

## Построение графиков функций в Excel:

### I. Построить в одной системе координат графики следующих функций:

1.  $Y = a\cos(x); Z = b \cos^2(2x)$ , при  $x \in [-2;2], \Delta x=0,2$
2.  $Y = a\sin(\pi x) - a \cos(\pi x); Z = \cos^2(2\pi x) - q\sin(\pi x)$ , при  $x \in [-1,8;2], \Delta x=0,25$
3.  $Y = a\sin(\pi x) - \cos(3\pi x); Z = \cos(2\pi x) - b\sin^3(\pi x)$ , при  $x \in [-3;3,4], \Delta x=0,8$
4.  $Y = q\sin(2\pi x)\cos(\pi x) - \cos^2(3\pi x); Z = q\cos^2(2\pi x) - \sin(3\pi x)$ , при  $x \in [-1,1], \Delta x=0,05$
5.  $Y = a\sin(\pi x)\cos(\pi x); Z = \cos^2(\pi x)\sin(s\pi x)$ , при  $x \in [0;4], \Delta x=0,4$
6.  $Y = s\sin(3\pi x)\cos(2\pi x); Z = \cos^3(q\pi x)\sin(\pi x)$ , при  $x \in [-3;0], \Delta x=0,3$
7.  $Y = a\sin(2\pi x)\cos(4\pi x); Z = \cos^2(b\pi x) - \cos(\pi x)\sin(\pi x)$ , при  $x \in [-3,3;0,9], \Delta x=0,3$
8.  $Y = \sin(j\pi x) + b\sin(2\pi x)\cos(3\pi x); Z = \cos(\pi x) - \cos(d\pi x)\sin^2(\pi x)$ , при  $x \in [0;2], \Delta x=0,1$
9.  $Y = \cos(a\pi x)\sin(\pi x) + q\sin(3\pi x)\cos(2\pi x); Z = \cos^2(\pi x) - \cos(a\pi x)$ , при  $x \in [0;3], \Delta x=0,2$
10.  $Y = f\sin(2\pi x)\cos(\pi x) + \sin(\pi x); Z = \cos(a\pi x)\sin^2(\pi x) - \cos(4\pi x)$ , при  $x \in [0;2], \Delta x=0,1$
11.  $Y = a\cos(x); Z = b \cos^2(2x)$ , при  $x \in [-2;2], \Delta x=0,2$
12.  $Y = a\sin(\pi x) - a \cos(\pi x); Z = \cos^2(2\pi x) - q\sin(\pi x)$ , при  $x \in [-1,8;2], \Delta x=0,25$
13.  $Y = a\sin(\pi x) - \cos(3\pi x); Z = \cos(2\pi x) - b\sin^3(\pi x)$ , при  $x \in [-3;3,4], \Delta x=0,8$
14.  $Y = q\sin(2\pi x)\cos(\pi x) - \cos^2(3\pi x); Z = q\cos^2(2\pi x) - \sin(3\pi x)$ , при  $x \in [-1,1], \Delta x=0,05$
15.  $Y = a\sin(\pi x)\cos(\pi x); Z = \cos^2(\pi x)\sin(s\pi x)$ , при  $x \in [0;4], \Delta x=0,4$
16.  $Y = s\sin(3\pi x)\cos(2\pi x); Z = \cos^3(q\pi x)\sin(\pi x)$ , при  $x \in [-3;0], \Delta x=0,3$
17.  $Y = a\sin(2\pi x)\cos(4\pi x); Z = \cos^2(b\pi x) - \cos(\pi x)\sin(\pi x)$ , при  $x \in [-3,3;0,9], \Delta x=0,3$
18.  $Y = \sin(j\pi x) + b\sin(2\pi x)\cos(3\pi x); Z = \cos(\pi x) - \cos(d\pi x)\sin^2(\pi x)$ , при  $x \in [0;2], \Delta x=0,1$
19.  $Y = \cos(a\pi x)\sin(\pi x) + q\sin(3\pi x)\cos(2\pi x); Z = \cos^2(\pi x) - \cos(a\pi x)$ , при  $x \in [0;3], \Delta x=0,2$
20.  $Y = f\sin(2\pi x)\cos(\pi x) + \sin(\pi x); Z = \cos(a\pi x)\sin^2(\pi x) - \cos(4\pi x)$ , при  $x \in [0;2], \Delta x=0,1$
21.  $Y = a\cos(x); Z = b \cos^2(2x)$ , при  $x \in [-2;2], \Delta x=0,2$
22.  $Y = a\sin(\pi x) - a \cos(\pi x); Z = \cos^2(2\pi x) - q\sin(\pi x)$ , при  $x \in [-1,8;2], \Delta x=0,25$
23.  $Y = a\sin(\pi x) - \cos(3\pi x); Z = \cos(2\pi x) - b\sin^3(\pi x)$ , при  $x \in [-3;3,4], \Delta x=0,8$
24.  $Y = q\sin(2\pi x)\cos(\pi x) - \cos^2(3\pi x); Z = q\cos^2(2\pi x) - \sin(3\pi x)$ , при  $x \in [-1,1], \Delta x=0,05$
25.  $Y = a\sin(\pi x)\cos(\pi x); Z = \cos^2(\pi x)\sin(s\pi x)$ , при  $x \in [0;4], \Delta x=0,4$
26.  $Y = s\sin(3\pi x)\cos(2\pi x); Z = \cos^3(q\pi x)\sin(\pi x)$ , при  $x \in [-3;0], \Delta x=0,3$
27.  $Y = a\sin(2\pi x)\cos(4\pi x); Z = \cos^2(b\pi x) - \cos(\pi x)\sin(\pi x)$ , при  $x \in [-3,3;0,9], \Delta x=0,3$
28.  $Y = \sin(j\pi x) + b\sin(2\pi x)\cos(3\pi x); Z = \cos(\pi x) - \cos(d\pi x)\sin^2(\pi x)$ , при  $x \in [0;2], \Delta x=0,1$
29.  $Y = \cos(a\pi x)\sin(\pi x) + q\sin(3\pi x)\cos(2\pi x); Z = \cos^2(\pi x) - \cos(a\pi x)$ , при  $x \in [0;3], \Delta x=0,2$
30.  $Y = f\sin(2\pi x)\cos(\pi x) + \sin(\pi x); Z = \cos(a\pi x)\sin^2(\pi x) - \cos(4\pi x)$ , при  $x \in [0;2], \Delta x=0,1$

