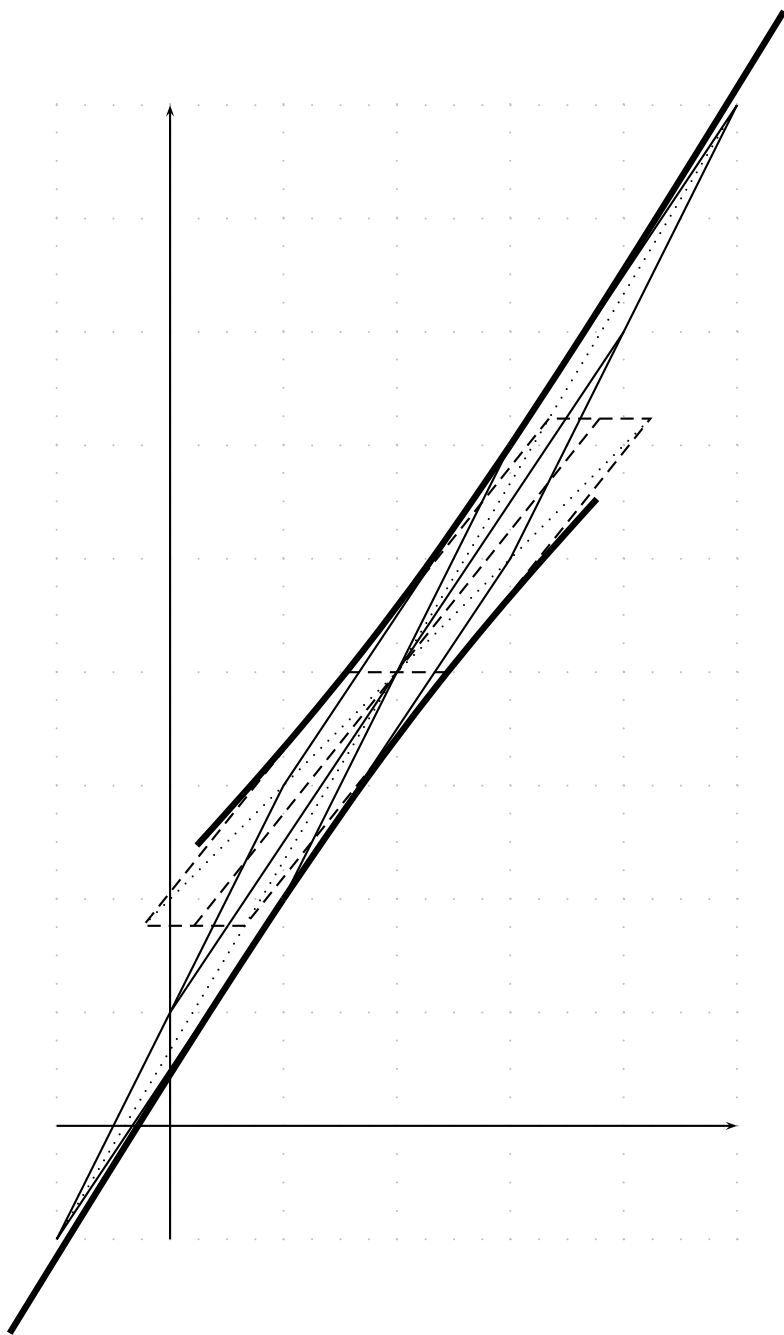
Hiperbolün denklemleri:

$$\begin{aligned} (3(x-2) - 2(y-4))^2 - (2(x-2) - (y-4))^2 &= 1, \\ \left(\frac{5(x-2) - 4(y-4)}{\sqrt{5}} \right)^2 - \left(\frac{y-4}{\sqrt{5}} \right)^2 &= 1. \end{aligned}$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{1}{5}\sqrt{5}, 4 \right), \quad \left(2 \pm \frac{4}{5}\sqrt{5}, 4 \pm \sqrt{5} \right).$$

Ödevde bulunan değerler yok.



16 $(6, 1), (3, 9), (4, 2)$

Hiperbolün denklemleri:

$$\left(\frac{3(x-4)-(y-2)}{17}\right)^2 - \left(\frac{x-4-6(y-2)}{51}\right)^2 = 1,$$

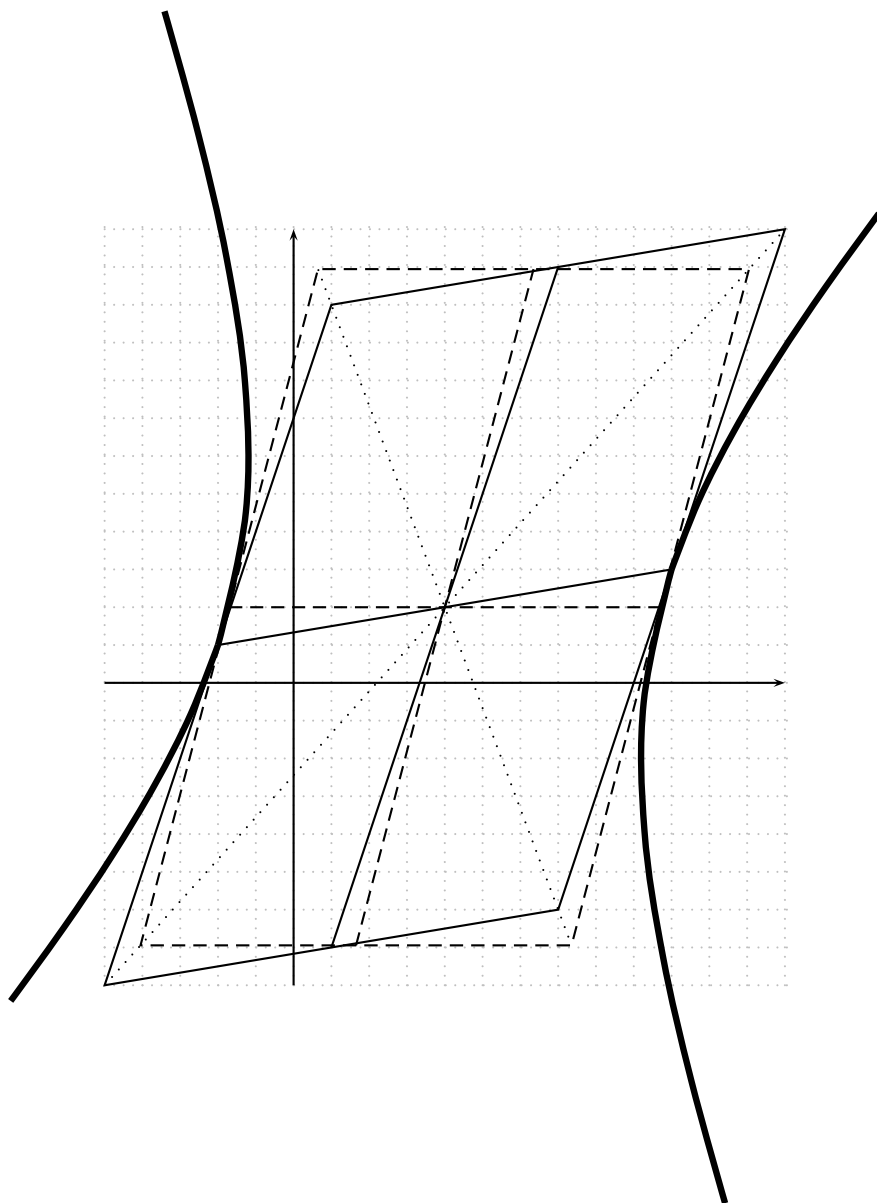
$$\left(\frac{80(x-4)-21(y-2)}{204\sqrt{5}}\right)^2 - \left(\frac{y-2}{4\sqrt{5}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(4 \pm \frac{51}{20}\sqrt{5}, 2\right), \quad \left(4 \pm \frac{21}{20}\sqrt{5}, 2 \pm 4\sqrt{5}\right).$$

