

## Unit 6 Multiplying & Dividing Polynomials

### 6.3 Dividing Polynomials by Monomials

Ex. Simplify:

a)  $\frac{6x-3}{3}$

$= \frac{6x}{3} - \frac{3}{3}$   
 $= \boxed{2x - 1}$

\* split up into a series of mono divisions

b)  $\frac{3x^3+6x}{3x}$

$= \frac{3x^3}{3x} + \frac{6x}{3x}$   
 $= \boxed{x^2 + 2}$

\* check  
 $3x(x^2+2)$   
 $= \underline{3x^3+6x}$

c)  $\frac{10a^5-15a^3+5a^2}{-5a^2}$

$= \frac{10a^5}{-5a^2} - \frac{15a^3}{-5a^2} + \frac{5a^2}{-5a^2}$   
 $= \boxed{-2a^3 + 3a - 1}$

d)  $\frac{15x^4y^3-12x^2y^2}{-3x^2y}$

$= \frac{15x^4y^3}{-3x^2y} - \frac{12x^2y^2}{-3x^2y}$   
 $= \boxed{-5x^2y^2 + 4y}$

Ex. A rectangle has an area of  $36x^2 + 18x$ , if the width is  $9x$  determine an expression for the length.

$A = l \times w$

$l = \frac{A}{w}$

$= \frac{36x^2 + 18x}{9x}$

$= \frac{36x^2}{9x} + \frac{18x}{9x}$

$= \boxed{4x + 2}$