*Значения параметров выбрать самостоятельно*

### II. Построить графики следующих функций:

$$11. Y = \begin{cases} \frac{\sin(x)e^{-2x}}{\sqrt{a}}, & x > 0 \\ \frac{d+x^2}{c+2x^2}, & x \leq 0 \end{cases}, \text{ при } x \in [-2;2], \Delta x=0,2$$

$$12. Y = \frac{2a + \sin^2(x)}{1 + x^2}, \text{ при } x \in [-2,4;4,2], \Delta x=0,6$$

$$13. Y = \frac{q + \cos x}{h + e^{2x}}, \text{ при } x \in [-1,5;1,5], \Delta x=0,1$$

$$14. Y = \frac{\sqrt[4]{a + e^{3x}}}{\sin ax}, \text{ при } x \in [0,1;1,8], \Delta x=0,1$$

$$15. Y = \begin{cases} \frac{\lg x - a}{\sqrt[3]{x}}, x > 0 \\ \frac{6 + \operatorname{arctg}^2 x}{b + \sqrt{2+x}}, x \leq 0 \end{cases}, \text{ при } x \in [-1,7;1,3], \Delta x=0,3$$

$$16. Y = \frac{c + xe^{-x}}{2 + x^2} \cdot \sin^2 x, \text{ при } x \in [-1,5;0,5], \Delta x=0,3$$

$$17. Z = \begin{cases} \frac{3x^2}{b + x^2}, x \leq 0 \\ \sqrt{1 + \frac{2x}{a}}, x > 0 \end{cases}, \text{ при } x \in [-2;1,4], \Delta x=0,2$$

