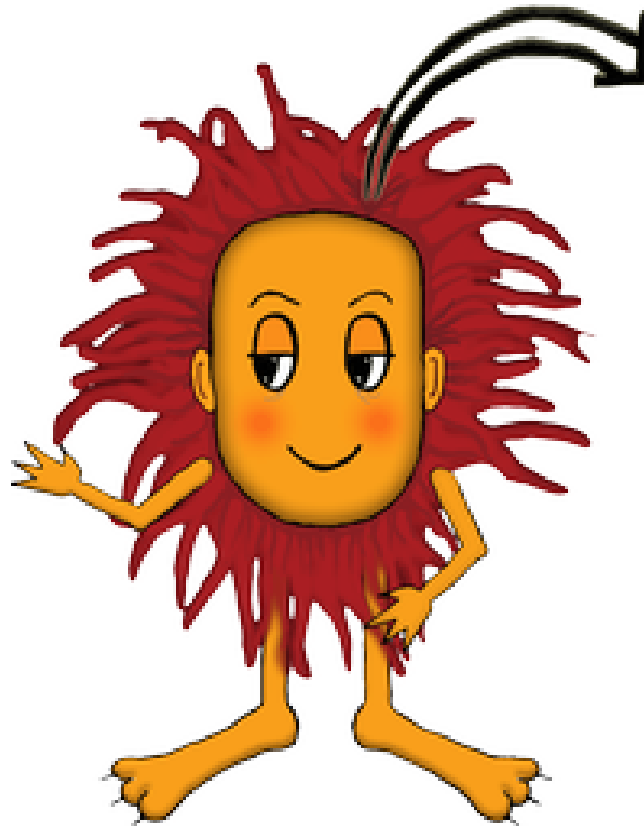


# Velika logična pošast



## Eulerjeva metoda reševanja diofantskih enačb

Dana je diofantska enačba

$$ax+by=c.$$

Enačbo rešujemo samo v primeru, če sta  $a$  in  $b$  medseboj tuji naravni števili.

1.

$$26x+27y=2$$

2.

$$25x+26y=10$$

3.

$$6x+47y=6$$

4.

$$26x+37y=10$$

5.

$$17x+32y=3$$

6.

$$18x+19y=3$$

7.

$$20x+47y=2$$

8.

$$16x+17y=1$$

9.

$$4x+5y=8$$

10.

$$24x+25y=10$$

11.

$$29x+31y=9$$

12.

$$16x+17y=10$$

13.

$$25x+39y=4$$

14.

$$20x+21y=1$$

15.

$$8x+23y=9$$

16.

$$30x+41y=6$$

17.

$$17x+40y=8$$

18.

$$15x+29y=10$$

19.

$$11x+26y=10$$

20.

$$7x+33y=4$$

21.

$$26x+49y=9$$

**22.**

$$19x+48y=1$$

**23.**

$$10x+11y=6$$

**24.**

$$6x+7y=1$$

**25.**

$$24x+25y=6$$

**26.**

$$15x+43y=5$$

**27.**

$$23x+35y=7$$

**28.**

$$5x+43y=8$$

**29.**

$$10x+17y=9$$

**30.**

$$4x+41y=6$$

**31.**

$$22x+23y=7$$

**32.**

$$6x+49y=6$$

**33.**

$$16x+17y=3$$

**34.**

$$29x+36y=10$$

**35.**

$$22x+31y=1$$

**36.**

$$30x+31y=2$$

**37.**

$$6x+7y=7$$

**38.**

$$4x+49y=9$$

**39.**

$$20x+21y=2$$

**40.**

$$13x+43y=7$$

**41.**

$$25x+27y=2$$

42.

$$25x+26y=2$$

43.

$$20x+27y=1$$

44.

$$15x+16y=2$$

45.

$$29x+46y=5$$

46.

$$3x+49y=2$$

47.

$$13x+36y=10$$

48.

$$10x+11y=9$$

49.

$$23x+25y=7$$

50.

$$29x+30y=8$$

Rešitve:

1.

Enačba:  $26x+27y=2$

$26x + 27y = 2$	$x = -y + \left(\frac{2-y}{26}\right)$	$z = \frac{2-y}{26}$
$y + (26z) = 2$	$y = 2 - 26z$	

$$y = 2 - 26z$$

$$x = -2 + 27z$$

2.

