

Stencil N1 Vanlig derivering

Beräkna derivator av följande funktioner.

Välj funktioner av olika typer och lös gärna 25% av problem.

$$713. y = \frac{1}{\sqrt{1 + \sin^2 x}}$$

$$714. y = x^3 \operatorname{arctg} x^3.$$

$$715. y = \frac{\ln \sin x}{\ln \cos x}.$$

$$716. y = \arcsin x + \sqrt{1 - x^2}.$$

$$717. y = \frac{\arcsin 4x}{1 - 4x}.$$

$$718. y = e^{\frac{1}{\ln x}}.$$

$$719. y = \ln \frac{1 - e^x}{e^x}.$$

$$720. y = 10^{x \operatorname{tg} x}.$$

$$721. y = \sin^2 x \cdot \sin x^2.$$

$$722. y = \frac{2 \cos x}{\sqrt{\cos 2x}}.$$

$$723. y = x \sqrt{\frac{1-x}{1+x^2}}.$$

$$724. y = \frac{1}{4} \ln \frac{1+x}{1-x} - \frac{1}{2} \operatorname{arctg} x.$$

$$725. y = 2^{\frac{x}{\ln x}}. \quad 726. y = \sqrt{(a-x)(x-b)} - (a-b) \operatorname{arctg} \sqrt{\frac{a-x}{x-b}}.$$

$$727. y = \frac{\sin 3x}{2 \sin^2 x \cos x}.$$

$$728. y = e^{\sqrt{\frac{1-x}{1+x}}}.$$

$$729. y = \sqrt{a^2 - x^2} - a \arccos \frac{x}{a}.$$

$$730. y = \sqrt{x^2 + 1} - \ln \left(\frac{1}{x} + \sqrt{1 + \frac{1}{x^2}} \right).$$

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$$667. \frac{(1 + \sqrt[3]{x})^2}{\sqrt[3]{x^2}}.$$

$$668. \frac{a}{k \cos^2 \left(\frac{x}{k} + b \right)}.$$

$$669. \frac{p}{2 \sqrt{1 + \sqrt{2px}} \sqrt{2px}}.$$

$$670. \frac{2x - 3}{1 + (x^2 - 3x + 2)^2}.$$

$$671. \frac{1 + \sin x}{(x - \cos x) \ln 10}.$$

$$672. \frac{3}{2} \sin 2x (\cos x - 2).$$

$$673. \sec^2 \frac{x}{5}.$$

$$674. -\frac{1 + 2\sqrt{x}}{6\sqrt{x} \sqrt{(x + \sqrt{x})^4}}.$$

$$675. 2 \sin \frac{x}{2} \cos 2x + \frac{1}{2} \cos \frac{x}{2} \sin 2x. \quad 676. e^{\cos x} (\cos x - \sin^2 x).$$

$$677. \frac{x^4 (7x^6 - 40)}{\sqrt[3]{(x^6 - 8)^2}}. \quad 678. e^{-x^2} \left(\frac{1}{x} - 2x \ln x \right).$$

$$679. \frac{5(x-1)}{x\sqrt{x}} \left(\sqrt{x} + \frac{1}{\sqrt{x}} \right)^3. \quad 680. -\frac{1}{1+x^2}. \quad 681. 2x^2 e^{2x+3}.$$

$$682. \frac{2 \sin 2x}{\cos^3 2x}. \quad 683. \frac{1+x^2}{1+x^2+x^4}. \quad 684. -\frac{2(x \cos x + \sin x)}{x^2 \sin^2 x}.$$

$$685. \frac{1}{3} \operatorname{ctg} \frac{x}{2} \sin \frac{2x}{3} - \frac{1}{2} \sin^2 \frac{x}{3} \operatorname{cosec}^2 \frac{x}{2}. \quad 686. -\frac{4(31x^5 + 18)}{27x^5 \sqrt{(4x^5 + 2)^4}}.$$

$$687. \frac{1}{\sqrt{x^2 + a^2}}. \quad 688. \operatorname{arctg} \sqrt{x} + \frac{\sqrt{x}}{2(1+x)}.$$

$$689. \frac{\operatorname{tg} x (1 + 2 \operatorname{tg}^2 x)}{\cos^2 x \sqrt{1 + \operatorname{tg}^2 x + \operatorname{tg}^4 x}}. \quad 690. \frac{\cos 2x}{x} - 2 \sin 2x \ln x.$$

$$691. \frac{1+x^4}{1+x^6}. \quad 692. \frac{n \cos x}{\sqrt{1 - n^2 \sin^2 x}}. \quad 693. \frac{\cos x}{2 \sqrt{\sin x - \sin^2 x}}.$$

