

АНАЛИТИЧЕСКАЯ ГЕОМЕТРИЯ
Модуль 2

Домашнее задание (часть 2)

Кривые второго порядка

Задание (5 баллов):

1. Привести уравнения кривых к каноническому виду.
2. Построить все кривые на одной координатной плоскости.

Вариант 1

1. $y^2 - 4y + 8x - 84 = 0$;
2. $y^2 - 4y - 8x - 52 = 0$;
3. $x^2 + 4y^2 - 40y + 2x + 97 = 0$;
4. $x^2 + 4y^2 - 40y - 10x + 121 = 0$;
5. $x^2 + y^2 - 4y - 4x + 7 = 0$;
6. $x^2 + y^2 + 6y - 4x + 9 = 0$;
7. $x^2 + y^2 - 10y + 2x + 25 = 0$;
8. $x^2 + y^2 - 10y - 10x + 49 = 0$;
9. $64x^2 - 36y^2 + 144y - 256x + 2416 = 0$;
10. $4x^2 + y^2 - 4y - 96x + 576 = 0$;
11. $4x^2 + y^2 - 4y + 64x + 256 = 0$.

Вариант 2

1. $x^2 + y^2 + 2y - 2x - 34 = 0$;
2. $x^2 + y^2 - 20y - 2x + 76 = 0$;
3. $25x^2 + 64y^2 + 1408y - 50x + 6169 = 0$;
4. $x^2 + 4y^2 - 56y - 2x + 193 = 0$;
5. $x^2 + y^2 - 24y + 2x + 144 = 0$;

6. $x^2 + y^2 - 24y - 6x + 152 = 0$;
7. $4x^2 + y^2 - 24y + 8x + 144 = 0$;
8. $4x^2 + y^2 - 24y - 24x + 176 = 0$;
9. $9x^2 - 36y^2 - 72y - 18x - 351 = 0$;
10. $y^2 - 20y - 4x + 124 = 0$;
11. $y^2 - 20y + 4x + 116 = 0$.

Вариант 3

1. $x^2 + y^2 - 4y - 4x + 7 = 0$;
2. $9x^2 + y^2 - 36x - 4y + 31 = 0$;
3. $x^2 + y^2 - 4y + 8x - 80 = 0$;
4. $x^2 + 9y^2 - 90y + 28x + 412 = 0$;
5. $x^2 + 4y^2 + 16y + 22x + 133 = 0$;
6. $x^2 + y^2 - 12y + 14x + 84 = 0$;
7. $x^2 + y^2 - 12y + 14x + 81 = 0$;
8. $81x^2 - 25y^2 + 100y + 648x + 3221 = 0$;
9. $y^2 - 4y - 6x + 40 = 0$;
10. $y^2 - 4y - 3x + 19 = 0$;
11. $x^2 - 6y + 8x + 88 = 0$.

Вариант 4

1. $x^2 + y^2 - 4y + 4x + 4 = 0$;
2. $256x^2 + 81y^2 - 324y + 1024x - 19388 = 0$;
3. $x^2 + 9y^2 + 72y + 4x + 139 = 0$;
4. $x^2 + y^2 - 14y + 12x + 81 = 0$;
5. $x^2 + y^2 - 14y - 4x + 49 = 0$;
6. $4x^2 + y^2 - 14y + 48x + 189 = 0$;
7. $4x^2 + y^2 - 14y - 16x + 61 = 0$;
8. $x^2 + 4y + 4x + 8 = 0$;
9. $x^2 + 2y + 4x + 16 = 0$;