Enačba:  $25x+26y=10$

$25x + 26y = 10$	$x = -y + \left(\frac{10-y}{25}\right)$	$z = \frac{10-y}{25}$
$y + (25z) = 10$	$y = 10 - 25z$	

$$y = 10 - 25z$$

$$x = -10 + 26z$$

3.

Enačba:  $6x+47y=6$ 

$6x + 47y = 6$	$x = 1 - 8y + \left(\frac{y}{6}\right)$	$z = \frac{y}{6}$
$-y + (6z) = 0$	$y = 6z$	

$$y = 6z$$

$$x = 1 - 47z$$

4.

Enačba:  $26x+37y=10$ 

$26x + 37y = 10$	$x =$ $-y + \left(\frac{1}{26}(10 - 11y)\right)$	$z = \frac{1}{26}(10 - 11y)$
$11y + (26z) = 10$	$y = 1 - 2z +$ $\left(\frac{1}{11}(-4z - 1)\right)$	$s = \frac{1}{11}(-4z - 1)$
$4z + (11s) = -1$	$z = -3s + \left(\frac{s-1}{4}\right)$	$t = \frac{s-1}{4}$
$-s + (4t) = -1$	$s = 4t + 1$	

$$s = 1 + 4t$$

$$z = -3 - 11t$$

$$y = 8 + 26t$$

$$x = -11 - 37t$$

5.

Enačba:  $17x+32y=3$ 

$17x + 32y = 3$	$x =$ $-2y + \left(\frac{1}{17}(2y + 3)\right)$	$z = \frac{1}{17}(2y + 3)$
$-2y + (17z) = 3$	$y = 9z - 2 + \left(\frac{1-z}{2}\right)$	$s = \frac{1-z}{2}$
$-z + (-2s) = -1$	$z = 1 - 2s$	

$$z = 1 - 2s$$

$$y = 7 - 17s$$

$$x = -13 + 32s$$

6.

Enačba:  $18x+19y=3$ 

$18x + 19y = 3$	$x = -y + \left(\frac{3-y}{18}\right)$	$z = \frac{3-y}{18}$
$y + (18z) = 3$	$y = 3 - 18z$	

$$y = 3 - 18z$$

$$x = -3 + 19z$$

7.

Enačba:  $20x+47y=2$ 

$20x + 47y = 2$	$x = -2y + \left(\frac{1}{20}(2-7y)\right)$	$z = \frac{1}{20}(2-7y)$
$7y + (20z) = 2$	$y = -3z + \left(\frac{z+2}{7}\right)$	$s = \frac{z+2}{7}$
$-z + (7s) = 2$	$z = 7s - 2$	

$$z = -2 + 7s$$

$$y = 6 - 20s$$

$$x = -14 + 47s$$

8.

Enačba:  $16x+17y=1$ 

$16x + 17y = 1$	$x = -y + \left(\frac{1-y}{16}\right)$	$z = \frac{1-y}{16}$
$y + (16z) = 1$	$y = 1 - 16z$	

$$y = 1 - 16z$$

$$x = -1 + 17z$$

9.

Enačba:  $4x+5y=8$ 

$4x + 5y = 8$	$x = 2 - y + \left(-\frac{y}{4}\right)$	$z = -\frac{y}{4}$
$y + (4z) = 0$	$y = -4z$	

$$y = -4z$$

$$x = 2 + 5z$$

10.

Enačba:  $24x+25y=10$ 

$24x + 25y = 10$	$x = -y + \left(\frac{10-y}{24}\right)$	$z = \frac{10-y}{24}$
$y + (24z) = 10$	$y = 10 - 24z$	

$$y = 10 - 24z$$

$$x = 5(-2 + 5z)$$

11.

Enačba:  $29x+31y=9$ 

$29x + 31y = 9$	$x = -y + \left(\frac{1}{29}(9 - 2y)\right)$	$z = \frac{1}{29}(9 - 2y)$
$2y + (29z) = 9$	$y = 4 - 14z + \left(\frac{1-z}{2}\right)$	$s = \frac{1-z}{2}$
$z + (2s) = 1$	$z = 1 - 2s$	

$$z = 1 - 2s$$

$$y = -10 + 29s$$

$$x = 11 - 31s$$

12.