Ödevde bulunan değerler:

$$\left(\frac{-139-21\sqrt{2302}}{80\sqrt{17}}, \frac{\sqrt{2302}}{\sqrt{17}}\right), \quad ???$$



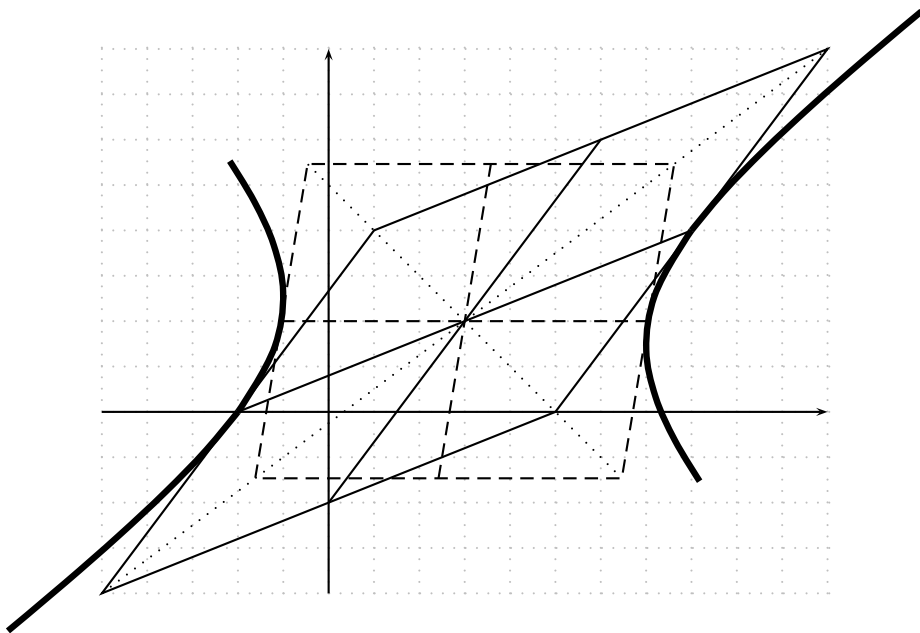
17 $(5, 2), (3, 4), (3, 2)$

Hiperbolün denklemleri:

$$\left(\frac{4(x-3)-3(y-2)}{14}\right)^2 - \left(\frac{2(x-3)-5(y-2)}{14}\right)^2 = 1,$$
$$\left(\frac{6(x-3)-(y-2)}{14\sqrt{2}}\right)^2 - \left(\frac{y-2}{2\sqrt{3}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(3 \pm \frac{7}{3}\sqrt{3}, 2\right), \quad \left(3 \pm \frac{1}{3}\sqrt{3}, 2 \pm 2\sqrt{3}\right).$$



18 $(4, 1), (3, 2), (2, 1)$

Hiperbolün denklemleri:

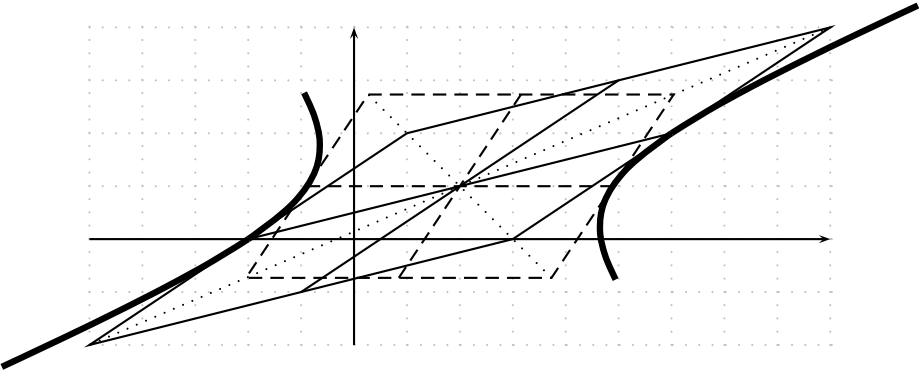
$$\left(\frac{2(x-2)-3(y-1)}{5}\right)^2 - \left(\frac{x-2-4(y-1)}{5}\right)^2 = 1,$$
$$\left(\frac{3(x-2)-2(y-1)}{5\sqrt{3}}\right)^2 - \left(\frac{y-1}{\sqrt{3}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{5}{3}\sqrt{3}, 1\right), \quad \left(2 \pm \frac{2}{3}\sqrt{3}, 1 \pm \sqrt{3}\right).$$

Ödevde bulunan değerler:

$$(2 \mp \sqrt{2}, 1), \quad \left(2 \mp \frac{2\sqrt{2}}{5}, 1 \mp \frac{7\sqrt{2}}{5}\right).$$



19 $(1, 2), (5, 3), (2, 1)$

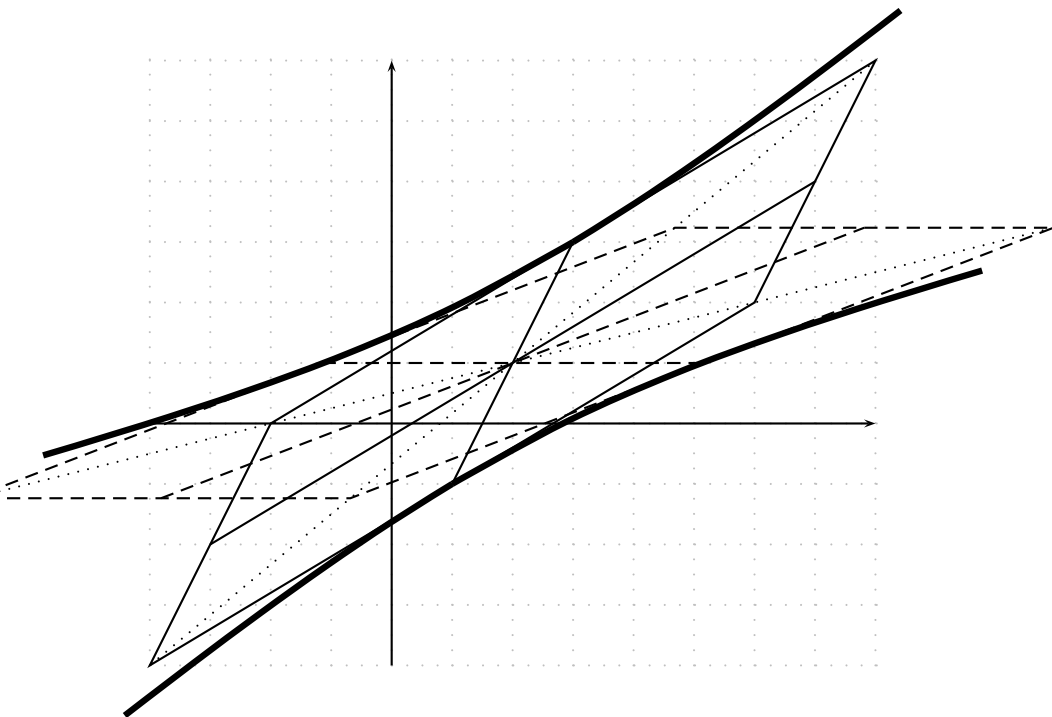
Hiperbolün denklemleri:

$$\left(\frac{3(x-2)-5(y-1)}{7}\right)^2 - \left(\frac{2(x-2)-(y-1)}{7}\right)^2 = 1,$$

$$\left(\frac{5(x-2)-13(y-1)}{7\sqrt{5}}\right)^2 - \left(\frac{y-1}{\sqrt{5}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \mp \frac{7}{5}\sqrt{5}, 1\right), \quad \left(2 \pm \frac{13}{5}\sqrt{5}, 1 \pm \sqrt{5}\right).$$