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694. $\sin^5 3x \cos^3 3x$. 695. $\frac{x \arcsin x}{\sqrt{1-x^2}}$. 696. $-\frac{1}{2} \sin \frac{\arcsin x}{2} \frac{1}{\sqrt{1-x^2}}$.
697. $\frac{1+2\sqrt{x}+4\sqrt{x}\sqrt{x+\sqrt{x}}}{8\sqrt{x}\sqrt{x+\sqrt{x}}\sqrt{x+\sqrt{x+\sqrt{x}}}}$. 698. $\frac{3}{2\sqrt{3x-9x^2}}$.
699. $\frac{\ln x - 2}{x^2} \sin \left[2 \left(\frac{1 - \ln x}{x} \right) \right]$. 700. $\frac{2x - \cos x}{(x^2 - \sin x) \ln 3}$.
701. $-\frac{1}{2\sqrt{1-x^2}}$. 702. $-\frac{1}{x\sqrt{1-x^2}(x+\sqrt{1-x^2})}$.
703. $\arcsin(\ln x) + \frac{1}{\sqrt{1-\ln^2 x}}$. 704. $-\frac{2e^x}{(1+e^x)^2} \sec^2 \left(\frac{1-e^x}{1+e^x} \right)$.
705. $-\frac{2 \sin^3 x}{\sqrt{1+\sin^3 x}}$.
706. $-0,8 \left(\cos \frac{2x+1}{2} - \sin 0,8x \right) \left(\sin \frac{2x+1}{2} + 0,8 \cos 0,8x \right)$.
707. $10^{\sqrt{x}} \left(1 + \frac{\sqrt{x}}{2} \ln 10 \right)$. 708. $-\frac{4}{\operatorname{tg} 2x \sin^2 2x}$.
709. $-\frac{1}{(x^2+2x+2) \operatorname{arctg} \frac{1}{1+x}}$. 710. $-\frac{1}{\sqrt{x^2-1}}$.
711. $\frac{x+2}{2\sqrt{x+3} \sqrt[3]{(1+x\sqrt{x+3})^3}}$. 712. $\frac{x(8+9\sqrt{x})}{4\sqrt{1+\sqrt{x}}}$.
713. $-\frac{\sin 2x}{2\sqrt{(1+\sin^3 x)^3}}$. 714. $3x^2 \operatorname{arctg} x^3 + \frac{3x^5}{1+x^6}$.
715. $\frac{\operatorname{ctg} x \ln \cos x + \operatorname{tg} x \ln \sin x}{\ln^2 \cos x}$. 716. $\sqrt{\frac{1-x}{1+x}}$.
717. $\frac{4}{(1-4x)^2} \left(\sqrt{\frac{1-4x}{1+4x}} + \arcsin 4x \right)$. 718. $-\frac{e^{\frac{1}{\ln x}}}{x \ln^2 x}$. 719. $\frac{1}{e^x - 1}$.
720. $10^{x \operatorname{tg} x} \ln 10 \left(\operatorname{tg} x + \frac{x}{\cos^3 x} \right)$.
721. $2 \sin x (x \sin x \cos x^3 + \cos x \sin x^3)$. 722. $\frac{2 \sin x}{\cos 2x \sqrt{\cos 2x}}$.
723. $\frac{2-3x-x^3}{2(1-x)(1+x^2)} \sqrt{\frac{1-x}{1+x^2}}$. 724. $\frac{x^2}{1-x^4}$. 725. $2^{\frac{x}{\ln x}} \frac{\ln x - 1}{\ln^2 x} \ln 2$.
726. $\sqrt{\frac{a-x}{x-b}}$. 727. $-\frac{2(2\cos^3 x + 1)}{\sin^3 2x}$. 728. $-\frac{1}{(1+x)\sqrt{1-x^2}} e^{\sqrt{\frac{1-x}{1+x}}}$.
729. $\sqrt{\frac{a-x}{a+x}}$. 730. $\frac{\sqrt{x^2+1}}{x}$.