Sympy vs Sage integration routines

Legend:

- Disgraceful failure
- Timeout or manual interupt
- Return an unevalued integral
- Asking for assumptions
- Solution with fancy special functions

Integrant	Sympy `integrate` Result	cpu time	Sage `indefinite_integral` Result	cpu time	Comments
x	x**2/2	0	1/2*x^2	0	
a*x**n	a*x**(n + 1)/(n + 1)	0	a*x^(n + 1)/(n + 1)	0	Sage asks whether the denominator is zero before solving.
a*x**n + 1	a*x**(n + 1)/(n + 1) + x	0	a*x^(n + 1)/(n + 1) + x	0	Sage asks whether the denominator is zero before solving.
a*x**b + 1	a*x**(b + 1)/(b + 1) + x	0	a*x^(b + 1)/(b + 1) + x	0	Sage asks whether the denominator is zero before solving.
1/x	log(x)	0	log(x)	0	
1/(x + 1)	log(x + 1)	0	log(x + 1)	0	
1/(x**2 + 1)	atan(x)	0	arctan(x)	0	
1/(x**3 + 1)	log(x + 1)/3 - log(x**2 - x + 1)/6 + sqrt(3)*atan(2*sqrt(3)*x/3 - sqrt(3)/3)/3	0	1/3*sqrt(3)*arctan(1/3*(2*x - 1)*sqrt(3)) + 1/3*log(x + 1) - 1/6*log(x^2 - x + 1)	0	
x**(-n)/a	x**(-n + 1)/(a*(-n + 1))	0	-x^(-n + 1)/((n - 1)*a)	0	Sage asks whether the denominator is zero before solving.
1/(a*x**n + 1)	x*gamma(1/n)*lerchphi(a*x**n*exp_polar(I*pi), 1, 1/n)/(n**2*gamma(1 + 1/n))	2	integrate(1/(x^n*a + 1), x)	1	Sympy solves with special functions an integral that Sage cannot solve.

1/(a*x**b + 1)	x*gamma(1/b)*lerchphi(a*x**b*exp_polar(I*pi), 1, 1/b)/(b**2*gamma(1 + 1/b))	1	integrate(1/(x^b*a + 1), x)	1	Sympy solves with special functions an integral that Sage cannot solve.
a*x**2/(b*x**2 + 1)	a*(sqrt(-1/b**3)*log(-b*sqrt(-1/b**3) + x)/2 - sqrt(-1/b**3)*log(b*sqrt(-1/b**3) + x)/2 + x/b)	0	(x/b - arctan(sqrt(b)*x)/b^(3/2))*a	0	
a*x**3/(b*x**3 + 1)	a*(RootSum(_t**3 + 1/(27*b**4), Lambda(_t, _t*log(-3*_t*b + x))) + x/b)	0	-1/6*(2*sqrt(3)*arctan(1/3*(2*b^(2/3)*x - b^(1/3))*sqrt(3)/b^(1/3))/b^(4/3) - 6*x/b - log(b^(2/3)*x^2 - b^(1/3)*x + 1)/b^(4/3) + 2*log((b^(1/3)*x + 1)/b^(1/3))/b^(4/3))*a	0	Interesting examples deserving more study as Sympy uses the sum of the roots of a high order polynomial while Sage uses elementary special functions.
a*x**n/(b*x**m + 1)	a*(n*x*x**n*gamma(n/m + 1/m)*lerchphi(b*x**m*exp_polar(I*pi), 1, n/m + 1/m)/(m**2*gamma(1 + n/m + 1/m)) + x*x**n*gamma(n/m + 1/m)*lerchphi(b*x**m*exp_polar(I*pi), 1, n/m + 1/m)/(m**2*gamma(1 + n/m + 1/m)))	3	(m*integrate(x^n/((m - n - 1)*b^2*x^(2*m) + 2*(m - n - 1)*x^m*b + m - n - 1), x) - x^(n + 1)/((m - n - 1)*x^m*b + m - n - 1))*a	0	Sympy solves with special functions an integral that Sage cannot solve.