20 $(2, 1), (3, 4), (1, 4)$

Hiperbolün denklemleri:

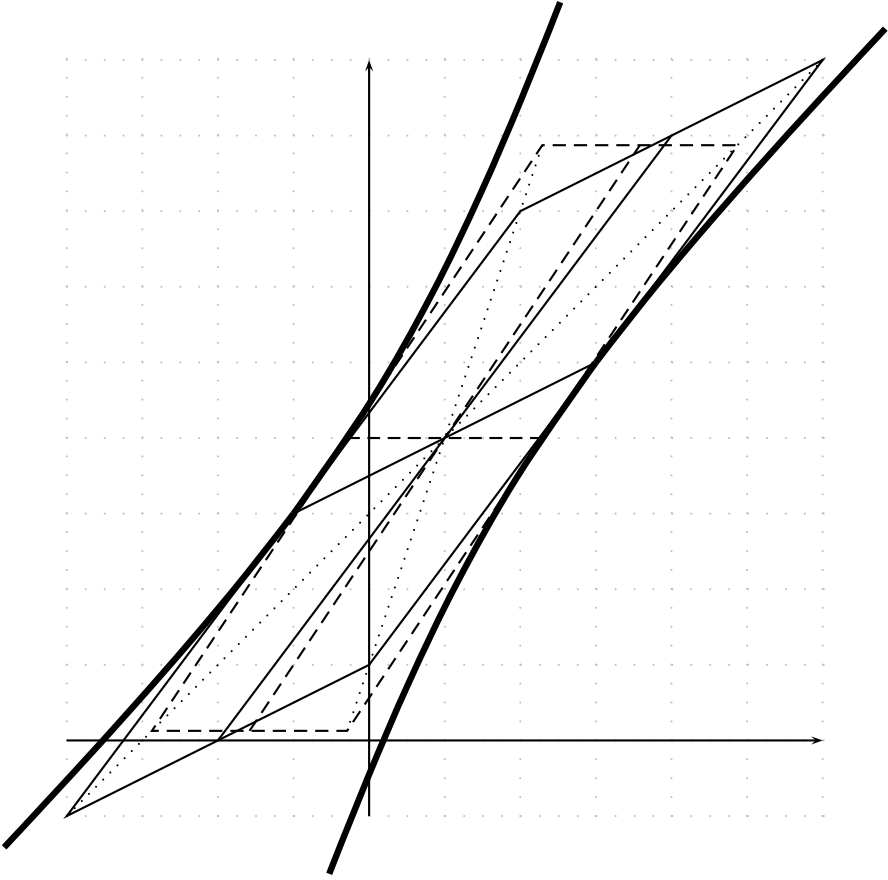
$$\left(\frac{4(x-1)-3(y-4)}{5}\right)^2 - \left(\frac{1(x-1)-2(y-4)}{5}\right)^2 = 1,$$
$$\left(\frac{3(x-1)-2(y-4)}{\sqrt{15}}\right)^2 - \left(\frac{y-4}{\sqrt{15}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(1 \pm \frac{1}{3}\sqrt{15}, 4\right), \quad \left(1 \pm \frac{2}{3}\sqrt{15}, 4 \pm \sqrt{15}\right).$$

Ödevde bulunan değerler:

$$\left(-1 \pm \frac{4}{3}, 2\right), \quad \left(-1 \mp \frac{4}{3}, 2 \mp 4\right).$$



21 $(3, 5), (3, 7), (2, 3)$

Hiperbolün denklemleri:

$$\left(\frac{7(x-2)-3(y-3)}{6}\right)^2 - \left(\frac{5(x-2)-3(y-3)}{6}\right)^2 = 1,$$

$$\left(\frac{4(x-2)-(y-3)}{2\sqrt{6}}\right)^2 - \left(\frac{y-3}{\sqrt{24}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

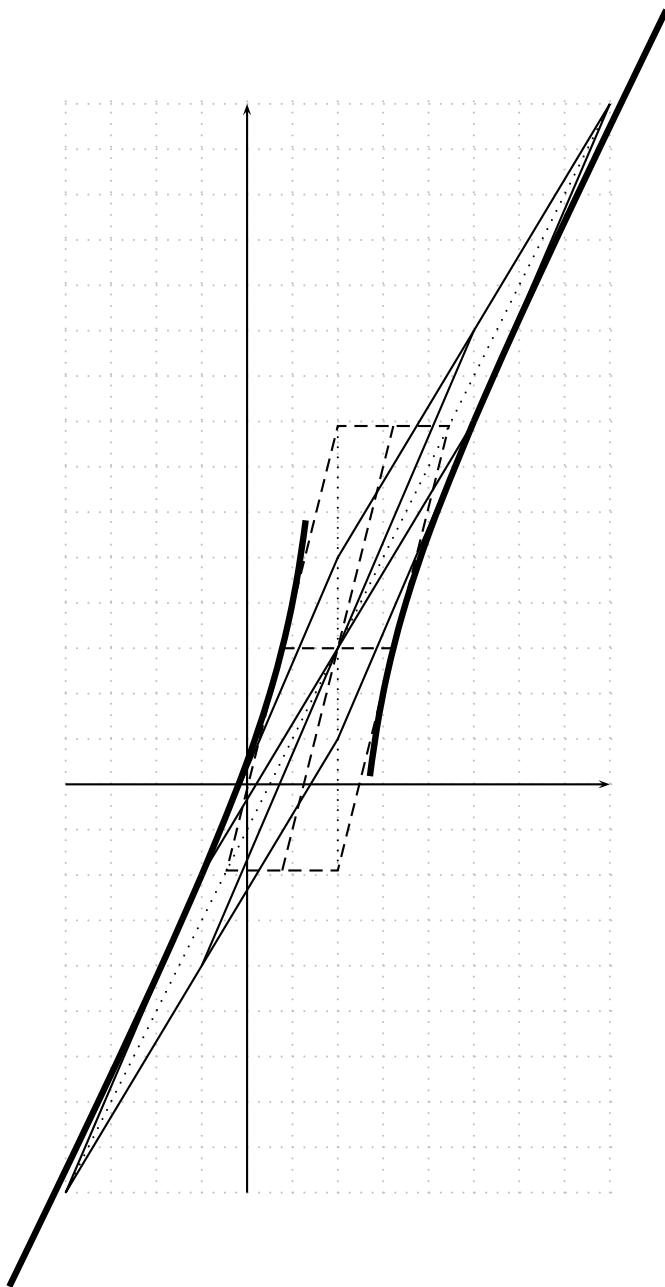
$$\left(2 \pm \frac{1}{2}\sqrt{6}, 3\right), \quad \left(2 \pm \frac{1}{1}\sqrt{6}, 3 \pm 2\sqrt{6}\right).$$

Ödevde bulunan değerler:

$$\left(4 \pm \frac{\sqrt{51}}{8}, -3\right), \quad \left(1 - \frac{\sqrt{51}}{8} \pm \frac{\sqrt{102}}{8}, -3 - \frac{\sqrt{51}}{4}\right),$$

veya

$$\left(1 + \frac{\sqrt{51}}{8} \pm \frac{\sqrt{102}}{8}, -3 + \frac{\sqrt{51}}{4}\right).$$



22 $(3, 2), (1, 4), (2, 1)$

Hiperbolün denklemleri:

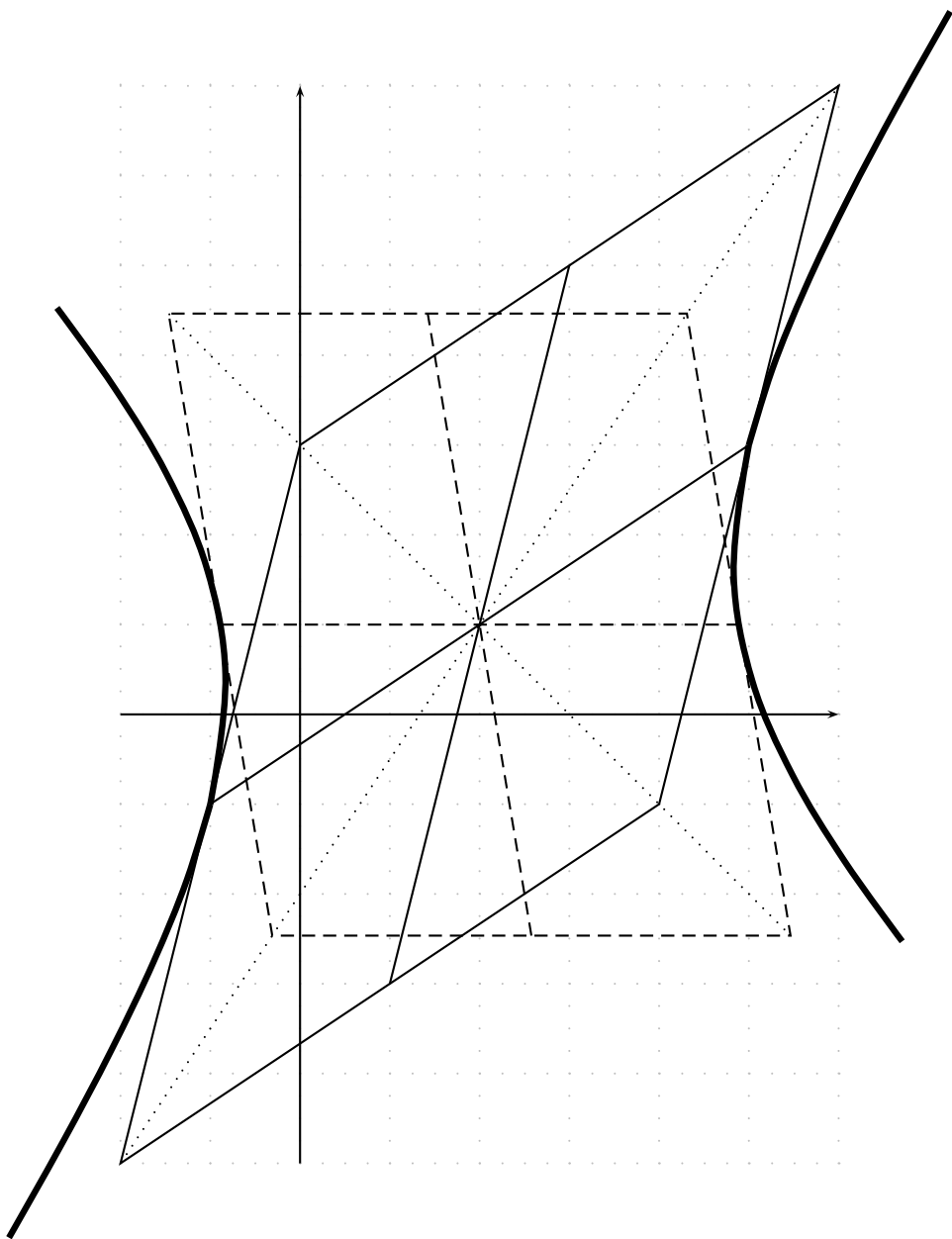
$$\left(\frac{4(x-2)-(y-1)}{10}\right)^2 - \left(\frac{2(x-2)-3(y-1)}{10}\right)^2 = 1,$$
$$\left(\frac{6(x-2)+(y-1)}{10\sqrt{3}}\right)^2 - \left(\frac{y-1}{2\sqrt{3}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{5}{3}\sqrt{3}, 1\right), \quad \left(2 \mp \frac{1}{3}\sqrt{3}, 1 \pm 2\sqrt{3}\right).$$

Ödevde bulunan değerler:

$$\left(1 \pm \frac{\sqrt{73882}}{\sqrt{97 \cdot 12}}, 1\right), \quad \left(1 \mp \frac{\sqrt{73882}}{\sqrt{97 \cdot 12}}, \frac{56}{97} \mp \frac{\sqrt{73882}}{\sqrt{97 \cdot 56}}\right).$$



23 $(2, 1), (1, 3), (2, -1)$

Hiperbolün denklemleri:

$$\left(\frac{3(x-2)-(y+1)}{5}\right)^2 - \left(\frac{x-2-2(y+1)}{5}\right)^2 = 1,$$

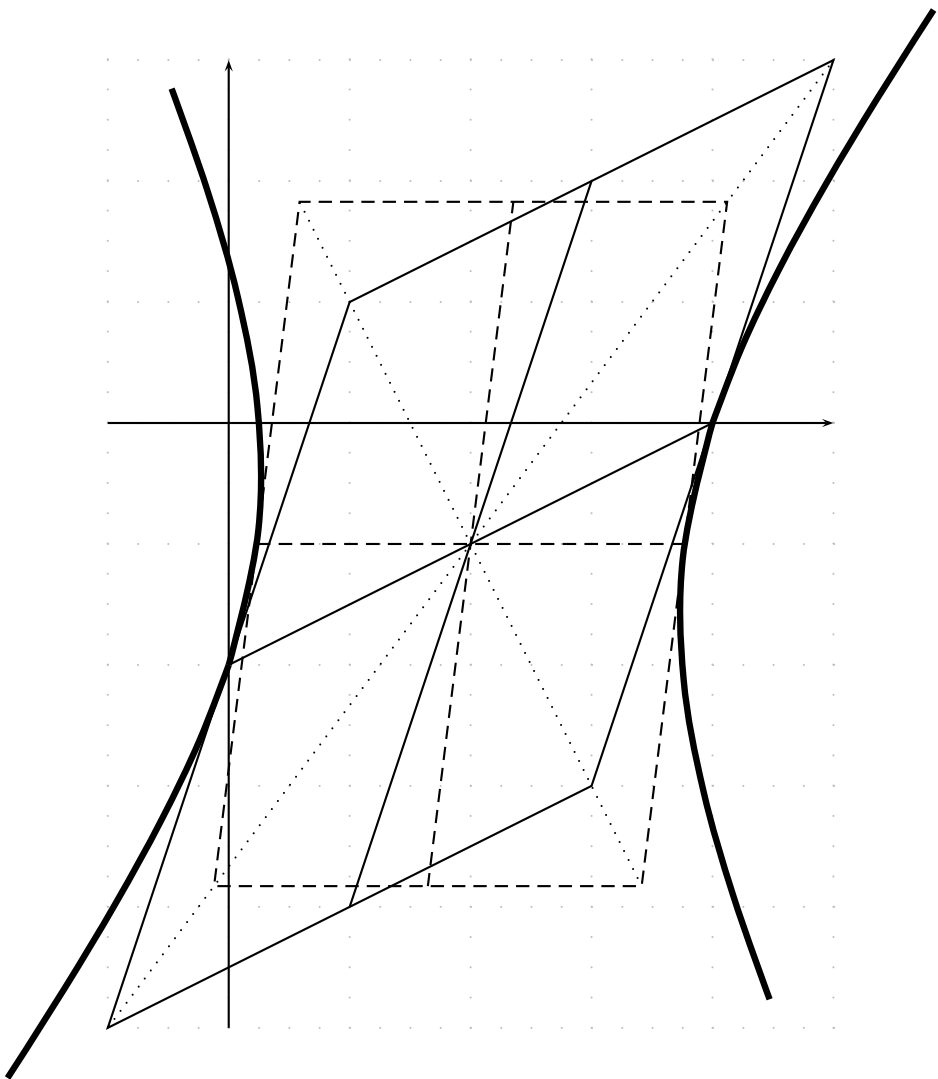
$$\left(\frac{8(x-2)-(y+1)}{10\sqrt{2}}\right)^2 - \left(\frac{y-1}{2\sqrt{2}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{5}{4}\sqrt{2}, -1\right), \quad \left(2 \pm \frac{1}{4}\sqrt{2}, -1 \pm 2\sqrt{2}\right).$$