$$18. G = \begin{cases} \frac{a + x^4}{\sqrt{q + x}}, x \leq 0 \\ 2x + \frac{\operatorname{tg} x}{2,2 + b}, x > 0 \end{cases}, \text{ при } x \in [-2;2], \Delta x=0,2$$

$$19. G = \begin{cases} 3^a \sin(x) - \cos^2(x), x \leq 0 \\ \frac{3\sqrt{1+x^2}}{a+b}, x > 0 \end{cases}, \text{ при } x \in [-2;2], \Delta x=0,1$$

$$20. Z = \begin{cases} \frac{3x^2}{b + x^2}, x \leq 0 \\ \sqrt{1 + \frac{2x}{a}}, x > 0 \end{cases}, \text{ при } x \in [-2;1,4], \Delta x=0,2$$

$$21. \mathbf{G} = \begin{cases} \sqrt[3]{a + \frac{x^2}{1+x^2}}, x < 0 \\ 2 \cos^2 x, x \in [0;1] \\ 1 + (2 \sin(3x)), x > 1 \end{cases}, \quad \text{при } x \in [-1,5;1,5], \Delta x=0,1$$

$$22. \mathbf{Y} = \begin{cases} \frac{b + \sin^2(2x)}{1 + \cos^2 x}, x \leq 0 \\ a\sqrt{1+2x}, x > 0 \end{cases}, \quad \text{при } x \in [-1,5;1,5], \Delta x=0,1$$

$$23. \mathbf{Z} = \begin{cases} |x|^{1/3}, x < 0 \\ -2x + \frac{a}{1+x}, x \in [0;1] \\ \frac{|3-x|}{1+b}, x \geq 1 \end{cases}, \quad \text{при } x \in [-1,8;1,8], \Delta x=0,1$$

$$24. \mathbf{Z} = \begin{cases} \sqrt{b + 2x^2 - \sin^2(x)}, x > 0 \\ \frac{2+x}{\sqrt[3]{2a + e^{-0,1x}}}, x \leq 0 \end{cases}, \quad \text{при } x \in [-2;1,8], \Delta x=0,2$$

$$25. \mathbf{Z} = \begin{cases} \sqrt{b+x^2}, x \leq 0 \\ \frac{1+a}{1 + \sqrt[3]{1+e^{-0,2x}}}, x > 0 \end{cases}, \quad \text{при } x \in [-1,8;1,8], \Delta x=0,2$$

$$26. \mathbf{Z} = \begin{cases} \sqrt{a+|x|}, x \leq 0 \\ \frac{1+3x}{2q + \sqrt[3]{1+x}}, x > 0 \end{cases}, \quad \text{при } x \in [-1,6;2,5], \Delta x=0,3$$

$$27. \mathbf{Z} = \begin{cases} \frac{\sqrt{1+|x|}}{2+b}, x \leq 0 \\ \frac{1+a}{2 + \cos^3 x}, x > 0 \end{cases}, \quad \text{при } x \in [-1,8;1,6], \Delta x=0,2$$

$$28. \mathbf{Z} = \begin{cases} \frac{|x|}{b+x^2} \cdot e^{-2x}, x < 0 \\ \sqrt{1+x^2}, x \in [0;1] \\ \frac{a + \sin x}{b+x} + 3x, x > 1 \end{cases}, \quad \text{при } x \in [-1,4;1,4], \Delta x=0,1$$

$$29. \mathbf{Y} = \begin{cases} \frac{b+x+x^2}{1+x^2}, x < 0 \\ \sqrt{d + \frac{2x}{1+x^2}}, x \in [0;1] \\ 2|0,5 + \sin x|, x > 1 \end{cases}, \text{ при } x \in [-1,5;1,9], \Delta x = 0,3$$

$$30. \mathbf{G} = \begin{cases} \sqrt{a+x} \\ 2b+|x| \\ \frac{a+x}{2+\cos^3 x} \end{cases}, \text{ при } x \in [-1,4;1,8], \Delta x = 0,2$$