(a*x**2 + 1)/(b*x**2 + 1)	a*x/b + sqrt((-a**2 + 2*a*b - b**2)/b**3)*log(-b*sqrt((-a**2 + 2*a*b - b**2)/b**3)/(a - b) + x)/2 - sqrt((-a**2 + 2*a*b - b**2)/b**3)*log(b*sqrt((-a**2 + 2*a*b - b**2)/b**3)/(a - b) + x)/2	0	a*x/b - (a - b)*arctan(sqrt(b)*x)/b^(3/2)	0	Sage symplifies better (log-to-trig formulas).
(a*x**3 + 1)/(b*x**3 + 1)	a*x/b + RootSum(_t**3 + (a**3 - 3*a**2*b + 3*a*b**2 - b**3)/(27*b**4), Lambda(_t, _t*log(-3*_t*b/(a - b) + x)))	0	a*x/b - 1/3*(a*b - b^2)*sqrt(3)*arctan(1/3*(2*b^(2/3)*x - b^(1/3))*sqrt(3)/b^(1/3))/b^(7/3) + 1/6*(a*b^(2/3) - b^(5/3))*log(b^(2/3)*x^2 - b^(1/3)*x + 1)/b^2 - 1/3*(a*b^(2/3) - b^(5/3))*log((b^(1/3)*x + 1)/b^(1/3))/b^2	0	Interesting examples deserving more study as Sympy uses the sum of the roots of a high order polynomial while Sage uses elementary special functions.
(a*x**n + 1)/(b*x**m + 1)	a*(n*x*x**n*gamma(n/m + 1/m)*lerchphi(b*x**m*exp_polar(I*pi), 1, n/m + 1/m)/(m**2*gamma(1 + n/m + 1/m)) + x*x**n*gamma(n/m + 1/m)*lerchphi(b*x**m*exp_polar(I*pi), 1, n/m + 1/m)/(m**2*gamma(1 + n/m + 1/m))) + x*gamma(1/m)*lerchphi(b*x**m*exp_polar(I*pi), 1, 1/m)/(m**2*gamma(1 + 1/m))	5	a*m*integrate(x^n/((m - n - 1)*b^2*x^(2*m) + 2*(m - n - 1)*x^m*b + m - n - 1), x) - a*x^(n + 1)/((m - n - 1)*x^m*b + m - n - 1) + integrate(1/(x^m*b + 1), x)	1	Sympy solves with special functions an integral that Sage cannot solve.

(a*x**5 + x**3 + 1)/(b*x**5 + x**3 + 1)	a*x/b + RootSum(_t**5 + _t**3*(500*a**2*b**3 + 27*a**2 - 1000*a*b**4 - 54*a*b + 500*b**5 + 27*b**2)/(3125*b**6 + 108*b**3) + _t**2*(27*a**3 - 81*a**2*b + 81*a*b**2 - 27*b**3)/(3125*b**6 + 108*b**3) + _t*(9*a**4 - 36*a**3*b + 54*a**2*b**2 - 36*a*b**3 + 9*b**4)/(3125*b**6 + 108*b**3) + (a**5 - 5*a**4*b + 10*a**3*b**2 - 10*a**2*b**3 + 5*a*b**4 - b**5)/(3125*b**6 + 108*b**3), Lambda(_t, _t*log(x + (3662109375*_t**4*b**12 + 3986718750*_t**4*b**9 + 242757000*_t**4*b**6 + 3779136*_t**4*b**3 - 1054687500*_t**3*a*b**9 - 72900000*_t**3*a*b**6 - 1259712*_t**3*a*b**3 + 1054687500*_t**3*b**10 + 72900000*_t**3*b**7 + 1259712*_t**3*b**4 + 410156250*_t**2*a**2*b**9 + 655340625*_t**2*a**2*b**6 + 51267654*_t**2*a**2*b**3 + 944784*_t**2*a**2 - 820312500*_t**2*a*b**10 - 1310681250*_t**2*a*b**7 - 102535308*_t**2*a*b**4 - 1889568*_t**2*a*b + 410156250*_t**2*b**11 + 