Ödevde bulunan değerler:

$$\left(2 \pm \frac{5\sqrt{8}}{8}, 2\right), \quad \left(2 \pm \frac{\sqrt{8}}{8}, -1 \pm \sqrt{8}\right).$$



24 $(1, 4), (3, 8), (4, 9)$

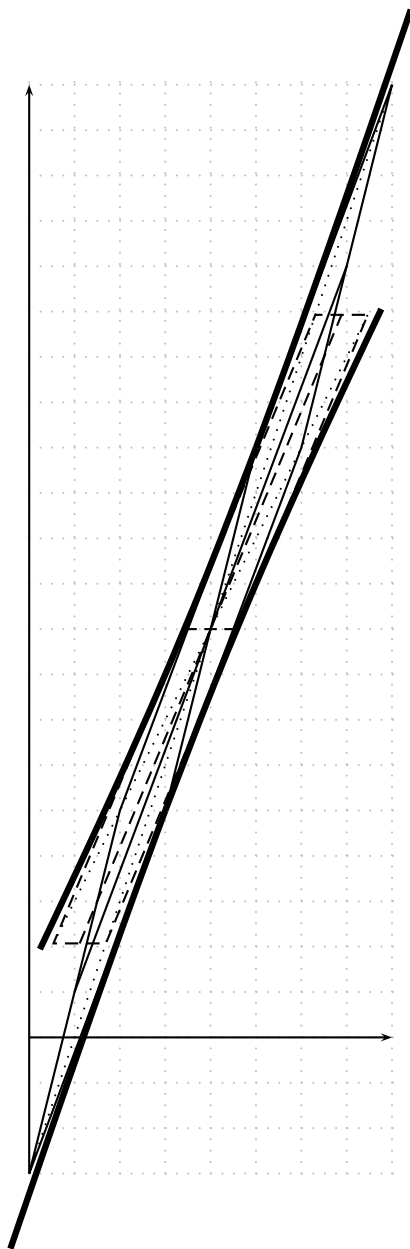
Hiperbolün denklemleri:

$$\left(\frac{8(x-4)-3(y-9)}{4}\right)^2 - \left(\frac{4(x-4)-(y-9)}{4}\right)^2 = 1,$$
$$\left(\frac{12(x-4)-5(y-9)}{4\sqrt{3}}\right)^2 - \left(\frac{y-9}{4\sqrt{3}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(4 \pm \frac{1}{3}\sqrt{3}, 9\right), \quad \left(4 \pm \frac{5}{3}\sqrt{3}, 9 \pm 4\sqrt{3}\right).$$

Ödevde bulunan değerler yok.



25 $(5, 2), (1, 3), (4, 1)$

Hiperbolün denklemleri:

$$\left(\frac{3(x-4)-(y-1)}{13}\right)^2 - \left(\frac{2(x-4)-5(y-1)}{13}\right)^2 = 1,$$

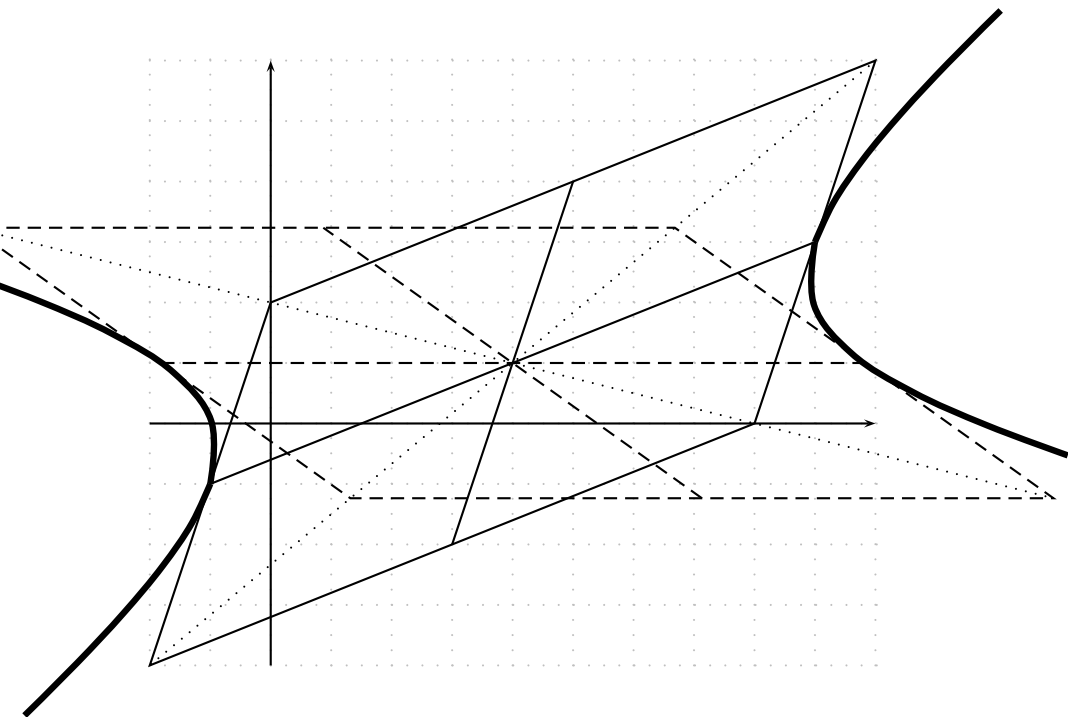
$$\left(\frac{5(x-4)+7(y-1)}{13\sqrt{5}}\right)^2 - \left(\frac{y-1}{\sqrt{5}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(4 \pm \frac{13}{5}\sqrt{5}, 1\right), \quad \left(4 \mp \frac{7}{5}\sqrt{5}, 1 \pm \sqrt{5}\right).$$

Ödevde bulunan değerler:

$$\left(4, \pm \frac{13\sqrt{5}}{5}, 2\right), \quad \left(1, 1 \pm \frac{13\sqrt{5}}{11}, 4\right).$$



26 $(2, 4), (10, 6), (4, 2)$

Hiperbolün denklemleri:

$$\left(\frac{3(x-4)-5(y-2)}{14}\right)^2 - \left(\frac{2(x-4)-(y-2)}{14}\right)^2 = 1,$$

