# Derivace funkce

### Zadání

Určete definiční obory následujících funkcí a jejich derivace:

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### Řešení

1. $D\_{f}=\left(0, +\infty \right), y^{'}=x\sqrt[6]{x^{5}}$;
2. $D\_{f}=R-\left\{0\right\}, y^{'}=\frac{3\left(2x^{6}+1\right)}{x^{4}}$
3. $D\_{f}=\left(0, +\infty \right), y^{'}=\frac{\sqrt{x}\left(x-1\right)}{2x^{2}}$
4. $D\_{f}=R-\left\{2\right\}, y^{'}=\frac{4x\left(1-2x\right)}{\left(2-x\right)^{3}}$
5. $D\_{f}=R, y^{'}=-40x\left(1-5x^{2}\right)^{3}$
6. $D\_{f}=R, y^{'}=3\left(-2x+3\right)\left(1-x^{2}+3x\right)^{2}$
7. $D\_{f}=R-\left\{\frac{3}{2}\right\}, y^{'}=-6\left(2x-3\right)^{-4}$
8. $D\_{f}=\left(-\infty , \left.4\right〉∪\right.\left〈4, \left.+\infty \right)\right., y^{'}=\frac{2x\sqrt[3]{x^{2}-4}}{3\left(x^{2}-4\right)}$
9. $D\_{f}=\left(-\infty ,\frac{3}{2}\right), y^{'}=\frac{2\sqrt[3]{3-2x}}{\left(3-2x\right)^{2}}$
10. $D\_{f}=R, y^{'}=\frac{4x\sqrt[3]{\left(x^{2}+1\right)^{2}}}{3\left(x^{2}+1\right)}$
11. $D\_{f}=R-\bigcup\_{k\in Z}^{}\{\left(2k+1\right)\frac{π}{2}\}$, $y^{'}=\frac{3\left(tg^{2}x-1\right)}{cos^{2}x}$
12. $D\_{f}=R, y^{'}=\frac{1}{2}\left(\cos(x-\sin(x))\right)$
13. $D\_{f}=\left(-\frac{3}{2}, +\infty \right), y^{'}=\frac{2}{2x+3}$
14. $D\_{f}=R, y^{'}=\left(2x-3\right)e^{x^{2}-3x}$
15. $D\_{f}=\left(0, +\infty \right), y^{'}=\frac{9ln ^{2}\left(2x^{3}\right)}{x}$
16. $D\_{f}=\left〈0, \left.+\infty \right)\right., y^{'}=\frac{3}{2}\sqrt{x}∙e^{x\sqrt{x}}$