655340625*_t**2*b**8 + 51267654*_t**2*b**5 + 944784*_t**2*b**2 - 48828125*_t*a**3*b**9 - 186046875*_t*a**3*b**6 + 16774290*_t*a**3*b**3 + 629856*_t*a**3 + 146484375*_t*a**2*b**10 + 558140625*_t*a**2*b**7 - 50322870*_t*a**2*b**4 - 1889568*_t*a**2*b - 146484375*_t*a*b**11 - 558140625*_t*a*b**8 + 50322870*_t*a*b**5 + 1889568*_t*a*b**2 + 48828125*_t*b**12 + 186046875*_t*b**9 - 16774290*_t*b**6 - 629856*_t*b**3 - 2812500*a**4*b**6 + 3596400*a**4*b**3 + 104976*a**4 + 11250000*a**3*b**7 - 14385600*a**3*b**4 - 419904*a**3*b - 16875000*a**2*b**8 + 21578400*a**2*b**5 + 629856*a**2*b**2 + 11250000*a*b**9 - 14385600*a*b**6 - 419904*a*b**3 - 2812500*b**10 + 3596400*b**7 + 104976*b**4)/(9765625*a**4*b**8 + 26493750*a**4*b**5 + 746496*a**4*b**2 - 39062500*a**3*b**9 - 105975000*a**3*b**6 - 2985984*a**3*b**3 + 58593750*a**2*b**10 + 158962500*a**2*b**7 + 4478976*a**2*b**4 - 39062500*a*b**11 - 105975000*a*b**8 - 2985984*a*b**5 + 9765625*b**12 + 26493750*b**9 + 746496*b**6))))	106	-(a - b)*integrate((x^3 + 1)/(b*x^5 + x^3 + 1), x)/b + a*x/b	0	Sympy solves with special functions an integral that Sage cannot solve.
sqrt(1/x)	2*x*sqrt(1/x)	0	2*x*sqrt(1/x)	0	
sqrt(1/(x + 1))	2*x*sqrt(1/(x + 1)) + 2*sqrt(1/(x + 1))	0	2/sqrt(1/(x + 1))	0	
sqrt(1/(x**2 + 1))	Integral(sqrt(1/(x**2 + 1)), x)	0	arcsinh(x)	0	Sympy cannot solve this simple integral while Sage can.
sqrt(1/(x**3 + 1))	Integral(sqrt(1/(x**3 + 1)), x)	3	integrate(sqrt(1/(x^3 + 1)), x)	0	

sqrt(x**(-n)/a)	-2*x*sqrt(1/a)*sqrt(x**(-n))/(n - 2)	0	-2*x*sqrt(x^(-n)/a)/(n-2)	0	Sage asks whether the denominator is zero before solving.
sqrt(1/(a*x**n + 1))	Integral(sqrt(1/(a*x**n + 1)), x)	29	integrate(sqrt(1/(x^n*a + 1)), x)	0	When both Sage and Sympy fail, Sage is quicker.
sqrt(1/(a*x**b + 1))	Integral(sqrt(1/(a*x**b + 1)), x)	35	integrate(sqrt(1/(x^b*a + 1)), x)	1	When both Sage and Sympy fail, Sage is quicker.
sqrt(a*x**2/(b*x**2 + 1))	sqrt(a)*x*sqrt(x**2)*sqrt(1/(b*x**2 + 1)) + sqrt(a)*sqrt(x**2)*sqrt(1/(b*x**2 + 1))/(b*x)	2	(sqrt(a)*b*x^2 + sqrt(a))/(sqrt(b*x^2 + 1)*b)	0	
sqrt(a*x**3/(b*x**3 + 1))	Integral(sqrt(a*x**3/(b*x**3 + 1)), x)	7	integrate(sqrt(a*x^3/(b*x^3 + 1)), x)	0	
sqrt(a*x**n/(b*x**m + 1))	Timeout	115	integrate(sqrt(x^n*a/(x^m*b + 1)), x)	1	When both Sage and Sympy fail, Sage is quicker.