$$10. 144x^2 - 81y^2 + 324y + 576x + 11916 = 0;$$

$$11. 16x^2 - 81y^2 + 324y + 64x - 1556 = 0.$$

Вариант 5

$$1. y^2 - 2y + 6x - 47 = 0;$$

$$2. y^2 - 2y - 6x - 59 = 0;$$

$$3. x^2 + 4y^2 - 32y + 8x + 76 = 0;$$

$$4. x^2 + 4y^2 - 32y - 4x + 64 = 0;$$

$$5. x^2 + y^2 - 2y + 2x + 1 = 0;$$

$$6. x^2 + y^2 + 8y + 2x + 13 = 0;$$

$$7. x^2 + y^2 - 8y + 8x + 31 = 0;$$

$$8. x^2 + y^2 - 8y - 4x + 19 = 0;$$

$$9. 64x^2 - 36y^2 + 72y + 128x + 2332 = 0;$$

$$10. 4x^2 + y^2 - 2y - 72x + 321 = 0;$$

$$11. 4x^2 + y^2 - 2y + 88x + 481 = 0.$$

Вариант 6

$$1. x^2 + y^2 - 4y - 2x - 4 = 0;$$

$$2. x^2 + y^2 - 14y + 8x + 64 = 0;$$

$$3. x^2 + y^2 - 14y - 12x + 84 = 0;$$

$$4. 9x^2 + 4y^2 + 48y - 18x + 117 = 0;$$

$$5. x^2 + 4y^2 - 56y + 8x + 208 = 0;$$

$$6. x^2 + 4y^2 - 12x - 56y + 228 = 0;$$

$$7. 4y + 4x - y^2 - 40 = 0;$$

$$8. y^2 - 4y + 4x + 32 = 0;$$

$$9. x^2 - 8y - 2x - 95 = 0;$$

$$10. x^2 + 8y - 2x - 127 = 0;$$

$$11. 196x^2 - 36y^2 + 144y - 392x + 7108 = 0.$$

Вариант 7

1. $x^2 + y^2 - 4y + 6x - 23 = 0$;
2. $x^2 + y^2 - 26y + 6x + 153 = 0$;
3. $25x^2 + 64y^2 + 1024y + 150x + 2721 = 0$;
4. $x^2 + 4y^2 - 80y + 6x + 405 = 0$;
5. $x^2 + y^2 - 30y + 10x + 249 = 0$;
6. $x^2 + y^2 - 30y + 2x + 225 = 0$;
7. $4x^2 + y^2 - 30y + 8x + 225 = 0$;
8. $4x^2 + y^2 - 30y + 40x + 321 = 0$;
9. $9x^2 - 36y^2 + 144y + 54x - 387 = 0$;
10. $y^2 - 26y - 4x + 177 = 0$;
11. $y^2 - 26y + 4x + 201 = 0$.

Вариант 8

1. $x^2 + y^2 - 2y - 2x + 1 = 0$;
2. $9x^2 + y^2 - 2y - 18x - 1 = 0$;
3. $x^2 + y^2 - 2y + 10x - 74 = 0$;
4. $x^2 + 9y^2 - 72y + 30x + 360 = 0$;
5. $x^2 + 4y^2 + 24y + 24x + 176 = 0$;
6. $x^2 + y^2 - 10y + 16x + 88 = 0$;
7. $x^2 + y^2 - 10y + 16x + 85 = 0$;
8. $81x^2 - 25y^2 + 50y + 810x + 4025 = 0$;
9. $y^2 - 2y - 6x + 31 = 0$;
10. $y^2 - 2y - 3x + 13 = 0$;
11. $x^2 - 6y + 10x + 91 = 0$.

Вариант 9

1. $x^2 + y^2 + 4y - 2x + 1 = 0$;
2. $256x^2 + 81y^2 + 324y - 512x - 20156 = 0$;
3. $x^2 + 9y^2 + 144y - 2x + 568 = 0$;

4. $x^2 + y^2 - 6y + 6x + 14 = 0$;
5. $x^2 + y^2 - 6y - 10x + 30 = 0$;
6. $4x^2 + y^2 - 6y + 24x + 41 = 0$;
7. $4x^2 + y^2 - 6y - 40x + 105 = 0$;
8. $x^2 + 4y - 2x + 21 = 0$;
9. $x^2 + 2y - 2x + 21 = 0$;
10. $144x^2 - 81y^2 - 324y - 288x + 11484 = 0$;
11. $16x^2 - 81y^2 - 324y - 32x - 1604 = 0$.

Вариант 10

1. $x^2 + y^2 - 4y - 4x + 4 = 0$;
2. $x^2 + y^2 - 14y + 6x + 57 = 0$;
3. $x^2 + y^2 - 14y - 14x + 97 = 0$;
4. $9x^2 + 4y^2 + 48y - 36x + 144 = 0$;
5. $x^2 + 4y^2 - 56y + 6x + 201 = 0$;
6. $x^2 + 4y^2 - 56y - 14x + 241 = 0$;
7. $4y + 4x - y^2 - 44 = 0$;
8. $y^2 - 4y + 8x + 52 = 0$;
9. $x^2 - 8y - 4x - 92 = 0$;
10. $x^2 + 8y - 4x - 124 = 0$;
11. $196x^2 - 36y^2 + 144y - 784x + 7696 = 0$.

