

**Индивидуальное задание. Функции нескольких переменных**

Найти линии уровня и вычислить полный дифференциал функции  $f(x, y)$ .

Вариант 1

$$f(x, y) = \frac{1}{2x^2 - y^2}$$

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Вариант 2

$$f(x, y) = \frac{1}{x^2 + 3y^2}$$

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Вариант 3

$$f(x, y) = -x^2 + 5y^2$$

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Вариант 4

$$f(x, y) = -2x - 5y$$

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Вариант 5

$$f(x, y) = \frac{1}{3x^2 + y^2}$$

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Вариант 6

$$f(x, y) = -3x^2y^2$$

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Вариант 7

$$f(x, y) = -\frac{4xy + 5}{y^2}$$

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Вариант 8

$$f(x, y) = -\operatorname{asin}(10xy)$$

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Вариант 9

$$f(x, y) = \log(4x^2 - 3y)$$

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Вариант 10

$$f(x, y) = -\operatorname{asin}(8xy)$$

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Вариант 11

$$f(x, y) = \frac{1}{x^2 - 2y^2}$$

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Вариант 12

$$f(x, y) = 5x - 4y$$

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Вариант 13

$$f(x, y) = -\operatorname{asin}(3xy)$$

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Вариант 14

$$f(x, y) = 3x - 3y$$

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Вариант 15

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

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Вариант 16

$$f(x, y) = -5x - y$$

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Вариант 17

$$f(x, y) = \log(4x^2 + y)$$

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Вариант 18

$$f(x, y) = \frac{3xy + 4}{y^2}$$

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Вариант 19

$$f(x, y) = -\frac{4xy + 3}{y^2}$$

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Вариант 20

$$f(x, y) = \log(4x^2 + 4y)$$

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Вариант 21

$$f(x, y) = \frac{1}{4(x^2 + y^2)}$$

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Вариант 22

$$f(x, y) = -\frac{1}{x^2 - 2y^2}$$

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Вариант 23

$$f(x, y) = -\operatorname{asin}(xy)$$

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Вариант 24

$$f(x, y) = -x - 5y$$

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Вариант 25

$$f(x, y) = \operatorname{asin}(4xy)$$

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Вариант 26

$$f(x, y) = -\frac{3xy + 1}{y^2}$$

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Вариант 27

$$f(x, y) = \frac{5xy + 4}{y^2}$$

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Вариант 28

$$f(x, y) = 5x - 5y$$

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Вариант 29

$$f(x, y) = \frac{3xy + 1}{y^2}$$

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Вариант 30

$$f(x, y) = \frac{-2xy + 1}{y^2}$$

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Вариант 31

$$f(x, y) = 20x^2y^2$$

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Вариант 32

$$f(x, y) = \operatorname{asin}(2xy)$$

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Вариант 33

$$f(x, y) = -\operatorname{asin}(25xy)$$

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Вариант 34

$$f(x, y) = -\operatorname{asin}(9xy)$$

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Вариант 35

$$f(x, y) = -\operatorname{asin}(16xy)$$

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Вариант 36

$$f(x, y) = -5x^2 - 4y^2$$

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Вариант 37

$$f(x, y) = \log (2x^2 - y)$$

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Вариант 38

$$f(x, y) = \frac{1}{x^2 + 2y^2}$$

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Вариант 39

$$f(x, y) = 2x^2 + 3y^2$$

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Вариант 40

$$f(x, y) = -x^2 - 5y^2$$

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Вариант 41

$$f(x, y) = \frac{1}{4(x^2 - y^2)}$$

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Вариант 42

$$f(x, y) = 5x + y$$

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Вариант 43

$$f(x, y) = -9x^2y^2$$

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Вариант 44

$$f(x, y) = \frac{2(-xy + 2)}{y^2}$$

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Вариант 45

$$f(x, y) = 3x + 4y$$

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Вариант 46

$$f(x, y) = \log (-x^2 - y)$$

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Вариант 47

$$f(x, y) = \log (3x^2 + y)$$

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Вариант 48

$$f(x, y) = \operatorname{asin} (12xy)$$

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Вариант 49

$$f(x, y) = 4x - 5y$$

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Вариант 50

$$f(x, y) = \log(3x^2 - 4y)$$

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Вариант 51

$$f(x, y) = \operatorname{asin}(2xy)$$

