

# 14

Evaluate  $\int x^2 \ln x dx$ 

# 15

Evaluate  $\int x \csc^2(x) dx$ 

# 16

Evaluate  $\int x \tan^{-1}(x) dx$ 

# 17

Evaluate  $\int e^{-x} \sin(x) dx$ 

# 29

Evaluate  $\int e^{4x} \sin(5x) dx$ 

# 45

If  $f(x) = \sin\sqrt{x}$ , find the area of the region under the graph of  $f$  from  $x = 0$  to  $x = \pi^2$ .

## Answers

$$14) \frac{1}{9} x^3 (3 \ln x - 1) + C$$

$$15) -x \cot x + \ln |\sin x| + C$$

$$16) \frac{1}{2} x^2 \tan^{-1} x - \frac{1}{2} x + \frac{1}{2} \tan^{-1} x + C$$

$$17) -\frac{1}{2} e^{-x} (\sin x + \cos x) + C$$

$$29) \frac{1}{41} e^{4x} (4 \sin 5x - 5 \cos 5x) + C$$

$$45) 2\pi$$