**2016/2017**

**Určete definiční obory, obory hodnot a načrtněte grafy funkcí**

1. $f_1(x) = x^2 - 4x + 5,\ f_2(x) = 2 + (1-x)^2,\ f_3(x) = (3-2x)^2,\ f_4(x) = x^2 + 2x,$

2. $f_1(x) = \sin x,\ f_2(x) = \sin 2x,\ f_3(x) = 2\sin x,\ f_4(x) = 2 + \sin x,$

3. $f_1(x) = \operatorname{arccotg}(1+x),\ f_2(x) = \dfrac{\operatorname{arccotg} x}{2},\ f_3(x) = -\operatorname{arccotg}(-x),\ f_4(x) = 1 + \operatorname{arccotg} x,$

4. $f_1(x) = -\dfrac{1}{2-x},\ f_2(x) = \dfrac{x+1}{1-x},\ f_3(x) = 2 + \dfrac{1}{x+2},\ f_4(x) = 3 + \dfrac{1}{x-3},$

5. $f_1(x) = x^2 - 4x,\ f_2(x) = 1 - (2-x)^2,\ f_3(x) = 4 - x^2,\ f_4(x) = 2x - 1 - x^2,$

6. $f_1(x) = x^2,\ f_2(x) = 1 - x^2,\ f_3(x) = (1-x)^2,\ f_4(x) = x^2 + 2x + 2,$

7. $f_1(x) = \ln(x+2),\ f_2(x) = -\ln(x),\ f_3(x) = \ln(3-x),\ f_4(x) = \ln(-x),$

8. $f_1(x) = \arccos(2x+1),\ f_2(x) = \dfrac{\arccos(1-x)}{2},\ f_3(x) = \arccos\left(1 - \dfrac{x}{2}\right),\ f_4(x) = -2\arccos(x),$

9. $f_1(x) = \sqrt{x},\ f_2(x) = -\sqrt{x},\ f_3(x) = \sqrt{1-x},\ f_4(x) = 1 + \sqrt{x},$

10. $f_1(x) = \sqrt{-x},\ f_2(x) = 1 - \sqrt{x},\ f_3(x) = \sqrt{1-x},\ f_4(x) = 1 + \sqrt{x+1},$

11. $f_1(x) = x^2 - 4x + 3,\ f_2(x) = 3 - (2-x)^2,\ f_3(x) = (1-2x)^2,\ f_4(x) = 2x - x^2,$

12. $f_1(x) = 1 - \dfrac{1}{x},\ f_2(x) = \dfrac{1}{1-x},\ f_3(x) = \dfrac{x+1}{x+2},\ f_4(x) = 2 + \dfrac{1}{x-2},$

13. $f_1(x) = \mathrm{e}^{1-x},\ f_2(x) = \mathrm{e}^{x+2},\ f_3(x) = -\mathrm{e}^{x},\ f_4(x) = 3 + \mathrm{e}^{x},$

14. $f_1(x) = 2\arcsin(x+1),\ f_2(x) = \arcsin(2x),\ f_3(x) = -\arcsin\left(\dfrac{x}{2}\right),\ f_4(x) = 2 + \arcsin(x),$

15. $f_1(x) = -\arccos(1-3x),\ f_2(x) = 2\arccos(x+2),\ f_3(x) = \arccos\left(-\frac{x}{3}\right),\ f_4(x) = 2-\frac{\arccos(x)}{2},$

16. $f_1(x) = 1+\mathrm{e}^{1-x},\ f_2(x) = -\mathrm{e}^{x+2},\ f_3(x) = 2+\mathrm{e}^{-x},\ f_4(x) = 3\mathrm{e}^{x},$

17. $f_1(x) = 1+\arcsin(x+1),\ f_2(x) = \arcsin(1-x)-2,\ f_3(x) = -\arcsin(-x),\ f_4(x) = \arcsin(-x),$

18. $f_1(x) = \sqrt{x+2},\ f_2(x) = 2-\sqrt{x},\ f_3(x) = \sqrt{2-x},\ f_4(x) = 2+\sqrt{2-x},$

19. $f_1(x) = \sin -x,\ f_2(x) = 1+\sin\frac{x}{2},\ f_3(x) = 2-\sin x,\ f_4(x) = \frac{\sin x}{2},$

20. $f_1(x) = \cos(1-x),\ f_2(x) = 3-\cos 2x,\ f_3(x) = 3-2\cos x,\ f_4(x) = \frac{\cos x}{3},$

21. $f_1(x) = 1+\ln(x+1),\ f_2(x) = \ln(1-x)-2,\ f_3(x) = -\ln(-x),\ f_4(x) = \ln(-x),$

22. $f_1(x) = \sin(1-x),\ f_2(x) = 1-\sin\frac{x}{2},\ f_3(x) = 1-2\sin x,\ f_4(x) = 2+\frac{\sin x}{2},$

23. $f_1(x) = \operatorname{arctg}(1-x),\ f_2(x) = 2\operatorname{arctg} x,\ f_3(x) = 2+\operatorname{arctg}(-x),\ f_4(x) = 3-\operatorname{arctg} x,$

24. $f_1(x) = x^2-1,\ f_2(x) = 1-(2-x)^2,\ f_3(x) = (x+3)^2,\ f_4(x) = x^2+4x+4,$

25. $f_1(x) = \arcsin(2x+1),\ f_2(x) = \frac{\arcsin(1-x)}{2},\ f_3(x) = \arcsin\left(1-\frac{x}{2}\right),\ f_4(x) = -2\arcsin(x),$

26. $f_1(x) = \frac{1}{x},\ f_2(x) = \frac{1}{x+1},\ f_3(x) = \frac{x+1}{x},\ f_4(x) = 2-\frac{1}{x},$

**2016/2017**

**Určete definiční obory, obory hodnot a načrtněte grafy funkcí**

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