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Вариант 52

$$f(x, y) = -2x^2 + 3y^2$$

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Вариант 53

$$f(x, y) = 4x^2y^2$$

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Вариант 54

$$f(x, y) = \operatorname{asin}(6xy)$$

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Вариант 55

$$f(x, y) = -x^2 + y^2$$

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Вариант 56

$$f(x, y) = 4x^2 + y^2$$

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Вариант 57

$$f(x, y) = x^2 - 2y^2$$

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Вариант 58

$$f(x, y) = -4x + 5y$$

---

Вариант 59

$$f(x, y) = \frac{1}{5(x^2 + y^2)}$$

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Вариант 60

$$f(x, y) = -4x^2 + y^2$$

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Вариант 61

$$f(x, y) = 5x^2 - 4y^2$$

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Вариант 62

$$f(x, y) = -10x^2y^2$$

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Вариант 63

$$f(x, y) = -x^2 + 3y^2$$

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Вариант 64

$$f(x, y) = -x^2 + 4y^2$$

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Вариант 65

$$f(x, y) = -\frac{1}{3x^2 - y^2}$$

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Вариант 66

$$f(x, y) = 2x + 5y$$

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Вариант 67

$$f(x, y) = -\operatorname{asin}(6xy)$$

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Вариант 68

$$f(x, y) = -5x + 4y$$

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Вариант 69

$$f(x, y) = -2x - 2y$$

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Вариант 70

$$f(x, y) = -5x^2 - y^2$$

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Вариант 71

$$f(x, y) = -\operatorname{asin}(10xy)$$

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Вариант 72

$$f(x, y) = \frac{1}{3(x^2 - y^2)}$$

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Вариант 73

$$f(x, y) = 4x - 2y$$

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Вариант 74

$$f(x, y) = \log(-x^2 - 2y)$$

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Вариант 75

$$f(x, y) = \operatorname{asin}(4xy)$$

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Вариант 76

$$f(x, y) = \log(-4x^2 - 2y)$$

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Вариант 77

$$f(x, y) = \frac{-xy + 4}{y^2}$$

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Вариант 78

$$f(x, y) = -\operatorname{asin}(20xy)$$

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Вариант 79

$$f(x, y) = 3x^2 - y^2$$

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Вариант 80

$$f(x, y) = -5x^2 + y^2$$

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Вариант 81

$$f(x, y) = 3x^2y^2$$

---

Вариант 82

$$f(x, y) = -\frac{5xy + 3}{y^2}$$

---

Вариант 83

$$f(x, y) = \log(-5x^2 - y)$$

---

Вариант 84

$$f(x, y) = -\operatorname{asin}(4xy)$$

---

Вариант 85

$$f(x, y) = \log (3x^2 + 2y)$$

---

Вариант 86

$$f(x, y) = \frac{3xy + 2}{y^2}$$

---

Вариант 87

$$f(x, y) = 5x^2 + y^2$$

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Вариант 88

$$f(x, y) = -25x^2y^2$$

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Вариант 89

$$f(x, y) = 4x^2 - y^2$$

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Вариант 90

$$f(x, y) = \log (-4x^2 - y)$$

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Вариант 91

$$f(x, y) = \frac{5xy - 4}{y^2}$$

---

Вариант 92

$$f(x, y) = 5x^2 + y^2$$

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Вариант 93

$$f(x, y) = 5x - 3y$$

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Вариант 94

$$f(x, y) = -\operatorname{asin} (20xy)$$

---

Вариант 95

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

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Вариант 96

$$f(x, y) = 2x^2 + y^2$$

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Вариант 97



$$f(x, y) = \frac{2(xy + 2)}{y^2}$$

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Вариант 98

$$f(x, y) = -6x^2y^2$$

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Вариант 99

$$f(x, y) = 4x^2y^2$$

---

Вариант 100

$$f(x, y) = \log(-5x^2 - 3y)$$

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Вариант 101

$$f(x, y) = 4x^2y^2$$

---

Вариант 102

$$f(x, y) = \log(5x^2 + 5y)$$

---

Вариант 103

$$f(x, y) = \operatorname{asin}(10xy)$$

---

Вариант 104

$$f(x, y) = \log(-4x^2 + 2y)$$

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Вариант 105

$$f(x, y) = x + 5y$$

---

Вариант 106

$$f(x, y) = -\operatorname{asin}(12xy)$$

---

Вариант 107

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

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Вариант 108

$$f(x, y) = \log(-x^2 - 2y)$$

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Вариант 109

$$f(x, y) = 3x - 4y$$

---

Вариант 110

$$f(x, y) = -\operatorname{asin}(20xy)$$

---

Вариант 111

$$f(x, y) = \frac{1}{x^2 - 2y^2}$$

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Вариант 112

$$f(x, y) = 4x + y$$