Enačba:  $16x+17y=10$ 

$16x + 17y = 10$	$x = 1 - y + \left(\frac{1}{16}(-y - 6)\right)$	$z = \frac{1}{16}(-y - 6)$
$y + (16z) = -6$	$y = -16z - 6$	

$$y = -2(3 + 8z)$$

$$x = 7 + 17z$$

## 13.

Enačba:  $25x+39y=4$ 

$25x + 39y = 4$	$x = -2y + \left(\frac{1}{25}(11y+4)\right)$	$z = \frac{1}{25}(11y+4)$
$-11y + (25z) = 4$	$y = 2z + \left(\frac{1}{11}(3z-4)\right)$	$s = \frac{1}{11}(3z-4)$
$3z + (-11s) = 4$	$z = 4s + 1 + \left(\frac{1-s}{3}\right)$	$t = \frac{1-s}{3}$
$s + (3t) = 1$	$s = 1 - 3t$	

$$s = 1 - 3t$$

$$z = 5 - 11t$$

$$y = 11 - 25t$$

$$x = -17 + 39t$$

## 14.

Enačba:  $20x+21y=1$ 

$20x + 21y = 1$	$x = -y + \left(\frac{1-y}{20}\right)$	$z = \frac{1-y}{20}$
$y + (20z) = 1$	$y = 1 - 20z$	

$$y = 1 - 20z$$

$$x = -1 + 21z$$

## 15.

Enačba:  $8x+23y=9$ 

$8x + 23y = 9$	$x = 1 - 3y + \left(\frac{y+1}{8}\right)$	$z = \frac{y+1}{8}$
$-y + (8z) = 1$	$y = 8z - 1$	

$$y = -1 + 8z$$

$$x = 4 - 23z$$



## 16.

Enačba:  $30x+41y=6$ 

$30x + 41y = 6$	$x = -y + \left(\frac{1}{30}(6 - 11y)\right)$	$z = \frac{1}{30}(6 - 11y)$
$11y + (30z) = 6$	$y = 1 - 3z + \left(\frac{1}{11}(3z - 5)\right)$	$s = \frac{1}{11}(3z - 5)$
$-3z + (11s) = -5$	$z = 4s + 2 + \left(\frac{1}{3}(-s - 1)\right)$	$t = \frac{1}{3}(-s - 1)$
$-s + (-3t) = 1$	$s = -3t - 1$	

$$s = -1 - 3t$$

$$z = -2 - 11t$$

$$y = 6 + 30t$$

$$x = -8 - 41t$$

## 17.

Enačba:  $17x+40y=8$ 

$17x + 40y = 8$	$x = -2y + \left(\frac{1}{17}(8 - 6y)\right)$	$z = \frac{1}{17}(8 - 6y)$
$6y + (17z) = 8$	$y = 1 - 3z + \left(\frac{z+2}{6}\right)$	$s = \frac{z+2}{6}$
$-z + (6s) = 2$	$z = 6s - 2$	

$$z = -2 + 6s$$

$$y = 7 - 17s$$

$$x = 8(-2 + 5s)$$

## 18.

Enačba:  $15x+29y=10$ 

$15x + 29y = 10$	$x = 1 - 2y + \left(\frac{y-5}{15}\right)$	$z = \frac{y-5}{15}$
$-y + (15z) = -5$	$y = 15z + 5$	

$$y = 5 + 15z$$

$$x = -9 - 29z$$

## 19.

Enačba:  $11x+26y=10$ 

$11x + 26y = 10$	$x = 1 - 2y + \left(\frac{1}{11}(-4y - 1)\right)$	$z = \frac{1}{11}(-4y - 1)$
$4y + (11z) = -1$	$y = -3z + \left(\frac{z-1}{4}\right)$	$s = \frac{z-1}{4}$
$-z + (4s) = -1$	$z = 4s + 1$	

$$z = 1 + 4s$$

$$y = -3 - 11s$$

$$x = 8 + 26s$$

## 20.

Enačba:  $7x+33y=4$ 

$7x + 33y = 4$	$x = 1 - 5y + \left(\frac{1}{7}(2y - 3)\right)$	$z = \frac{1}{7}(2y - 3)$
$-2y + (7z) = -3$	$y = 4z + 1 + \left(\frac{1-z}{2}\right)$	$s = \frac{1-z}{2}$
$-z + (-2s) = -1$	$z = 1 - 2s$	

