И/з по теме

"Комплексные числа"

1. Изобразить на комплексной плоскости Z_1, Z_2, Z_3, Z_4
2. Найти в алгебраической форме

$$\frac{Z_1^2 + 5i}{Z_2}$$

3. Перевести Z_3 в тригонометрическую форму и найти $(Z_3 \cdot Z_4)^{10}$ 20
4. Ответ записать в тригонометрической и показательной формах
4. Решить квадратное уравнение

1) $x^2-2x+2=0$ $4x^2+9=0$

2) $x^2-2x+4=0$ $5x^2+1=0$

3. $x^2+2x+17=0$ $9x^2+4=0$

4. $x^2-6x+13=0$ $3x^2+2=0$

5. $x^2-4x+5=0$ $6x^2+5=0$

6. $x^2+6x+10=0$ $2x^2+5=0$

7. $x^2-8x+25=0$ $3x^3+3=0$

8. $x^2+6x+25=0$ $4x^2+7=0$

9. $x^2-6x+12=0$ $7x^2+9=0$

10. $x^2-8x+17=0$ $5x^2+6=0$

11. $x^2-4x+29=0$ $6x^2+1=0$

12. $x^2+4x+8=0$ $8x^2+9=0$

13. $x^2-10x+29=0$ $4x^2+1=0$

14. $x^2+2x+10=0$ $5x^2+3=0$

15. $x^2-6x+10=0$ $6x^2+10=0$

16. $x^2+2x+2=0$ $7x^2+2=0$

17. $x^2+2x+4=0$ $7x^2+3=0$

18. $x^2-2x+17=0$ $3x^2+8=0$

19. $x^2+6x+13=0$ $4x^2+5=0$

20. $x^2+4x+5=0$ $5x^2+7=0$

21. $x^2+8x+25=0$ $6x^2+4=0$

22. $x^2-6x+25=0$ $7x^2+11=0$

23. $x^2+6x+12=0$ $2x^2+3=0$

24. $x^2+8x+17=0$ $3x^2+4=0$

25. $x^2+4x+29=0$ $4x^2+3=0$

26. $x^2-4x+8=0$ $5x^2+5=0$

27. $x^2+10x+29=0$ $6x^2+9=0$

28. $x^2-2x+10=0$ $7x^2+4=0$

29. $x^2-12x+37=0$ $8x^2+3=0$

30. $x^2+2x+26=0$ $8x^2+5=0$

1) $z_1 = 2+3i$	$z_2 = 3-i$	$z_3 = 1-i$	$z_4 = \sqrt{2}\left(\cos\frac{\pi}{12} + i\sin\frac{\pi}{12}\right)$
2) $z_1 = 1-4i$	$z_2 = 2+i$	$z_3 = 1+i\sqrt{3}$	$z_4 = \sqrt{8}\left(\cos\frac{\pi}{5} + i\sin\frac{\pi}{5}\right)$
3) $z_1 = -3+2i$	$z_2 = 1-2i$	$z_3 = \sqrt{3}+i$	$z_4 = 2\left(\cos\frac{\pi}{7} + i\sin\frac{\pi}{7}\right)$
4) $z_1 = 2-3i$	$z_2 = 5+i$	$z_3 = -1-i$	$z_4 = 2\sqrt{2}\left(\cos\frac{\pi}{3} + i\sin\frac{\pi}{3}\right)$
5) $z_1 = 4+i$	$z_2 = 1-3i$	$z_3 = -1+i$	$z_4 = 3\sqrt{2}\left(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6}\right)$
6) $z_1 = 3-i$	$z_2 = 2+2i$	$z_3 = \sqrt{3}-i$	$z_4 = 4\left(\cos\frac{3\pi}{8} + i\sin\frac{3\pi}{8}\right)$
7) $z_1 = 1+i$	$z_2 = 4-3i$	$z_3 = -1+i\sqrt{3}$	$z_4 = 2\left(\cos\frac{\pi}{9} + i\sin\frac{\pi}{9}\right)$
8) $z_1 = 2-4i$	$z_2 = 3+2i$	$z_3 = 2i$	$z_4 = 3\left(\cos\frac{\pi}{10} + i\sin\frac{\pi}{10}\right)$
9) $z_1 = -3+4i$	$z_2 = 2-i$	$z_3 = -\sqrt{3}+i$	$z_4 = 5\left(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6}\right)$
