

17, 29,

$$\textcircled{17} \int \frac{a+bx^2}{\sqrt{3ax+bx^3}} dx$$

$$u = 3ax + bx^3$$

$$du = 3a dx + 3bx^2 dx$$

$$\frac{du}{3} = \frac{(3a + 3bx^2) dx}{3}$$

$$\frac{1}{3} \int \frac{1}{\sqrt{u}} du$$

$$\frac{1}{3} \int u^{-1/2} du$$

$$\frac{1}{3} \cdot \frac{2}{1} u^{1/2} = \frac{2}{3} u^{1/2}$$

~~Answer~~

$$\boxed{\frac{2}{3} (3ax + bx^3)^{1/2} + C}$$

~~ax~~  
~~2ax~~

(29)

$$\int e^{\tan x} \cdot \sec^2 x \, dx$$

$$\therefore \int e^u \, du$$

$$e^u + C$$

$$e^{\tan x} + C$$

$$f(g(x)) \cdot g'(x)$$

$$u = \tan x$$

$$du = \sec^2 x \, dx$$

$$g(1/2) = \pi \cdot \frac{1}{2}$$

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$$\int_{1/6}^{1/2} \csc \pi t \cdot \cot \pi t \, dt$$

$$u = \pi t$$

$$\frac{du = \pi \, dt}{\pi}$$

$$\dots \frac{1}{\pi} \int_{\pi/6}^{\pi/2} \csc u \cdot \cot u \, du$$

$$\dots \left[ -\frac{1}{\pi} \csc u \right]_{\pi/6}^{\pi/2}$$

$$= \frac{1}{\pi}$$

$$\dots -\frac{1}{\pi} \left( \csc \frac{\pi}{2} - \csc \frac{\pi}{6} \right) = -\frac{1}{\pi} (1 - 2)$$