$$z = 1 - 2s$$

$$y = 5 - 7s$$

$$x = -23 + 33s$$

## 21.

Enačba:  $26x+49y=9$ 

$26x + 49y = 9$	$x = -2y + \left(\frac{1}{26}(3y + 9)\right)$	$z = \frac{1}{26}(3y + 9)$
$-3y + (26z) = 9$	$y = 9z - 3 + \left(-\frac{z}{3}\right)$	$s = -\frac{z}{3}$
$-z + (-3s) = 0$	$z = -3s$	

$$z = -3s$$

$$y = -3 - 26s$$

$$x = 6 + 49s$$

## 22.

Enačba:  $19x+48y=1$ 

$19x + 48y = 1$	$x = -3y + \left(\frac{1}{19}(9y+1)\right)$	$z = \frac{1}{19}(9y+1)$
$-9y + (19z) = 1$	$y = 2z + \left(\frac{z-1}{9}\right)$	$s = \frac{z-1}{9}$
$z + (-9s) = 1$	$z = 9s + 1$	

$$z = 1 + 9s$$

$$y = 2 + 19s$$

$$x = -5 - 48s$$

## 23.

Enačba:  $10x+11y=6$ 

$10x + 11y = 6$	$x = 1 - y + \left(\frac{1}{10}(-y-4)\right)$	$z = \frac{1}{10}(-y-4)$
$y + (10z) = -4$	$y = -10z - 4$	

$$y = -2(2 + 5z)$$

$$x = 5 + 11z$$

## 24.

Enačba:  $6x+7y=1$ 

$6x + 7y = 1$	$x = -y + \left(\frac{1-y}{6}\right)$	$z = \frac{1-y}{6}$
$y + (6z) = 1$	$y = 1 - 6z$	

$$y = 1 - 6z$$

$$x = -1 + 7z$$

## 25.

Enačba:  $24x+25y=6$ 

$24x + 25y = 6$	$x = -y + \left(\frac{6-y}{24}\right)$	$z = \frac{6-y}{24}$
$y + (24z) = 6$	$y = 6 - 24z$	

$$y = 6 - 24z$$

$$x = -6 + 25z$$

26.

Enačba:  $15x+43y=5$ 

$15x + 43y = 5$	$x = -3y + \left(\frac{1}{15}(2y+5)\right)$	$z = \frac{1}{15}(2y+5)$
$-2y + (15z) = 5$	$y = 8z - 3 + \left(\frac{1-z}{2}\right)$	$s = \frac{1-z}{2}$
$-z + (-2s) = -1$	$z = 1 - 2s$	

$$z = 1 - 2s$$

$$y = 5 - 15s$$

$$x = -14 + 43s$$

27.

Enačba:  $23x+35y=7$ 

$23x + 35y = 7$	$x = -2y + \left(\frac{1}{23}(11y+7)\right)$	$z = \frac{1}{23}(11y+7)$
$-11y + (23z) = 7$	$y = 2z - 1 + \left(\frac{z+4}{11}\right)$	$s = \frac{z+4}{11}$
$z + (-11s) = -4$	$z = 11s - 4$	

$$z = -4 + 11s$$

$$y = -9 + 23s$$

$$x = 14 - 35s$$

28.

Enačba:  $5x+43y=8$ 

$5x + 43y = 8$	$x = 2 - 9y + \left(\frac{1}{5}(2y-2)\right)$	$z = \frac{1}{5}(2y-2)$
$-2y + (5z) = -2$	$y = 3z + 1 + \left(-\frac{z}{2}\right)$	$s = -\frac{z}{2}$
$-z + (-2s) = 0$	$z = -2s$	

$$z = -2s$$

$$y = 1 - 5s$$

$$x = -7 + 43s$$

## 29.

Enačba:  $10x+17y=9$ 

$10x + 17y = 9$	$x = 1 - 2y + \left(\frac{1}{10}(3y - 1)\right)$	$z = \frac{1}{10}(3y - 1)$
$-3y + (10z) = -1$	$y = 3z + \left(\frac{z+1}{3}\right)$	$s = \frac{z+1}{3}$
$z + (-3s) = -1$	$z = 3s - 1$	

$$z = -1 + 3s$$

$$y = -3 + 10s$$

$$x = 6 - 17s$$

## 30.

Enačba:  $4x+41y=6$ 

$4x + 41y = 6$	$x = 1 - 10y + \left(\frac{2-y}{4}\right)$	$z = \frac{2-y}{4}$
$y + (4z) = 2$	$y = 2 - 4z$	