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Вариант 113

$$f(x, y) = \log(-3x^2 - 4y)$$

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Вариант 114

$$f(x, y) = -\frac{1}{x^2 - 2y^2}$$

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Вариант 115

$$f(x, y) = \frac{-2xy + 1}{y^2}$$

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Вариант 116

$$f(x, y) = 10x^2y^2$$

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Вариант 117

$$f(x, y) = -5x^2 - y^2$$

---

Вариант 118

$$f(x, y) = -\frac{1}{4x^2 + 5y^2}$$

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Вариант 119

$$f(x, y) = -3x^2 - 2y^2$$

---

Вариант 120

$$f(x, y) = \log(x^2 + 3y)$$

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Вариант 121

$$f(x, y) = -9x^2y^2$$

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Вариант 122

$$f(x, y) = -x^2 + 4y^2$$

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Вариант 123

$$f(x, y) = \frac{-4xy + 1}{y^2}$$

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Вариант 124

$$f(x, y) = 5x + 3y$$

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Вариант 125

$$f(x, y) = 5x + 3y$$

---

Вариант 126

$$f(x, y) = -3x^2 + 2y^2$$

---

Вариант 127

$$f(x, y) = \frac{2xy + 1}{y^2}$$

---

Вариант 128

$$f(x, y) = \frac{2(-xy + 2)}{y^2}$$

---

Вариант 129

$$f(x, y) = -\operatorname{asin}(16xy)$$

---

Вариант 130

$$f(x, y) = \log(-2x^2 + 2y)$$

---

Вариант 131

$$f(x, y) = -3x^2 - 5y^2$$

---

Вариант 132

$$f(x, y) = -\frac{1}{x^2 - y^2}$$

---

Вариант 133

$$f(x, y) = \frac{5xy - 3}{y^2}$$

---

Вариант 134

$$f(x, y) = -\operatorname{asin}(25xy)$$

---

Вариант 135

$$f(x, y) = \frac{-3xy + 2}{y^2}$$

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Вариант 136

$$f(x, y) = \log(x^2 + 3y)$$

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Вариант 137

$$f(x, y) = -2x^2y^2$$

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Вариант 138

$$f(x, y) = 2x^2 - 3y^2$$

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Вариант 139

$$f(x, y) = 2x - 2y$$

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Вариант 140

$$f(x, y) = 5x^2 - 3y^2$$

---

Вариант 141

$$f(x, y) = \log(x^2 + 2y)$$

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Вариант 142

$$f(x, y) = -4x - 3y$$

---

Вариант 143

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

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Вариант 144

$$f(x, y) = -8x^2y^2$$

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Вариант 145

$$f(x, y) = \frac{-4xy + 5}{y^2}$$

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Вариант 146

$$f(x, y) = -x + 2y$$

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Вариант 147

$$f(x, y) = -x^2 - y^2$$

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Вариант 148

$$f(x, y) = x^2 - y^2$$

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Вариант 149

$$f(x, y) = \arcsin(4xy)$$

---

Вариант 150

$$f(x, y) = \frac{2xy + 1}{y^2}$$

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Вариант 151

$$f(x, y) = -5x + 3y$$

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Вариант 152

$$f(x, y) = \frac{1}{2x^2 - 3y^2}$$

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Вариант 153

$$f(x, y) = \log(-x^2 + 2y)$$

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Вариант 154

$$f(x, y) = \log(-x^2 + 3y)$$

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Вариант 155

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

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Вариант 156

$$f(x, y) = -15x^2y^2$$

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Вариант 157

$$f(x, y) = -4x^2 + 3y^2$$

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Вариант 158

$$f(x, y) = \frac{1}{4(x^2 - y^2)}$$

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Вариант 159

$$f(x, y) = \log(-4x^2 - 2y)$$

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Вариант 160

$$f(x, y) = -4x + 4y$$

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Вариант 161

$$f(x, y) = 2x^2y^2$$

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Вариант 162

$$f(x, y) = 3x - 3y$$

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Вариант 163

$$f(x, y) = -\frac{1}{2x^2 - 2y^2}$$

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Вариант 164

$$f(x, y) = -a \sin(xy)$$

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Вариант 165

$$f(x, y) = \log(-4x^2 + 4y)$$

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Вариант 166

$$f(x, y) = -5x + 4y$$

---

Вариант 167

$$f(x, y) = -2x^2y^2$$

---

Вариант 168

$$f(x, y) = -\frac{2xy + 5}{y^2}$$

---

Вариант 169

$$f(x, y) = -8x^2y^2$$

---

Вариант 170

$$f(x, y) = -\operatorname{asin}(4xy)$$

---

Вариант 171

$$f(x, y) = 5x^2 - 3y^2$$

---

Вариант 172

$$f(x, y) = -\frac{4xy + 4}{y^2}$$

---

Вариант 173

$$f(x, y) = \log(-5x^2 - 2y)$$

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Вариант 174

$$f(x, y) = -\operatorname{asin}(6xy)$$

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Вариант 175

$$f(x, y) = -\operatorname{asin}(2xy)$$

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