



**СЕДМА НАЦИОНАЛНА СТУДЕНТСКА ОЛИМПИАДА
ПО КОМПЮТЪРНА МАТЕМАТИКА „АКАДЕМИК СТЕФАН ДОДУНЕКОВ“**

**ПЛОВДИВСКИ УНИВЕРСИТЕТ
26-28 ОКТОМВРИ 2018 г.**

ОТГОВОРИ ЗА ГРУПА А

1. 7, 5
2. $-10i$
3. 17
4. 8
5. 2202202_3 . He.
6. 105
7. $9 + 2x + 7x^2, 8x + 2x^2 + 4x^3$
8. $(x = 3, y = 4, z = 35), (x = 3, y = 5, z = 16), (x = 3, y = 6, z = 9), (x = 3, y = 7, z = 5), (x = 4, y = 1, z = 15), (x = 4, y = 2, z = 6)$
9. 32
10.

1	18
2	2
3	10865
4	118100479
5	13947723140193048
6	194538980795476619713498707940414
11. $m: \{2, 1094\}, M: \{13021, 582515943200096277\}$
12. -10
13. $\{\{x \rightarrow -2, y \rightarrow -2, z \rightarrow -2\}, \{x \rightarrow 1, y \rightarrow -2, z \rightarrow -2\}, \{x \rightarrow -2, y \rightarrow 1, z \rightarrow -2\}, \{x \rightarrow 1, y \rightarrow 1, z \rightarrow -2\}, \{x \rightarrow -2, y \rightarrow -2, z \rightarrow 1\}, \{x \rightarrow 1, y \rightarrow -2, z \rightarrow 1\}, \{x \rightarrow -2, y \rightarrow 1, z \rightarrow 1\}, \{x \rightarrow 1, y \rightarrow 1, z \rightarrow 1\}\}$
14. $\{67.84039865722274, -20.43172909453068, 4.455992169665128, -2.4259199981595936, 1.3958684747117376, -0.9999999999999983, 0.7561008416086272, -0.6298080918412496, 0.551639856791777, -0.5125428154684596\}$
 $\text{Det} = -2816$
15. 4700769
16. $\{x \rightarrow 0.2811852505680566031185997929652\}$
17. $3 - e$

18. $x - \frac{x^3}{3} + \frac{2x^5}{15} - \frac{47x^7}{630} + O[x]^8$

19. -2^{2018}

20. $\frac{-2018 + \sqrt{2018\pi} \operatorname{Coth}\left[\frac{\pi}{\sqrt{2018}}\right]}{4036} = 0.00081486520413$

21. $\{29.08175691027652, \{x \rightarrow 29.38369670669366\}\}$

22. $\frac{40\Gamma\left[\frac{1}{18}\right]\Gamma\left[\frac{21}{20}\right]}{19\Gamma\left[\frac{19}{180}\right]} = 3.98306079475361209764$

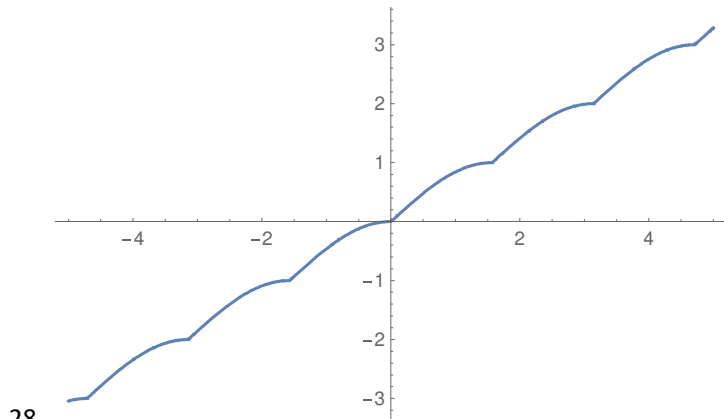
23. $\left(\frac{\frac{47}{150} \frac{23}{75} \frac{19}{50}}{\frac{47}{150} \frac{23}{75} \frac{19}{50}}\right)$

24. $\{x \rightarrow 1.2338217170982362, y \rightarrow 1.5695983604285242, z \rightarrow 3.1965799224732394\}$

25. $\{\{x \rightarrow -\frac{1}{26}, y \rightarrow -\frac{3}{26}\}, \{x \rightarrow 1, y \rightarrow 3\}\}, \frac{1}{e^{13}} - \frac{26}{e^{1/52}}$

26. $e(2\sqrt{-4 + y^2}\operatorname{Log}[2] + y(2 + \operatorname{Log}[2]^2) - 2(\sqrt{-4 + y^2} + y\operatorname{Log}[2])\operatorname{Log}[y + \sqrt{-4 + y^2}] + y\operatorname{Log}[y + \sqrt{-4 + y^2}]^2), 7.008001429$

27. $\{\{x \rightarrow -\frac{4}{3}\}, \{x \rightarrow 3\}, \{x \rightarrow \frac{1}{6}(5 - \sqrt{181})\}, \{x \rightarrow \frac{1}{6}(5 + \sqrt{181})\}\}, y_1 = -\frac{1498}{27}, y_2 = -84, y_3 = 1.7041358536421924, y_4 = -84.00043214993849$



28.

-1284.5441918730658

1284.8900780591723

29. $\frac{64\pi}{3}$

30. 35