$$y = 2 - 4z$$

$$x = -19 + 41z$$

## 31.

Enačba:  $22x+23y=7$ 

$22x + 23y = 7$	$x = -y + \left(\frac{7-y}{22}\right)$	$z = \frac{7-y}{22}$
$y + (22z) = 7$	$y = 7 - 22z$	

$$y = 7 - 22z$$

$$x = -7 + 23z$$

## 32.

Enačba:  $6x+49y=6$ 

$6x + 49y = 6$	$x = 1 - 8y + \left(-\frac{y}{6}\right)$	$z = -\frac{y}{6}$
$y + (6z) = 0$	$y = -6z$	

$$y = -6z$$

$$x = 1 + 49z$$

33.

Enačba:  $16x+17y=3$ 

$16x + 17y = 3$	$x = -y + \left(\frac{3-y}{16}\right)$	$z = \frac{3-y}{16}$
$y + (16z) = 3$	$y = 3 - 16z$	

$$y = 3 - 16z$$

$$x = -3 + 17z$$

34.

Enačba:  $29x+36y=10$ 

$29x + 36y = 10$	$x = -y + \left(\frac{1}{29}(10 - 7y)\right)$	$z = \frac{1}{29}(10 - 7y)$
$7y + (29z) = 10$	$y = 1 - 4z + \left(\frac{3-z}{7}\right)$	$s = \frac{3-z}{7}$
$z + (7s) = 3$	$z = 3 - 7s$	

$$z = 3 - 7s$$

$$y = -11 + 29s$$

$$x = 14 - 36s$$

35.

Enačba:  $22x+31y=1$ 

$22x + 31y = 1$	$x = -y + \left(\frac{1}{22}(1 - 9y)\right)$	$z = \frac{1}{22}(1 - 9y)$
$9y + (22z) = 1$	$y = -2z + \left(\frac{1}{9}(1 - 4z)\right)$	$s = \frac{1}{9}(1 - 4z)$
$4z + (9s) = 1$	$z = -2s + \left(\frac{1-s}{4}\right)$	$t = \frac{1-s}{4}$
$s + (4t) = 1$	$s = 1 - 4t$	

$$s = 1 - 4t$$

$$z = -2 + 9t$$

$$y = 5 - 22t$$

$$x = -7 + 31t$$

36.

Enačba:  $30x+31y=2$ 

$30x + 31y = 2$	$x = -y + \left(\frac{2-y}{30}\right)$	$z = \frac{2-y}{30}$
$y + (30z) = 2$	$y = 2 - 30z$	

$$y = 2 - 30z$$

$$x = -2 + 31z$$

37.

Enačba:  $6x+7y=7$ 

$6x + 7y = 7$	$x = 1 - y + \left(\frac{1-y}{6}\right)$	$z = \frac{1-y}{6}$
$y + (6z) = 1$	$y = 1 - 6z$	

$$y = 1 - 6z$$

$$x = 7z$$

38.

Enačba:  $4x+49y=9$ 

$4x + 49y = 9$	$x = 2 - 12y + \left(\frac{1-y}{4}\right)$	$z = \frac{1-y}{4}$
$y + (4z) = 1$	$y = 1 - 4z$	

$$y = 1 - 4z$$

$$x = -10 + 49z$$

39.

Enačba:  $20x+21y=2$ 

$20x + 21y = 2$	$x = -y + \left(\frac{2-y}{20}\right)$	$z = \frac{2-y}{20}$
$y + (20z) = 2$	$y = 2 - 20z$	

$$y = 2 - 20z$$

$$x = -2 + 21z$$

40.

Enačba:  $13x+43y=7$ 

$13x + 43y = 7$	$x = 1 - 3y + \left(\frac{1}{13}(-4y - 6)\right)$	$z = \frac{1}{13}(-4y - 6)$
$4y + (13z) = -6$	$y = -3z - 2 + \left(\frac{2-z}{4}\right)$	$s = \frac{2-z}{4}$
$z + (4s) = 2$	$z = 2 - 4s$	

$$z = 2 - 4s$$

$$y = -8 + 13s$$

$$x = 27 - 43s$$

41.

Enačba:  $25x+27y=2$ 

$25x + 27y = 2$	$x = -y + \left(\frac{1}{25}(2 - 2y)\right)$	$z = \frac{1}{25}(2 - 2y)$
$2y + (25z) = 2$	$y = 1 - 12z + \left(-\frac{z}{2}\right)$	$s = -\frac{z}{2}$
$z + (2s) = 0$	$z = -2s$	

$$z = -2s$$

$$y = 1 + 25s$$

$$x = -1 - 27s$$

42.

