

$$= \frac{3}{16} [\ln 13 - \ln 9]$$

$$= \frac{3}{16} \ln\left(\frac{13}{9}\right)$$

$$\boxed{34} \int_1^4 \frac{4\sqrt{x} + 5}{\sqrt{x}} dx$$

$$= \int_1^4 \frac{4\sqrt{x}}{\sqrt{x}} + \frac{5}{\sqrt{x}} dx$$

$$= \int_1^4 (4 + 5x^{-\frac{1}{2}}) dx$$

$$= 4x + \frac{5x^{\frac{1}{2}}}{\frac{1}{2}} \Big|_1^4$$

$$= 4x + 10\sqrt{x} \Big|_1^4$$

$$= (4(4) + 10\sqrt{4}) - (4(1) + 10\sqrt{1})$$

$$= 24 - 14$$

$$= 10$$