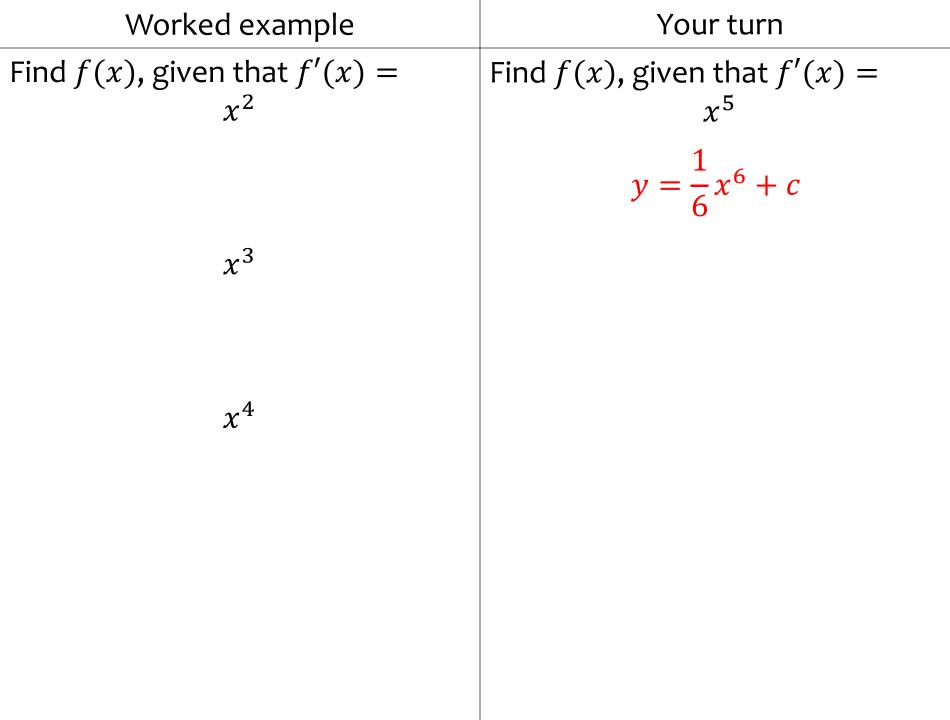
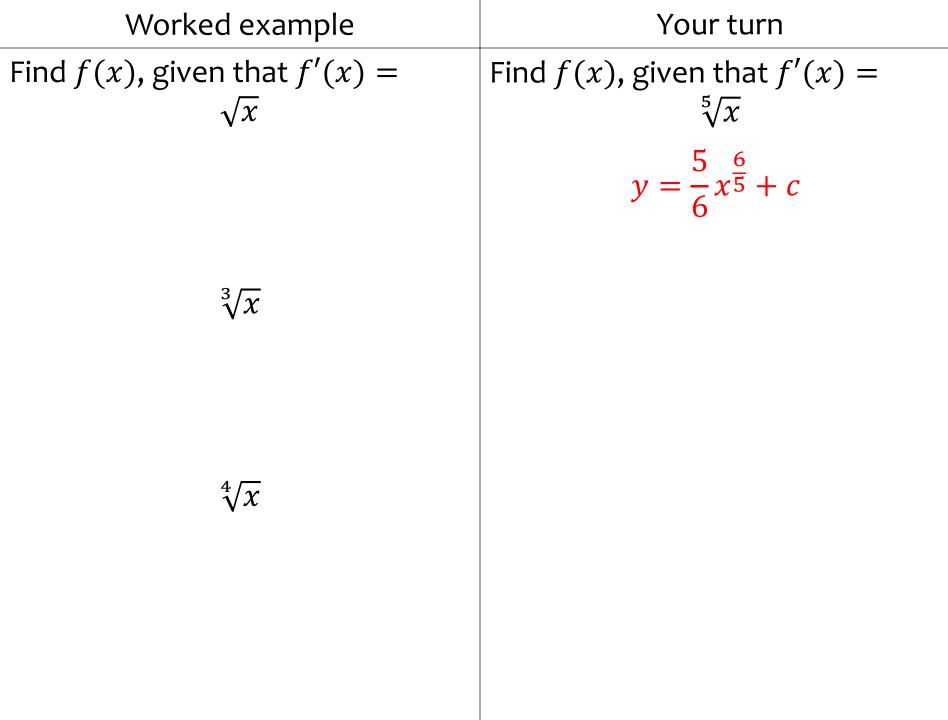
13.1) Integrating  $x^n$ 



Worked example	Your turn
Find y, given that $\frac{dy}{dx} = 3x^2$	Find y, given that $\frac{dy}{dx} =$ $-3x^5$ $y = -\frac{1}{2}x^6 + c$
$-2x^{3}$	
5 <i>x</i> <sup>4</sup>	



Worked example	Your turn
Find y, given that $\frac{dy}{dx} = \frac{1}{x^2}$	Find y, given that $\frac{dy}{dx} = \frac{3}{x^4}$ $y = -\frac{1}{x^3} + c$
$\frac{2}{x^3}$	

Worked example	Your turn
Find $f(x)$ , given that $f'(x) = 3$	Find $f(x)$ , given that $f'(x) = 7$
$\overline{4x^2}$	$\overline{8x^4}$
	$y = -\frac{7}{24x^3} + c$
$\frac{6}{5x^3}$	

Worked example	Your turn
Find y, given that $\frac{dy}{dx} = \frac{2}{3}\sqrt{x}$	Find y, given that $\frac{dy}{dx} =$ $\frac{3}{5}\sqrt{x}$ $y = \frac{2}{5}x^{\frac{3}{2}} + c$ $y = \frac{2}{5}x\sqrt{x} + c$
$\frac{4}{7}\sqrt[3]{x}$	$y = \frac{2}{5}x\sqrt{x} + c$
$\frac{5}{6}\sqrt[4]{x}$	

Worked example	Your turn
Find $f(x)$ , given that $f'(x) = 2$	Find $f(x)$ , given that $f'(x) = 3$
$\overline{3\sqrt{x}}$	$\overline{5\sqrt{x}}$ $y = \frac{6}{5}x^{\frac{1}{2}} + c$ $y = \frac{6}{5}\sqrt{x} + c$
$\frac{4}{7\sqrt[3]{x}}$	$y = \frac{6}{5}\sqrt{x} + c$
$\frac{5}{6\sqrt[4]{x}}$	

Worked example	Your turn
Find y, given that $\frac{dy}{dx} = \sqrt{36x^7}$	Find y, given that $\frac{dy}{dx} = \sqrt{16x^8}$ $y = \frac{4}{5}x^5 + c$
$\sqrt{25}x^7$	$\sqrt{9}x^8$ $y = \frac{1}{3}x^9 + c$

Worked example	Your turn
Find $f(x)$ , given that $f'(x) = \int_{a}^{a} f'(x) dx$	Find $f(x)$ , given that $f'(x) =$
$2x^{-\frac{7}{10}}$	$10x^{-\frac{2}{7}}$
	$y = 14x^{\frac{5}{7}} + c$

Worked example	Your turn
Find y, given that $\frac{dy}{dx} = \frac{5}{39x^{\frac{5}{8}}}$	Find y, given that $\frac{dy}{dx} =$ $33x^{\frac{5}{6}}$ $y = 18x^{\frac{11}{6}} + c$

Worked example	Your turn
Find $f(x)$ , given that $f'(x) = (3x - 2)^2$	Find $f(x)$ , given that $f'(x) = (2x - 3)^2$
	$y = \frac{4}{3}x^3 - 6x^2 + 9x + c$