2016/2017

Pro funkci $f(x)$ určete Taylorův polynom stupně 3 v bodě a :

1. $f(x) = \dfrac{x^2}{\mathrm{e}^x}, \quad a = 0.$

2. $f(x) = \mathrm{e}^{x^2}, \quad a = 0.$

3. $f(x) = x^2 \ln(x-1), \quad a = 2.$

4. $f(x) = \cos\left(x - x^2\right), \quad a = 0.$

5. $f(x) = \sin\left(1 - x^2\right), \quad a = 1.$

6. $f(x) = \ln x, \quad a = 1.$

7. $f(x) = \dfrac{1-x}{x^2+1}, \quad a = 0.$

8. $f(x) = \dfrac{1-x}{x^2+1}, \quad a = -1.$

9. $f(x) = \sqrt{2 - x^2}, \quad a = 1.$

10. $f(x) = \mathrm{e}^{1-x^2}, \quad a = 1.$

11. $f(x) = \ln\left(1 + x^2\right), \quad a = 0.$

12. $f(x) = 6x \sin(x+1), \quad a = -1.$

13. $f(x) = (1-x)\ln(x+1), \quad a = 0.$

14. $f(x) = \mathrm{e}^x \cos x, \quad a = 0.$

15. $f(x) = \sqrt{x+1}, \quad a = 0.$

16. $f(x) = x\,\mathrm{e}^{2x}, \quad a = 0.$

17. $f(x) = x\,\mathrm{e}^{x-1}, \quad a = 1.$

18. $f(x) = x\,\mathrm{e}^{1-x}, \quad a = 1.$

19. $f(x) = \cos\left(x - x^2\right), \quad a = 1.$

20. $f(x) = \ln\sqrt{x^2+1}, \quad a = 0.$

21. $f(x) = \operatorname{arctg}\left(\mathrm{e}^x\right), \quad a = 0.$

22. $f(x) = \sin\left(1 - \mathrm{e}^x\right), \quad a = 0.$

23. $f(x) = x \ln\left(x^2\right), \quad a = -1.$

24. $f(x) = \operatorname{arctg}\left(1 - \mathrm{e}^x\right), \quad a = 0.$

25. $f(x) = \ln\left(4 - 3x^2\right), \quad a = 1.$

26. $f(x) = \sin\left(x^2\right), \quad a = 0.$

2016/2017

Pro funkci $f(x)$ určete Taylorův polynom stupně 3 v bodě a :

1. $t_3(x) = x^2 - x^3$

2. $t_3(x) = x^2 + 1$

3. $t_3(x) = \frac{1}{3}\left(x^3 - 8\right)$

4. $t_3(x) = x^3 - \frac{1}{2}x^2 + 1$

5. $t_3(x) = \frac{4x^3}{3} - 5x^2 + 4x - \frac{1}{3}$

6. $t_3(x) = \frac{1}{3}x^3 - \frac{3}{2}x^2 + 3x - \frac{11}{6}$

7. $t_3(x) = x^3 - x^2 - x + 1$

8. $t_3(x) = x - \frac{1}{4}\left(x^3 + 3x^2 + x - 5\right)$

9. $t_3(x) = -x^3 + 2x^2 - 2x + 2$

10. $t_3(x) = \frac{1}{3}\left(2x^3 - 3x^2 - 6x + 10\right)$

11. $t_3(x) = x^2$

12. $t_3(x) = x^3 + 9x^2 + 9x + 1$

13. $t_3(x) = \frac{1}{6}\left(5x^3 - 9x^2 + 6x\right)$

14. $t_3(x) = 1 + x - \frac{1}{3}x^3$

15. $t_3(x) = 1 + \frac{x}{2} - \frac{x^2}{8} + \frac{x^3}{16}$

16. $t_3(x) = 2x^3 + 2x^2 + x$

17. $t_3(x) = \frac{2x^3}{3} - \frac{x^2}{2} + x - \frac{1}{6}$

18. $t_3(x) = \frac{x^3}{3} - \frac{3x^2}{2} + 2x + \frac{1}{6}$

19. $t_3(x) = \frac{3}{2} - 2x + \frac{5}{2}x^2 - x^3$

20. $t_3(x) = \frac{1}{2}x^2$

21. $t_3(x) = \frac{\pi}{4} + \frac{x}{2} - \frac{x^3}{12}$

22. $t_3(x) = -x - \frac{1}{2}x^2$

23. $t_3(x) = -\frac{1}{3}\left(x^3 + 6x^2 + 3x - 2\right)$

24. $t_3(x) = \frac{x^3}{6} - \frac{x^2}{2} - x$

25. $t_3(x) = -90x^3 + 249x^2 - 234x + 75$

26. $t_3(x) = x^2$