

1. Выполнить действия над числами z_1 и z_2

а) $z_1 + z_2$; б) $z_1 - z_2$; в) $z_1 \cdot z_2$; г) $\frac{z_1}{z_2}$; д) z_2^3 ; е) $\sqrt[3]{z_2}$

1.1 $z_1 = 5 - 12i, z_2 = 1 + i.$

1.2 $z_1 = -6 + 8i, z_2 = 1 - i.$

1.3 $z_1 = 2 - 3i, z_2 = -1 + i.$

1.4 $z_1 = 1 - 7i, z_2 = -1 + i.$

1.5 $z_1 = 3 + 3i, z_2 = -3 + 3i.$

1.6 $z_1 = 2 - 5i, z_2 = \sqrt{3} + i.$

1.7 $z_1 = 3 - 5i, z_2 = -\sqrt{3} + i.$

1.8 $z_1 = 4 - 5i, z_2 = -\sqrt{3} - i.$

1.9 $z_1 = 5 - 4i, z_2 = \sqrt{3} - i.$

1.10 $z_1 = 6 + 4i, z_2 = 1 + \sqrt{3}i.$

1.11 $z_1 = 7 + 4i, z_2 = 1 - \sqrt{3}i.$

1.12 $z_1 = 4 + 5i, z_2 = -1 + \sqrt{3}i.$

1.13 $z_1 = -1 - 7i, z_2 = -1 - \sqrt{3}i.$

1.14 $z_1 = -1 - 7i, z_2 = 2 - 2i.$

1.15 $z_1 = 12 - i, z_2 = -2 - 2i.$

1.16 $z_1 = 3 + 6i, z_2 = 6 - 6i.$

1.17 $z_1 = 10 + i, z_2 = 4i - 4.$

1.18 $z_1 = 2 + 7i, z_2 = -2 + 2\sqrt{3}i.$

1.19. $z_1 = 3 + 2i, z_2 = 2\sqrt{3} - 2i.$

1.20 $z_1 = 7 + 5i, z_2 = 3 + 3\sqrt{3}i.$

1.21 $z_1 = 6 - 3i, z_2 = -3 + 3\sqrt{3}i.$

1.22 $z_1 = 8 - 4i, z_2 = -3 - 3\sqrt{3}i.$

М.О.

2. Решить уравнения

2.1 а) $x^2 + 4 = 0$

б) $x^3 + 64 = 0$

2.2 а) $x^2 + 1 = 0$

б) $x^3 + 125 = 0$

2.3 а) $x^2 + 9 = 0$

б) $x^3 + 1000 = 0$

2.4 а) $x^2 + 16 = 0$

б) $x^3 + 0,008 = 0$

2.5 а) $x^2 + 25 = 0$

б) $x^3 + 0,027 = 0$

2.6 а) $x^2 + 36 = 0$

б) $x^3 - 1 = 0$

2.7 а) $x^2 + 49 = 0$

б) $x^3 - 8 = 0$

2.8 а) $x^2 + 64 = 0$

б) $x^3 - 27 = 0$

2.9 а) $x^2 + 81 = 0$

б) $x^3 - 1000 = 0$

2.10 а) $x^2 + 121 = 0$

б) $x^3 - 125 = 0$

2.11 а) $x^2 + 225 = 0$

б) $x^3 - 64 = 0$

2.12 а) $x^2 + 169 = 0$

б) $x^3 - 0,008 = 0$

2.13 а) $x^2 + 196 = 0$

б) $x^3 - 1000 = 0$

2.14 а) $x^2 + 256 = 0$

б) $x^3 - 0,125 = 0$

2.15 а) $x^2 + 8 = 0$

б) $x^3 + 0,064 = 0$

2.16 а) $x^2+12=0$

б) $x^3 - 0,064=0$

2.17 а) $x^2+14=0$

б) $x^2+4x+13=0$

2.18 а) $x^2+20=0$

б) $x^2 - 2x+5=0$

2.19 а) $x^2+18=0$

б) $x^3+27=0$

2.20 а) $x^2+50=0$

б) $x^3+8=0$

2.21 а) $x^2+32=0$

б) $x^3+1=0$

М.О.

3.Найти НОД и НОК

3.1 117; 156; 208

3.11 4681; 17; 208

3.2 504; 216; 360

3.12 450; 1125; 300

3.3 252; 98; 147

3.13 234; 468; 208

3.4 162; 270; 378

3.14 234; 156; 416

3.5 117; 156; 312

3.15 234; 156; 624

3.6 2341; 56; 208

3.16 234; 46; 8624

3.7 234; 156; 832

3.17 117; 312; 624

3.8 252; 96; 147

3.18 504; 1080; 360

3.9 252; 196; 294

3.19 504; 1080; 720

3.10 252; 98; 294

3.20 504; 312; 720

3.21 252; 196; 735

4. Решить уравнения:

4.1. а) $\sin 2x = \frac{1}{2}$; б) $3 \cdot 5^{2x-1} - 2^{x-1} = 0,2$; в) $|x-1| + |x+2| = 1$.