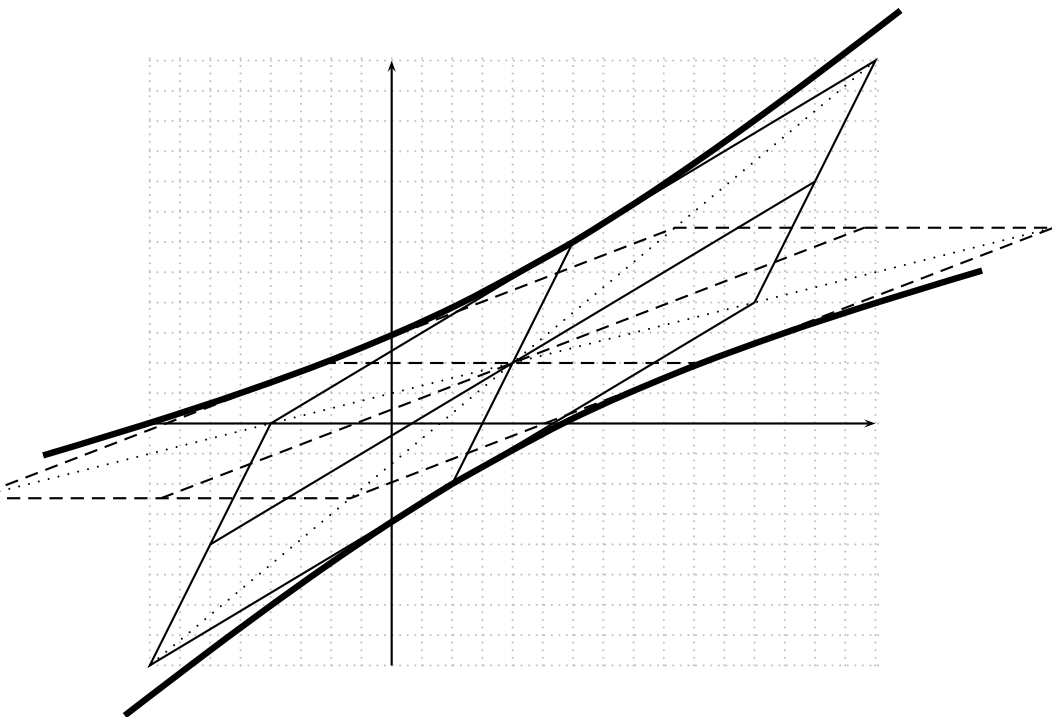
$$\left(\frac{5(x-4)-13(y-2)}{14\sqrt{5}}\right)^2 - \left(\frac{y-2}{2\sqrt{5}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(4 \pm \frac{14}{5}\sqrt{5}, 2\right), \quad \left(4 \pm \frac{26}{5}\sqrt{5}, 2 \pm 2\sqrt{5}\right).$$

Ödevde bulunan değerler:

$$\left(4 \pm \frac{14\sqrt{5}}{5}, 2\right), \quad \left(4 \pm \frac{13\sqrt{5}}{5}, 1 \pm 2\sqrt{5}\right).$$



27 $(6, 1), (3, 4), (1, 2)$

Hiperbolün denklemleri:

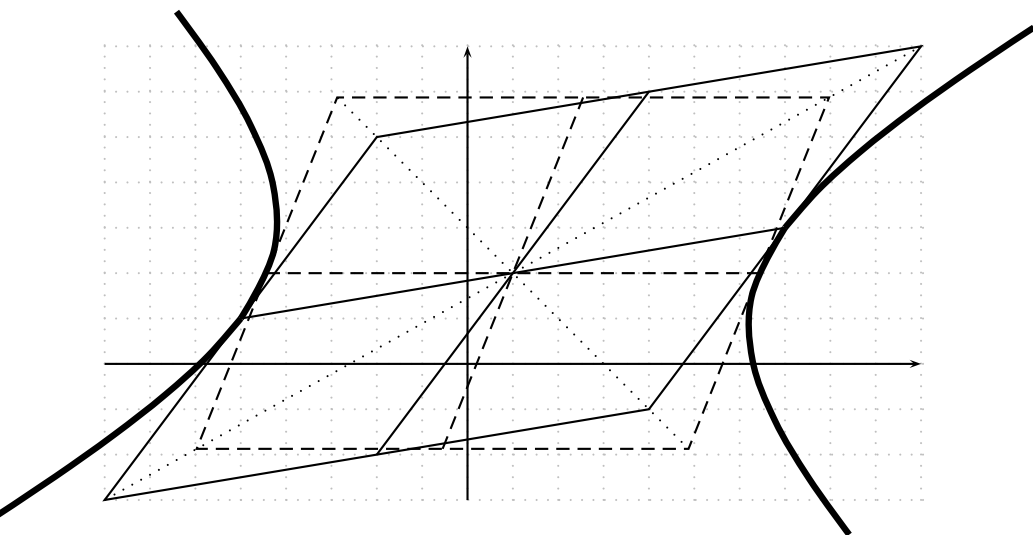
$$\left(\frac{4(x-1)-3(y-2)}{21}\right)^2 - \left(\frac{x-1-6(y-2)}{21}\right)^2 = 1,$$
$$\left(\frac{5(x-1)-2(y-2)}{7\sqrt{15}}\right)^2 - \left(\frac{y-2}{\sqrt{15}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(1 \pm \frac{7}{5}\sqrt{15}, 2\right), \quad \left(1 \pm \frac{2}{5}\sqrt{15}, 2 \pm \sqrt{15}\right).$$

Ödevde bulunan değerler:

$$\left(1 \mp \frac{7\sqrt{15}}{5}, 2\right), \quad \left(1 \mp \frac{\sqrt{15}}{5}, 2 \pm \sqrt{15}\right).$$



28 $(4, 1), (3, 2), (1, 2)$

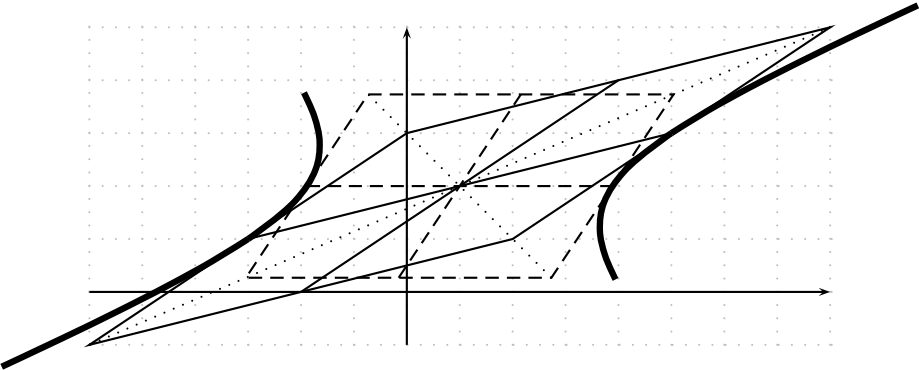
Hiperbolün denklemleri:

$$\left(\frac{2(x-1)-3(y-2)}{5}\right)^2 - \left(\frac{x-1-4(y-2)}{5}\right)^2 = 1,$$

$$\left(\frac{3(x-1)-2(y-2)}{5\sqrt{3}}\right)^2 - \left(\frac{y-2}{\sqrt{3}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(1 \pm \frac{5}{3}\sqrt{3}, 2\right), \quad \left(1 \pm \frac{2}{3}\sqrt{3}, 2 \pm \sqrt{3}\right).$$



29 $(3, 1), (1, 2), (2, 3)$

Hiperbolün denklemleri:

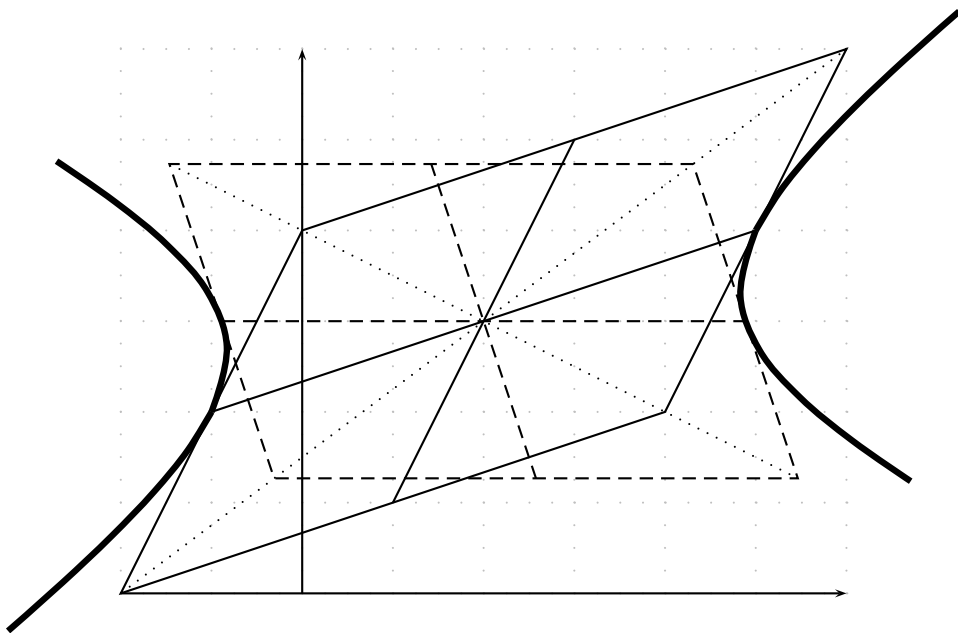
$$\left(\frac{2(x-2)-(y-3)}{5}\right)^2 - \left(\frac{x-2-3(y-3)}{5}\right)^2 = 1,$$
$$\left(\frac{3(x-2)+y-3}{5\sqrt{3}}\right)^2 - \left(\frac{y-3}{\sqrt{3}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{5}{3}\sqrt{3}, 3\right), \quad \left(2 \mp \frac{1}{3}\sqrt{3}, 3 \pm \sqrt{3}\right).$$