Вариант 11

1. $x^2 + y^2 - 2x + 4y - 31 = 0$;
2. $x^2 + y^2 - 2x - 18y + 57 = 0$;
3. $25x^2 + 64y^2 - 50x + 1536y + 7641 = 0$;
4. $x^2 + 4y^2 - 2x - 48y + 141 = 0$;
5. $x^2 + y^2 + 2x - 22y + 121 = 0$;
6. $x^2 + y^2 - 6x - 22y + 129 = 0$;
7. $4x^2 + y^2 - 24x - 22y + 153 = 0$;

8. $4x^2 + y^2 + 8x - 22y + 121 = 0$;
9. $9x^2 - 36y^2 - 18x - 144y - 459 = 0$;
10. $y^2 - 4x - 18y + 105 = 0$;
11. $y^2 + 4x - 18y + 97 = 0$.

Вариант 12

1. $x^2 + y^2 - 2x + 4y + 4 = 0$;
2. $9x^2 + y^2 - 18x + 4y + 4 = 0$;
3. $x^2 + y^2 + 10x + 4y - 71 = 0$;
4. $x^2 + 9y^2 + 30x - 18y + 225 = 0$;
5. $x^2 + 4y^2 + 24x + 48y + 284 = 0$;
6. $x^2 + y^2 + 16x - 4y + 67 = 0$;
7. $x^2 + y^2 + 16x - 4y + 64 = 0$;
8. $81x^2 - 25y^2 + 810x - 100y + 3950 = 0$;
9. $y^2 + 4y - 6x + 34 = 0$;
10. $y^2 + 4y - 3x + 16 = 0$;
11. $x^2 - 6y + 10x + 73 = 0$.

Вариант 13

1. $y^2 + 4y + 8x - 52 = 0$;
2. $y^2 + 4y - 8x - 84 = 0$;
3. $x^2 + 4y^2 - 8y + 10x + 25 = 0$;
4. $x^2 + 4y^2 - 8y - 2x + 1 = 0$;
5. $x^2 + y^2 + 4y + 4x + 7 = 0$;
6. $x^2 + y^2 + 14y + 4x + 49 = 0$;
7. $x^2 + y^2 - 2y + 10x + 25 = 0$;
8. $x^2 + y^2 - 2y - 2x + 1 = 0$;
9. $16x^2 - 9y^2 - 108y + 64x + 316 = 0$;
10. $4x^2 + y^2 + 12y - 64x + 288 = 0$;
11. $4x^2 + y^2 + 4y + 40x + 100 = 0$.

Вариант 14

1. $x^2 + y^2 - 10y - 2x + 22 = 0$;
2. $256x^2 + 81y^2 - 810y - 512x - 18455 = 0$;
3. $x^2 + 9y^2 + 18y - 2x + 1 = 0$;
4. $x^2 + y^2 - 20y + 6x + 105 = 0$;
5. $x^2 + y^2 - 20y - 10x + 121 = 0$;
6. $4x^2 + y^2 - 20y + 24x + 132 = 0$;
7. $4x^2 + y^2 - 20y - 40x + 196 = 0$;
8. $x^2 + 4y - 2x - 7 = 0$;
9. $x^2 + 2y - 2x + 7 = 0$;
10. $16x^2 - 9y^2 + 18y - 32x + 1303 = 0$;
11. $16x^2 - 81y^2 + 810y - 32x - 3305 = 0$.

Вариант 15

1. $x^2 + y^2 - 2y - 8x + 8 = 0$;
2. $x^2 + y^2 - 2y - 8x + 8 = 0$;
3. $x^2 + y^2 - 12y - 18x + 116 = 0$;
4. $9x^2 + 4y^2 + 56y - 72x + 304 = 0$;
5. $x^2 + 4y^2 - 48y + 2x + 141 = 0$;
6. $x^2 + 4y^2 - 18x - 48y + 221 = 0$;
7. $y^2 - 2y - 4x + 49 = 0$;
8. $y^2 + 2y + 4x + 17 = 0$;
9. $x^2 - 8y - 8x - 88 = 0$;
10. $x^2 + 8y - 16x - 104 = 0$;
11. $49x^2 - 9y^2 + 18y - 98x + 2539 = 0$.