sqrt((a*x**2 + 1)/(b*x**2 + 1))	Timeout	110	integrate(sqrt((a*x^2 + 1)/(b*x^2 + 1)), x)	0	When both Sage and Sympy fail, Sage is quicker.
sqrt((a*x**3 + 1)/(b*x**3 + 1))	Timeout	109	integrate(sqrt((a*x^3 + 1)/(b*x^3 + 1)), x)	0	When both Sage and Sympy fail, Sage is quicker.
sqrt((a*x**n + 1)/(b*x**m + 1))	Timeout	114	integrate(sqrt((x^n*a + 1)/(x^m*b + 1)), x)	1	When both Sage and Sympy fail, Sage is quicker.
sqrt((a*x**5 + x**3 + 1)/(b*x**5 + x**3 + 1))	Timeout	104	integrate(sqrt((a*x^5 + x^3 + 1)/(b*x^5 + x^3 + 1)), x)	0	When both Sage and Sympy fail, Sage is quicker.
log(x)	x*log(x) - x	0	x*log(x) - x	0	
log(1/x)	-x*log(x) + x	0	-x*log(x) + x	0	
log(1/(x + 1))	-x*log(x + 1) + x - log(x + 1)	0	-(x + 1)*log(x + 1) + x + 1	0	
log(1/(x**2 + 1))	-x*log(x**2 + 1) + 2*x - 2*I*log(x + I) + I*log(x**2 + 1)	2	-x*log(x^2 + 1) + 2*x - 2*arctan(x)	0	
log(1/(x**3 + 1))	-x*log(x**3 + 1) + 3*x - 3*log(x + 1)/2 + sqrt(3)*I*log(x + 1)/2 + log(x**3 + 1)/2 - sqrt(3)*I*log(x**3 + 1)/2 + sqrt(3)*I*log(x - 1/2 - sqrt(3)*I/2)	6	-x*log(x^3 + 1) - sqrt(3)*arctan(1/3*(2*x - 1)*sqrt(3)) + 3*x - log(x + 1) + 1/2*log(x^2 - x + 1)	0	
log(x**(-n)/a)	-n*x*log(x) + n*x - x*log(a)	0	n*x + x*log(x^(-n)/a)	0	

log(1/(a*x**n + 1))	Integral(log(1/(a*x**n + 1)), x)	68	n*x - n*integrate(1/(a*e^(n*log(x)) + 1), x) - x*log(x^n*a + 1)	1	When both Sage and Sympy fail, Sage is quicker.
log(1/(a*x**b + 1))	Timeout	91	b*x - b*integrate(1/(a*e^(b*log(x)) + 1), x) - x*log(a*e^(b*log(x)) + 1)	2	When both Sage and Sympy fail, Sage is quicker.