Ödevde bulunan değerler:

$$\left(2 \pm \frac{5\sqrt{3}}{3}, -3\right), \quad \left(2 \pm \frac{\sqrt{3}}{3}, -3 \pm \sqrt{3}\right).$$



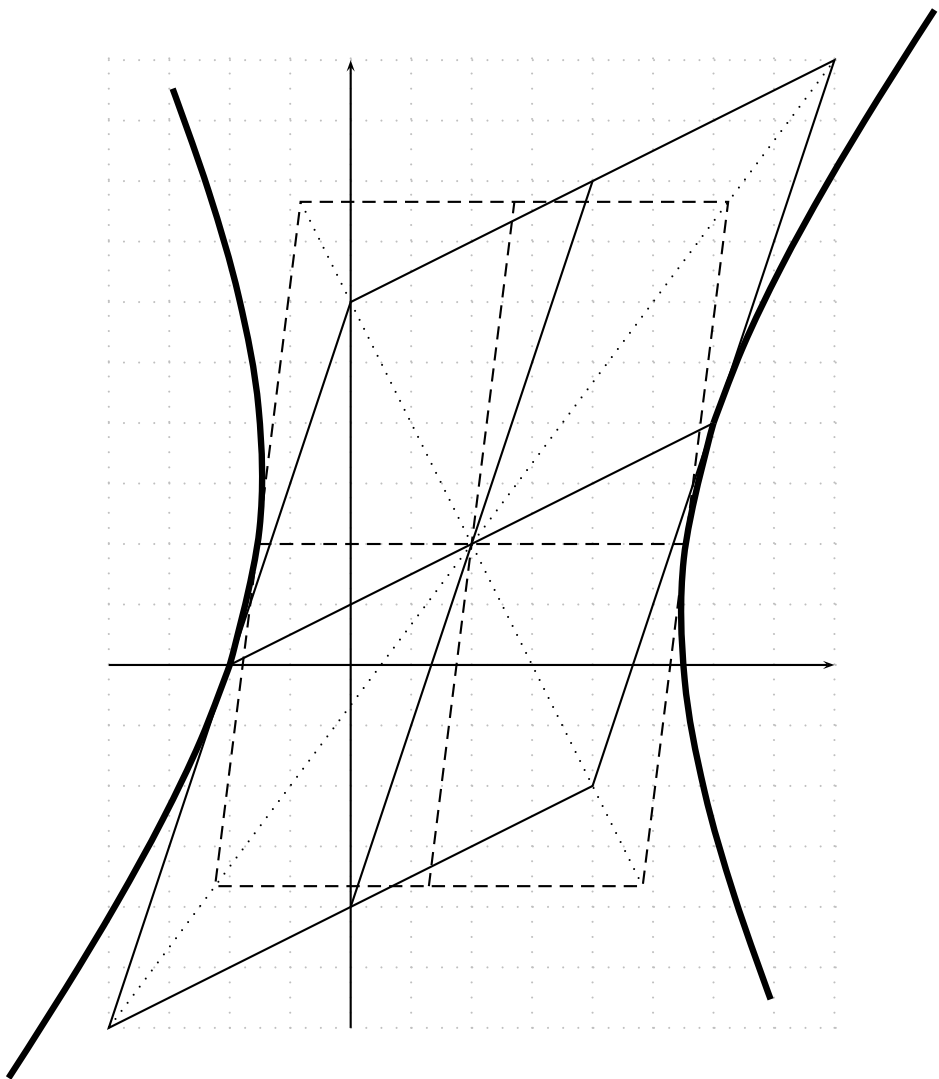
30 $(4, 2), (2, 6), (2, 2)$

Hiperbolün denklemleri:

$$\left(\frac{3(x-2)-(y-2)}{10}\right)^2 - \left(\frac{x-2-2(y-2)}{10}\right)^2 = 1,$$
$$\left(\frac{8(x-2)-(y-2)}{20\sqrt{2}}\right)^2 - \left(\frac{y-2}{4\sqrt{2}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{5}{2}\sqrt{2}, 2\right), \quad \left(2 \pm \frac{1}{2}\sqrt{2}, 2 \pm 4\sqrt{2}\right).$$



31 $(4, 1), (2, 3), (3, 2)$

Hiperbolün denklemleri:

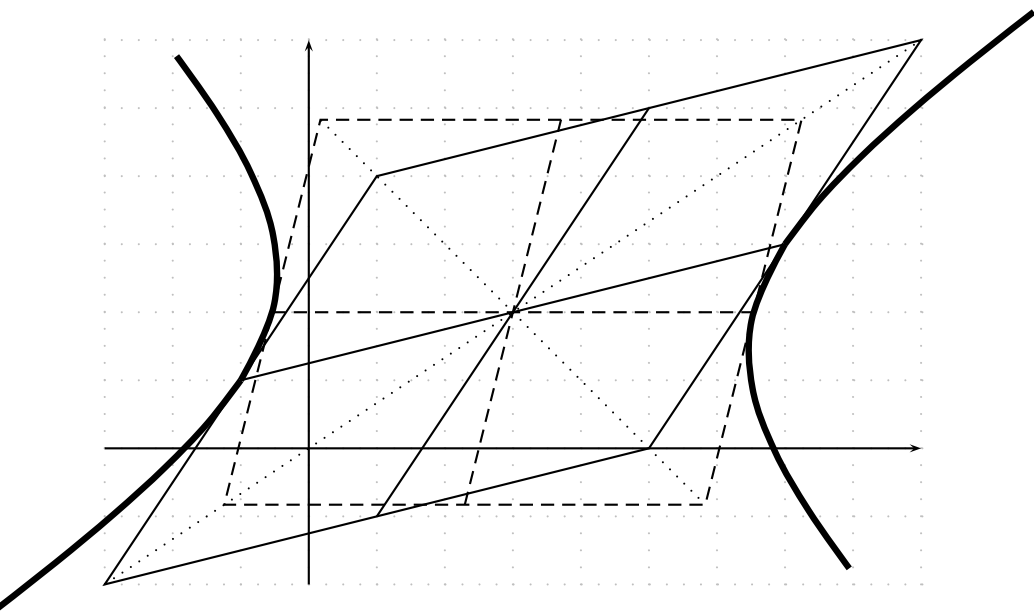
$$\left(\frac{3(x-3)-2(y-2)}{10}\right)^2 - \left(\frac{(x-3)-4(y-2)}{10}\right)^2 = 1,$$
$$\left(\frac{4(x-3)-(y-2)}{4\sqrt{2}}\right)^2 - \left(\frac{y-2}{2\sqrt{2}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(3 \pm \frac{5}{2}\sqrt{2}, 2\right), \quad \left(3 \pm \frac{1}{2}\sqrt{2}, 2 \pm 2\sqrt{2}\right).$$