10) $z_1 = 5-i$	$z_2 = 1+2i$	$z_3 = 3+i\sqrt{3}$	$z_4 = 2\left(\cos\frac{\pi}{7} + i\sin\frac{\pi}{7}\right)$
11) $z_1 = -6+i$	$z_2 = 2-3i$	$z_3 = 3+3i$	$z_4 = 4\left(\cos\frac{\pi}{5} + i\sin\frac{\pi}{5}\right)$
12) $z_1 = 1-2i$	$z_2 = 1+5i$	$z_3 = -2+2i$	$z_4 = 3\left(\cos\frac{2\pi}{7} + i\sin\frac{2\pi}{7}\right)$
13) $z_1 = 3+2i$	$z_2 = 4-i$	$z_3 = -3i$	$z_4 = \sqrt{6}\left(\cos\frac{\pi}{3} + i\sin\frac{\pi}{3}\right)$
14) $z_1 = 1-5i$	$z_2 = 3+i$	$z_3 = 1+i\sqrt{3}$	$z_4 = \sqrt{7}\left(\cos\frac{2\pi}{9} + i\sin\frac{2\pi}{9}\right)$
15) $z_1 = 4+3i$	$z_2 = 3-i$	$z_3 = 2-2i$	$z_4 = \sqrt{2}\left(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6}\right)$
16) $z_1 = 2-3i$	$z_2 = 4+i$	$z_3 = 3-i\sqrt{3}$	$z_4 = \sqrt{3}\left(\cos\frac{\pi}{8} + i\sin\frac{\pi}{8}\right)$
17) $z_1 = -5+2i$	$z_2 = 1-3i$	$z_3 = -2+2i$	$z_4 = \sqrt{5}\left(\cos\frac{2\pi}{5} + i\sin\frac{2\pi}{5}\right)$
18) $z_1 = 3-4i$	$z_2 = 2+i$	$z_3 = -\sqrt{3}+3i$	$z_4 = 2\left(\cos\frac{\pi}{3} + i\sin\frac{\pi}{3}\right)$
19) $z_1 = 1+i$	$z_2 = 5-3i$	$z_3 = 2-2\sqrt{3}i$	$z_4 = 3\left(\cos\frac{\pi}{4} + i\sin\frac{\pi}{4}\right)$
20) $z_1 = 2-5i$	$z_2 = 3+i$	$z_3 = 1-i\sqrt{3}$	$z_4 = 2\left(\cos\frac{\pi}{7} + i\sin\frac{\pi}{7}\right)$
21) $z_1 = -2+i$	$z_2 = 4-3i$	$z_3 = -2+2i$	$z_4 = \sqrt{2}\left(\cos\frac{\pi}{5} + i\sin\frac{\pi}{5}\right)$
22) $z_1 = 3-4i$	$z_2 = 1+2i$	$z_3 = 3i$	$z_4 = 2\left(\cos\frac{5\pi}{8} + i\sin\frac{5\pi}{8}\right)$
23) $z_1 = 4+i$	$z_2 = 2-3i$	$z_3 = -1-i$	$z_4 = 2\left(\cos\frac{\pi}{3} + i\sin\frac{\pi}{3}\right)$
24) $z_1 = 1-3i$	$z_2 = 3+5i$	$z_3 = 2-2i$	$z_4 = 3\left(\cos\frac{3\pi}{7} + i\sin\frac{3\pi}{7}\right)$
25) $z_1 = 2+6i$	$z_2 = 1-i$	$z_3 = \sqrt{3}+i$	$z_4 = 2\left(\cos\frac{\pi}{8} + i\sin\frac{\pi}{8}\right)$
26) $z_1 = -1-4i$	$z_2 = 3+2i$	$z_3 = 1+i\sqrt{3}$	$z_4 = \sqrt{3}\left(\cos\frac{5\pi}{4} + i\sin\frac{5\pi}{4}\right)$
27) $z_1 = 3+5i$	$z_2 = 1-2i$	$z_3 = 3+3i$	$z_4 = \sqrt{2}\left(\cos\frac{\pi}{3} + i\sin\frac{\pi}{3}\right)$
28) $z_1 = 5-i$	$z_2 = 2+4i$	$z_3 = -i$	$z_4 = 2\left(\cos\frac{5\pi}{9} + i\sin\frac{5\pi}{9}\right)$
29) $z_1 = 1+2i$	$z_2 = 3+4i$	$z_3 = 1-i$	$z_4 = \sqrt{3}\left(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6}\right)$
30) $z_1 = 3-i$	$z_2 = 2+5i$	$z_3 = 1-i\sqrt{3}$	$z_4 = 2\left(\cos\frac{\pi}{4} + i\sin\frac{\pi}{4}\right)$