log(a*x**2/(b*x**2 + 1))	x*log(a) + 2*x*log(x) - x*log(b*x**2 + 1) + 2*I*log(x - I*sqrt(1/b))/(b*sqrt(1/b)) - I*log(b*x**2 + 1)/(b*sqrt(1/b))	10	x*log(a*x^2/(b*x^2 + 1)) - 2*arctan(sqrt(b)*x)/sqrt(b)	0	
log(a*x**3/(b*x**3 + 1))	-216*b**4*x**6*(1/b)**(7/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 216*(-1)**(2/3)*b**4*x**6*(1/b)**(7/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 72*(-1)**(1/6)*sqrt(3)*b**4*x**6*(1/b)**(7/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 72*sqrt(3)*I*b**4*x**6*(1/b)**(7/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 588*b**2*x**5*(1/b)**(2/3)*log(a)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 1764*b**2*x**5*(1/b)**(2/3)*log(x)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 588*b**2*x**5*(1/b)**(2/3)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 630*b**2*x**5*(1/b)**(2/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 420*(-1)**(5/6)*sqrt(3)*b**2*x**5*(1/b)**(2/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 210*sqrt(3)*I*b**2*x**5*(1/b)**(2/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 981*b**2*x**3*(1/b)**(4/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 981*(-1)**(2/3)*b**2*x**3*(1/b)**(4/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 327*(-1)**(1/6)*sqrt(3)*b**2*x**3*(1/b)**(4/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 327*sqrt(3)*I*b**2*x**3*(1/b)**(4/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 135*b**2*(1/b)**(7/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 135*(-1)**(2/3)*b**2*(1/b)**(7/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 45*(-1)**(1/6)*sqrt(3)*b**2*(1/b)**(7/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 45*sqrt(3)*I*b**2*(1/b)**(7/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 147*(-1)**(2/3)*b*x**4*log(a)**2/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 49*(-1)**(1/6)*sqrt(3)*b*x**4*log(a)**2/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 49*(-1)**(5/6)*sqrt(3)*b*x**4*log(a)**2/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 147*(-1)**(1/3)*b*x**4*log(a)**2/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 882*(-1)**(2/3)*b*x**4*log(a)*log(x)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 294*(-1)**	26	x*log(a*x^3/(b*x^3 + 1)) - 1/2*(2*sqrt(3)*a*arctan(1/3*(2*b^(2/3)*x - b^(1/3))*sqrt(3)/b^(1/3))/b^(1/3) - a*log(b^(2/3)*x^2 - b^(1/3)*x + 1)/b^(1/3) + 2*a*log((b^(1/3)*x + 1)/b^(1/3))/b^(1/3))/a	0	Sage simplifies better.

	(1/6)*sqrt(3)*b*x**4*log(a)*log(x) /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 294*(-1)** (5/6)*sqrt(3)*b*x**4*log(a)*log(x) /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 882*(-1)**(1/3)*b*x**4*log(a)*log(x) /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) - 294*(-1)**(1/3)*b*x**4*log(a)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x* (1/b)**(2/3)) - 98*(-1)** (5/6)*sqrt(3)*b*x**4*log(a)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 98*(-1)** (1/6)*sqrt(3)*b*x**4*log(a)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 294*(-1)**(2/3)*b*x**4*log(a)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x* (1/b)**(2/3)) + 588*(-1)**(2/3)*b*x**4*log(a) /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) - 1323*(-1)**(2/3)*b*x**4*log(x)**2 /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) - 441*(-1)**(1/6)*sqrt(3)*b*x**4*log(x)**2 /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 441*(-1)**(5/6)*sqrt(3)*b*x**4*log(x)**2 /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 1323*(-1)**(1/3)*b*x**4*log(x)**2 /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) - 882*(-1)**(1/3)*b*x**4*log(x)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x* (1/b)**(2/3)) - 294*(-1)** (5/6)*sqrt(3)*b*x**4*log(x)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 294*(-1)** (1/6)*sqrt(3)*b*x**4*log(x)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 882*(-1)**(2/3)*b*x**4*log(x)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x* (1/b)**(2/3)) - 882*(-1)**(1/3)*b*x**4*log(x) /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) - 294*(-1)**(5/6)*sqrt(3)*b*x**4*log(x) /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 294*(-1)**(1/6)*sqrt(3)*b*x**4*log(x) /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 