Enačba:  $25x+26y=2$ 

$25x + 26y = 2$	$x = -y + \left(\frac{2-y}{25}\right)$	$z = \frac{2-y}{25}$
$y + (25z) = 2$	$y = 2 - 25z$	

$$y = 2 - 25z$$

$$x = -2 + 26z$$



## 43.

Enačba:  $20x+27y=1$ 

$20x + 27y = 1$	$x = -y + \left(\frac{1}{20} (1 - 7y)\right)$	$z = \frac{1}{20} (1 - 7y)$
$7y + (20z) = 1$	$y = -3z + \left(\frac{z+1}{7}\right)$	$s = \frac{z+1}{7}$
$-z + (7s) = 1$	$z = 7s - 1$	

$$\begin{aligned}z &= -1 + 7s \\y &= 3 - 20s \\x &= -4 + 27s\end{aligned}$$

## 44.

Enačba:  $15x+16y=2$ 

$15x + 16y = 2$	$x = -y + \left(\frac{2-y}{15}\right)$	$z = \frac{2-y}{15}$
$y + (15z) = 2$	$y = 2 - 15z$	

$$\begin{aligned}y &= 2 - 15z \\x &= -2 + 16z\end{aligned}$$

## 45.

Enačba:  $29x+46y=5$ 

$29x + 46y = 5$	$x = -2y + \left(\frac{1}{29} (12y + 5)\right)$	$z = \frac{1}{29} (12y + 5)$
$-12y + (29z) = 5$	$y = 2z + \left(\frac{1}{12} (5z - 5)\right)$	$s = \frac{1}{12} (5z - 5)$
$5z + (-12s) = 5$	$z = 2s + 1 + \left(\frac{2s}{5}\right)$	$t = \frac{2s}{5}$
$-2s + (5t) = 0$	$s = 3t + \left(-\frac{t}{2}\right)$	$u = -\frac{t}{2}$
$-t + (-2u) = 0$	$t = -2u$	

$$\begin{aligned}t &= -2u \\s &= -5u \\z &= 1 - 12u \\y &= 2 - 29u \\x &= -3 + 46u\end{aligned}$$

46.

Enačba:  $3x+49y=2$ 

$3x + 49y = 2$	$x = 1 - 16y + \left(\frac{1}{3}(-y-1)\right)$	$z = \frac{1}{3}(-y-1)$
$y + (3z) = -1$	$y = -3z - 1$	

$$y = -1 - 3z$$

$$x = 17 + 49z$$

47.

Enačba:  $13x+36y=10$ 

$13x + 36y = 10$	$x = 1 - 3y + \left(\frac{1}{13}(3y-3)\right)$	$z = \frac{1}{13}(3y-3)$
$-3y + (13z) = -3$	$y = 4z + 1 + \left(\frac{z}{3}\right)$	$s = \frac{z}{3}$
$z + (-3s) = 0$	$z = 3s$	

$$z = 3s$$

$$y = 1 + 13s$$

$$x = -2 - 36s$$

48.

Enačba:  $10x+11y=9$ 

$10x + 11y = 9$	$x = 1 - y + \left(\frac{1}{10}(-y-1)\right)$	$z = \frac{1}{10}(-y-1)$
$y + (10z) = -1$	$y = -10z - 1$	

$$y = -1 - 10z$$

$$x = 2 + 11z$$

49.

Enačba:  $23x+25y=7$ 

$23x + 25y = 7$	$x = -y + \left(\frac{1}{23}(7-2y)\right)$	$z = \frac{1}{23}(7-2y)$
$2y + (23z) = 7$	$y = 3 - 11z + \left(\frac{1-z}{2}\right)$	$s = \frac{1-z}{2}$
$z + (2s) = 1$	$z = 1 - 2s$	

$$z = 1 - 2s$$

$$y = -8 + 23s$$

$$x = 9 - 25s$$

50.

Enačba:  $29x+30y=8$ 

$29x + 30y = 8$	$x = -y + \left(\frac{8-y}{29}\right)$	$z = \frac{8-y}{29}$
$y + (29z) = 8$	$y = 8 - 29z$	

$$y = 8 - 29z$$

$$x = -8 + 30z$$