Differentiating Harder Expressions

1. Turn roots into powers $y=\sqrt{x}$

2. Split up fractions $y=\frac{x^{2}+3}{\sqrt{x}}$

3. Expand out brackets $y=x^{2}\left(x-3\right)$

4. Beware of numbers in denominators $y=\frac{1}{3x}$

Test your understanding

Differentiate the following

1. $y=\frac{1}{\sqrt{x}}$

2. $y=\frac{2+x^{3}}{x^{2}}$

3. $y=\frac{1+2x}{3x\sqrt{x}}$

Extension

 *[MAT 2013 1E]*

The expression $\frac{d^{2}}{dx^{2}}\left[\left(2x-1\right)^{4}\left(1-x\right)^{5}\right]+\frac{d}{dx}\left[\left(2x+1\right)^{4}\left(3x^{2}-2\right)^{2}\right]$

is a polynomial of degree:

1. 9
2. 8
3. 7
4. less than 7

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