Ödevde bulunan değerler:

$$\left(2 \pm \frac{4}{40}, 2\right), \quad \left(2 \pm \frac{4}{8}, 2 \pm 4\right).$$



32 $(3, 6), (15, 9), (6, 3)$

Hiperbolün denklemleri:

$$\left(\frac{3(x-6)-5(y-3)}{21}\right)^2 - \left(\frac{2(x-6)-(y-3)}{21}\right)^2 = 1,$$

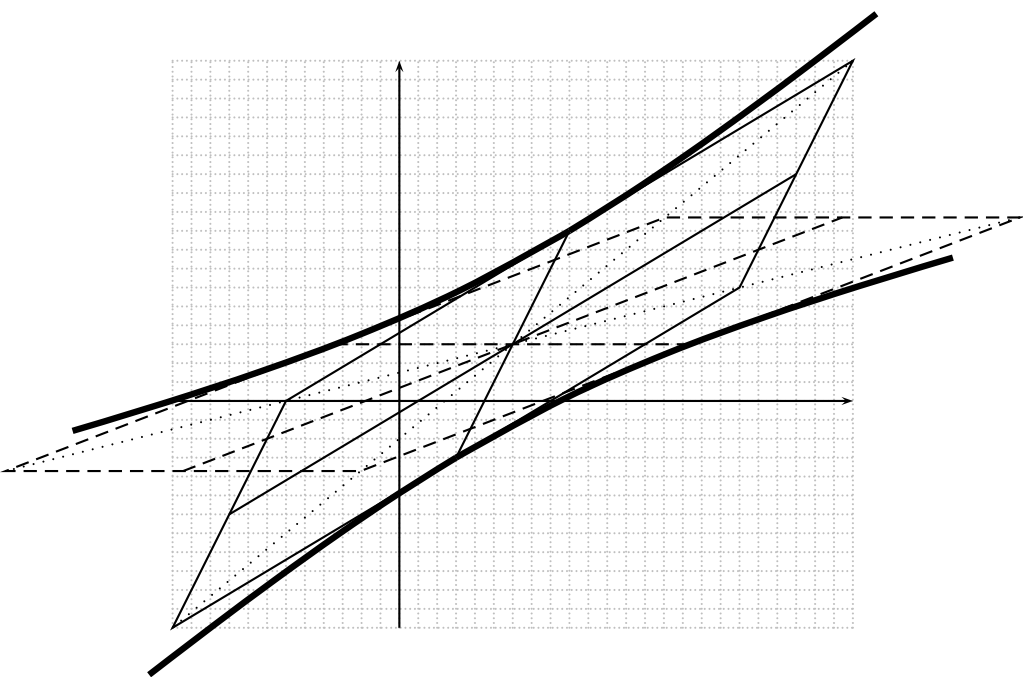
$$\left(\frac{5(x-6)-13(y-3)}{7\sqrt{5}}\right)^2 - \left(\frac{y-3}{3\sqrt{5}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(6 \mp \frac{21}{5}\sqrt{5}, 3\right), \quad \left(6 \pm \frac{39}{5}\sqrt{5}, 3 \pm 3\sqrt{5}\right).$$

Ödevde bulunan değerler:

$$\left(6 \mp \frac{21\sqrt{5}}{5}, 1\right), \quad \left(6 \mp \frac{39\sqrt{5}}{5}, 1 \mp \sqrt{5}\right).$$



33 $(2, 1), (3, 4), (2, 3)$

Hiperbolün denklemleri:

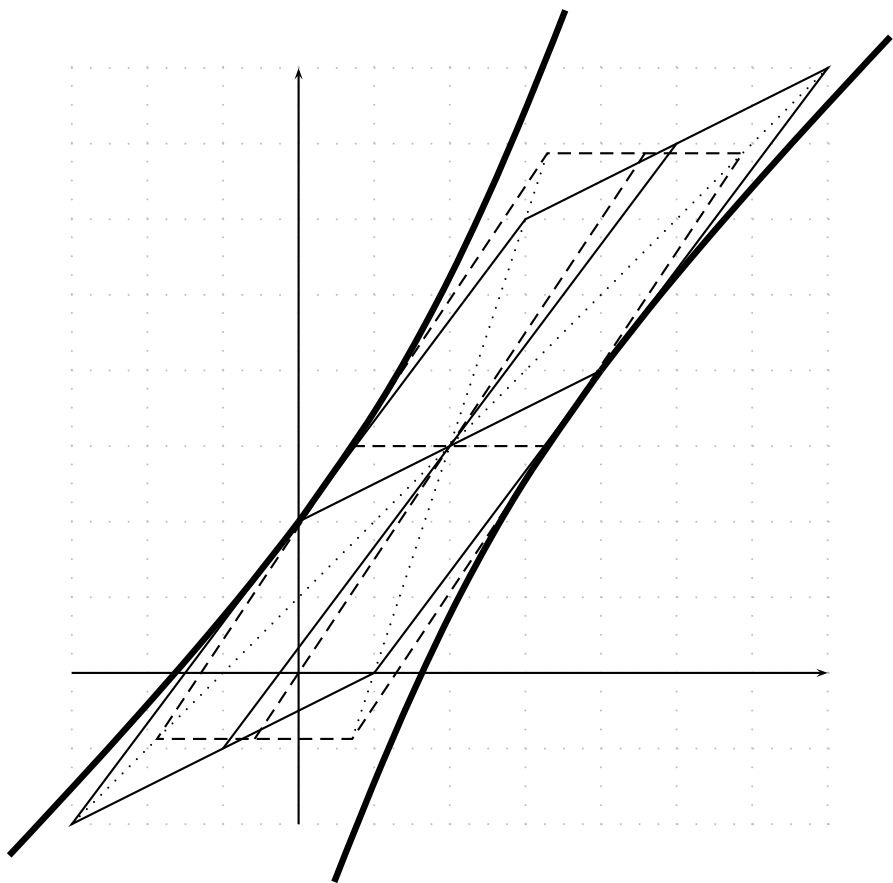
$$\left(\frac{4(x-2)-3(y-3)}{5}\right)^2 - \left(\frac{x-2-2(y-3)}{5}\right)^2 = 1,$$
$$\left(\frac{3(x-2)-2(y-3)}{\sqrt{15}}\right)^2 - \left(\frac{y-3}{\sqrt{15}}\right)^2 = 1.$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{1}{3}\sqrt{15}, 3\right), \quad \left(2 \pm \frac{2}{3}\sqrt{15}, 3 \pm \sqrt{15}\right).$$

Ödevde bulunan değerler:

$$\left(2 \mp \frac{\sqrt{15}}{3}, 3\right), \quad \left(2 \mp \frac{\sqrt{15}}{3}, 3 \mp \sqrt{15}\right).$$



34 $(3, 1), (5, 4), (2, 3)$

Hiperbolün denklemleri:

$$\begin{aligned}\left(\frac{4(x-2)-5(y-3)}{7}\right)^2 - \left(\frac{x-2-3(y-3)}{7}\right)^2 &= 1, \\ \left(\frac{15(x-2)-17(y-3)}{7\sqrt{15}}\right)^2 - \left(\frac{y-3}{\sqrt{15}}\right)^2 &= 1.\end{aligned}$$

Yeni eşlenik köşeler:

$$\left(2 \pm \frac{7}{15}\sqrt{15}, 3\right), \quad \left(2 \pm \frac{17}{15}\sqrt{15}, 3 \pm \sqrt{15}\right).$$

Ödevde bulunan değerler:

$$\left(2 \mp \frac{7\sqrt{15}}{15}, 3\right), \quad \left(2 \mp \frac{7\sqrt{15}}{15}, -3 \mp \sqrt{15}\right).$$