882*(-1)**(2/3)*b*x**4*log(x) /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) + 294*(-1)**(5/6)*sqrt(3)*b*x**4*log(x - (-1)**(1/3)*(1/b)**(1/3))/(588*b**2*x**4* (1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 882*(-1)** (1/3)*b*x**4*log(x - (-1)**(1/3)*(1/b)**(1/3)) /(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)** (2/3)) - 147*(-1)**(2/3)*b*x**4*log(b*x**3 + 1)**2/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x* (1/b)**(2/3)) - 49*(-1)** (1/6)*sqrt(3)*b*x**4*log(b*x**3 + 1)**2/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x* (1/b)**(2/3)) + 49*(-1)** (5/6)*sqrt(3)*b*x**4*log(b*x**3 + 1)**2/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x* (1/b)**(2/3)) + 147*(-1)**(1/3)*b*x**4*log(b*x**3 + 1)**2/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x* (1/b)**(2/3)) - 588*(-1)**(2/3)*b*x**4*log(b*x**3		

	+ 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 294*(-1)**(1/6)*sqrt(3)*b*x**4*log(x - (-1)**(1/3)*sqrt(3)*I*(1/b)**(1/3)/2 + (-1)**(1/3)*(1/b)**(1/3)/2)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 882*(-1)**(2/3)*b*x**4*log(x - (-1)**(1/3)*sqrt(3)*I*(1/b)**(1/3)/2 + (-1)**(1/3)*(1/b)**(1/3)/2)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 294*(-1)**(2/3)*b*x**4/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 98*(-1)**(1/6)*sqrt(3)*b*x**4/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 98*(-1)**(5/6)*sqrt(3)*b*x**4/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 294*(-1)**(1/3)*b*x**4/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 588*b*x**2*(1/b)**(2/3)*log(a)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 1764*b*x**2*(1/b)**(2/3)*log(x)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 588*b*x**2*(1/b)**(2/3)*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 945*b*x**2*(1/b)**(2/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 630*(-1)**(5/6)*sqrt(3)*b*x**2*(1/b)**(2/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 315*sqrt(3)*I*b*x**2*(1/b)**(2/3)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 98*(-1)**(1/6)*sqrt(3)*x*log(a)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 98*(-1)**(5/6)*sqrt(3)*x*log(a)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 294*(-1)**(2/3)*x*log(a)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 294*(-1)**(1/3)*x*log(a)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 294*(-1)**(5/6)*sqrt(3)*x*log(x - (-1)**(1/3)*(1/b)**(1/3))/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 882*(-1)**(1/3)*x*log(x - (-1)**(1/3)*(1/b)**(1/3))/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 294*(-1)**(1/3)*x*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 294*(-1)**(2/3)*x*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 98*(-1)**(5/6)*sqrt(3)*x*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 98*(-1)**(1/6)*sqrt(3)*x*log(b*x**3 + 1)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) - 294*(-1)**(1/6)*sqrt(3)*x*log(x - (-1)**(1/3)*sqrt(3)*I*(1/b)**(1/3)/2 + (-1)**(1/3)*(1/b)**(1/3)/2)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3)) + 882*(-1)**(2/3)*x*log(x - (-1)**(1/3)*sqrt(3)*I*(1/b)**(1/3)/2 + (-1)**(1/3)*(1/b)**(1/3)/2)/(588*b**2*x**4*(1/b)**(2/3) + 588*b*x*(1/b)**(2/3))				
log(a*x**n/(b*x**m + 1))	Timeout	96	(m - n + log(a))*x - m*integrate(1/(b*e^(m*log(x)) + 1), x) - x*log(x^m*b + 1) + x*log(x^n)	2	When both Sage and Sympy fail, Sage is quicker.

log((a*x**2 + 1)/(b*x**2 + 1))	Integral(log((a*x**2 + 1)/(b*x**2 + 1)), x)	72	x*log((a*x^2 + 1)/(b*x^2 + 1)) + 2*arctan(sqrt(a)*x)/sqrt(a) - 2*arctan(sqrt(b)*x)/sqrt(b)	0	Sage asks whether `a` and `b` are positive and then returns an answer. Sympy fails irrespective of the assumptions.
log((a*x**3 + 1)/(b*x**3 + 1))	Timeout	89	x*log((a*x^3 + 1)/(b*x^3 + 1)) + sqrt(3)*arctan(1/3*(2*a^(2/3)*x - a^(1/3))*sqrt(3)/a^(1/3))/a^(1/3) - sqrt(3)*arctan(1/3*(2*b^(2/3)*x - b^(1/3))*sqrt(3)/b^(1/3)) /b^(1/3) - 1/2*log(a^(2/3)*x^2 - a^(1/3)*x + 1)/a^(1/3) + log((a^(1/3)*x + 1)/a^(1 /3))/a^(1/3) + 1/2*log(b^(2 /3)*x^2 - b^(1/3)*x + 1)/b^(1/3) - log((b^(1/3)*x + 1)/b^(1 /3))/b^(1/3)	0	Sage asks whether `a` and `b` are positive and then returns an answer. Sympy fails irrespective of the assumptions.
