Some useful information:

	0	$\dfrac{\pi}{6}$	$\dfrac{\pi}{4}$	$\dfrac{\pi}{3}$	$\dfrac{\pi}{2}$	π	$\dfrac{3\pi}{2}$
sin	0	$\dfrac{1}{2}$	$\dfrac{\sqrt{2}}{2}$	$\dfrac{\sqrt{3}}{2}$	1	0	-1
cos	1	$\dfrac{\sqrt{3}}{2}$	$\dfrac{\sqrt{2}}{2}$	$\dfrac{1}{2}$	0	-1	0
tan	0	$\dfrac{1}{\sqrt{3}}$	1	$\sqrt{3}$	und	0	und

$\sin^2 x + \cos^2 x = 1$
$1 + \tan^2 x = \sec^2 x$
$1 + \cot^2 x = \csc^2 x$

$\cot x = \dfrac{1}{\tan x}$

$\sec x = \dfrac{1}{\cos x}$

$\csc x = \dfrac{1}{\sin x}$

1) $\displaystyle\int \cos^2 x \, dx =$

2) $\displaystyle\int \cos^2 x \sin^2 x \, dx =$

3) $\displaystyle\int \cos^4 x \, dx =$

4) $\displaystyle\int \sin^4 x \cos x \, dx =$

5) $\displaystyle\int \cos^7 x \sin^3 x \, dx =$

6) $\displaystyle\int \tan^2 x \, dx$

7) $\displaystyle\int \tan^2 x \sec^2 x \, dx$

8) $\displaystyle\int \tan^2 x \sec^4 x \, dx$

9) $\displaystyle\int \frac{8x-7}{x^2-x-2} \, dx =$

10) $\displaystyle\int \frac{4x-60}{x^2-15x+50} \, dx =$

11) $\displaystyle\int \frac{-2x^2-22x-11}{x^3-8x^2-x+8} \, dx =$

12) $\displaystyle\int \frac{5x^2-7x-31}{\left(x^2+9\right)\left(x-4\right)} \, dx =$

13) Evaluate $\displaystyle\int_{1}^{\infty} \frac{dx}{x^{10}}$.

14) Evaluate $\displaystyle\int_{10}^{\infty} \frac{dx}{(x-2)^{4}}$.

15) Evaluate $\displaystyle\int_{10}^{\infty} \frac{e^{-x}dx}{1-e^{-x}}$.

16) Evaluate $\displaystyle\int_{0}^{1} \frac{dx}{2x-1}$

17) Evaluate $\displaystyle\int_{-5}^{5} \frac{dx}{\sqrt[3]{1-x}}$.

18) The region R in the first quadrant is bounded by $y = x^{2} + x - 2$ and $y = 4$. Sketch the region R and find its area.

19) The region R in the fourth quadrant is bounded by $y = x^{3} - x^{2} - 12x$ and $y = 0$ (the x-axis). Sketch the region R and find its area.

20) The region R in the first quadrant is bounded by $y = \sin x$ and $y = x^{2} - \pi x$ from $x = 0$ to $x = \dfrac{3\pi}{2}$. Sketch the region R and find its area.