4.2 а) $\sin(2x+3) = \frac{1}{2}$; б) $3 \cdot 5^{2x} - 2 \cdot 5^x = 2$; в) $|x-3| - |x-2| = 1$.

$$4.3 \text{ a) } \cos 3x = \frac{\sqrt{3}}{2}; \text{ б) } 2^{x^2-1} - 3^{x^2} = 3^{x^2-1} - 2^{x^2+2}; \text{ в) } 2 + |x-1| = 3.$$

$$4.4 \text{ a) } \cos(3x+2)^2 = \frac{\sqrt{3}}{2}; \text{ б) } 32^{\frac{2x^2-4}{x-2}} = 0,25 \cdot 128; \text{ в) } |1-x| + |x-3| = 2.$$

$$4.5 \text{ a) } \sin(3x-1) = -\frac{\sqrt{3}}{2}; \text{ б) } 9^{x^2-1} 36 \cdot 3^{x^2-3} + 3 = 0; \text{ в) } |x-2| - |x+1| = 4.$$

$$4.6 \text{ a) } \operatorname{tg} 3x = 0; \text{ б) } 5^{2x-1} + 2^{2x} - 5^{2x} + 2^{2x+2} = 0; \text{ в) } |x-1| - |x-2| = -1.$$

$$4.7 \text{ a) } \operatorname{tg}(3x-1) = 1; \text{ б) } 5^{2x+1} = 5^x + 4; \text{ в) } x^2 - 3|x| + 2 = 0.$$

$$4.8 \text{ a) } \cos\left(x + \frac{\pi}{2}\right) = \frac{1}{2}; \text{ б) } x^2 \cdot 3^x - 3^{x+1} = 0; \text{ в) } 2x^2 + |x-2| - 3 = 0.$$

$$4.9 \text{ a) } \cos(3x+2) = -\frac{1}{2}; \text{ б) } \left(\frac{1}{9}\right)^{\log_{\frac{1}{2}} \sqrt{x}} = \frac{1}{3}; \text{ в) } 2x^2 + |x-7| - 8 = 0.$$

$$4.10 \text{ a) } \sin(x-1) = -\frac{1}{2}; \text{ б) } \log_2(4 \cdot 3^x - 6) - \log_2(9^x - 6) = 1; \text{ в) } \frac{24}{x^2 - 5|x|} = x^2 - 5|x| - 2.$$

$$4.11 \text{ a) } \sin(2x+3) = -\frac{\sqrt{3}}{2}; \text{ б) } \lg 5 + \lg(x+10) = 1 - \lg(2x-1) + \lg(2x-20);$$

$$\text{в) } \frac{3x^2 - |2x+3| + 2}{3|x|-1} = 0.$$

$$4.12 \text{ a) } \sin(2x-1) = 1; \text{ б) } 2^x + 2 \cdot 2^{-x} = 3; \text{ в) } x^2 - 4|x| - 2 = \frac{15}{x^2 - 4|x|}.$$

$$4.13 \text{ a) } \cos(3x-1) = 0; \text{ б) } \log_2 x + \log_4 x + \log_8 x = 11; \text{ в) } 7 - 2|x-1| = 2.$$

$$4.14 \text{ a) } \sin(3x+5) = -1; \text{ б) } 4^x - 10 \cdot 2^{x-1} - 24 = 0; \text{ в) } 5 - 2|x+1| = 2.$$

$$4.15 \text{ a) } \cos(2x-1) = -1; \text{ б) } \lg(5-x) + 2\lg\sqrt{3-x} = 1; \text{ в) } x^2 - 5|x| + 6 = 0.$$

$$4.16 \text{ a) } \operatorname{tg} 2x = \sqrt{3}; \text{ б) } 25^x = 6 \cdot 5^x - 5; \text{ в) } \left| \frac{2x-1}{1-x} \right| = 2.$$

$$4.17 \text{ a) } \sin\left(x - \frac{\pi}{2}\right) = -\frac{\sqrt{5}}{2}; \text{ б) } \log_{\frac{1}{3}} \frac{3x-1}{x+2} = 1; \text{ в) } \frac{|x+3|+x}{x+2} = 1.$$

$$4.18 \text{ a) } \cos\left(x - \frac{\pi}{3}\right) = 1; \text{ б) } \lg x^2 + \lg(x+10)^2 = 2\lg 11; \text{ в) } \frac{|x+2|-1}{x} = 2.$$

$$4.19 \text{ a) } \operatorname{tg}\left(x - \frac{\pi}{3}\right) = -\sqrt{3}; \text{ б) } \log_{x-2}(2x^2 - 11x + 16) = 2; \text{ в) } \frac{|x-1|}{x+2} = 1.$$

$$4.20 \text{ a) } \sin\left(2x + \frac{\pi}{2}\right) = -1; \text{ б) } \log_{0,3}(4-2x) - \log_{0,3}(x+2) = 0; \text{ в) } \frac{|x-3|}{x^2 - 5x + 6} = 2.$$

$$4.21 \text{ a) } \sin\left(2x - \frac{\pi}{3}\right) = \frac{1}{2}; \text{ б) } (x^2 - 25)(5^{\sqrt{3x+4}-1} - 5^{x-3}) = 0; \text{ в) } \frac{x^2 - |x| - 12}{x+3} = 2x.$$