log((a*x**n + 1)/(b*x**m + 1))	Timeout	89	(m - n)*x - m*integrate(1/(b*e^(m*log(x)) + 1), x) + n*integrate(1/(x^n*a + 1), x) - x*log(x^m*b + 1) + x*log(x^n*a + 1)	4	When both Sage and Sympy fail, Sage is quicker.
log((a*x**5 + x**3 + 1)/(b*x**5 + x**3 + 1))	Integral(log((a*x**5 + x**3 + 1)/(b*x**5 + x**3 + 1)), x)	42	-x*log(b*x^5 + x^3 + 1) + x*log(a*x^5 + x^3 + 1) - integrate((2*x^3 + 5)/(b*x^5 + x^3 + 1), x) + integrate((2*x^3 + 5)/(a*x^5 + x^3 + 1), x)	1	When both Sage and Sympy fail, Sage is quicker.
sin(x)	-cos(x)	0	-cos(x)	0	
sin(x)**n*cos(x)**m	Timeout	102	No result	110	Disgraceful failure by Sage.
sin(a*x)**n*cos(b*x)**m	Timeout	81	No result	112	Disgraceful failure by Sage.
1/sin(x)	log(cos(x) - 1)/2 - log(cos(x) + 1)/2	0	1/2*log(cos(x) - 1) - 1/2*log(cos(x) + 1)	0	
1/(sin(x) + 1)	-2/(tan(x/2) + 1)	1	-2/(sin(x)/(cos(x) + 1) + 1)	0	
1/(sin(x)**2 + 1)	Timeout	96	1/2*sqrt(2)*arctan(sqrt(2)*tan(x))	0	Sage simply beats Sympy.
1/(sin(x)**3 + 1)	Timeout	87	Maxima: `quotient' by `zero'	78	Disgraceful failure by Sage.
sin(x)**(-n)/a	Integral(sin(x)**(-n)/a, x)	36	No result	227	Disgraceful failure by Sage.
1/(a*sin(x)**n + 1)	Timeout	98	Maxima: expt: undefined: 0 to a negative exponent.	1	Disgraceful failure by Sage.

1/(a*sin(x)**b + 1)	Timeout	83	No result	140	Disgraceful failure by Sage.
a*sin(x)**2/(b*sin(x)**2 + 1)	Timeout	93	(x/b - arctan(sqrt(b + 1)*tan(x))/(sqrt(b + 1)*b))*a	0	Sage simply beats Sympy.
a*sin(x)**3/(b*sin(x)**3 + 1)	Timeout	82	No result	568	Disgraceful failure by Sage.
a*sin(x)**n/(b*sin(x)**m + 1)	Integral(a*sin(x)**n/(b*sin(x)**m + 1), x)	24	Manual Interupt	1527	Both Sage and Sympy fail, however Sympy is quicker.
(a*sin(x)**2 + 1)/(b*sin(x)**2 + 1)	Timeout	98	a*x/b - (a - b)*arctan(sqrt(b + 1)*tan(x))/(sqrt(b + 1)*b)	0	Sage simply beats Sympy.
(a*sin(x)**3 + 1)/(b*sin(x)**3 + 1)	Timeout	96	Manual Interupt	203	
(a*sin(x)**n + 1)/(b*sin(x)**m + 1)	Timeout	83	Maxima: expt: undefined: 0 to a negative exponent.	1	Disgraceful failure by Sage.
(a*sin(x)**5 + sin(x)**3 + 1)/(b*sin(x)**5 + sin(x)**3 + 1)	Timeout	89	Manual Interupt	142	