

Monomials

$$a) \frac{-2xy}{6x^2y^3} \quad \begin{array}{l} \text{hpv} \\ x=0 \\ y=0 \end{array}$$

$$= \frac{-1}{3xy^2}$$

$$b) \frac{14x^2y^4}{7xy^8} \quad \begin{array}{l} \text{hpv} \\ x=0 \\ y=0 \end{array}$$

$$= \frac{2x}{y^4}$$

$$c) \frac{25x^3y^2z^4}{-5x^2y^4z^2} \quad \begin{array}{l} \text{hpv} \\ x=0 \\ y=0 \\ z=0 \end{array}$$

$$= \frac{-5xz^2}{y^2}$$

Polynomials

$$a) \frac{3x-3}{6x-6} \quad \begin{array}{l} \text{hpv} \\ x=1 \end{array}$$

$$= \frac{3(x-1)}{6(x-1)}$$

$$= \frac{1}{2}$$

$$b) \frac{x-2}{x^2-4} \quad \begin{array}{l} \text{hpv} \\ x=2 \end{array}$$

$$= \frac{x-2}{(x-2)(x+2)} \quad \begin{array}{l} x=2 \\ x=-2 \end{array}$$

$$= \frac{1}{x+2}$$

$$c) \frac{x^2-y-6}{x^2+9x-21} \quad \begin{array}{l} \text{hpv} \\ x=3 \\ x=-7 \end{array}$$

$$= \frac{(x-3)(x+2)}{(x-3)(x+7)}$$

$$= \frac{x+2}{x+7}$$

$$d) \frac{x-7}{7-x} \quad \begin{array}{l} \text{hpv} \\ x=7 \end{array}$$

$$= -1$$

Note
 $x-7$ and $7-x$
 are opposite
 binomials
 $\frac{x-a}{a-x}$
 $= \frac{x-a}{-1(-a+x)}$
 $= -1$

Note: When opposite binomials are divided the result is always -1 !

$$e) \frac{x^2-11x-30}{10x-24} \quad \begin{array}{l} \text{hpv} \\ x=0 \\ x=5 \end{array}$$

$$= \frac{(x-6)(x-5)}{-2x(5-x)}$$

$$= \frac{x-6}{-2x}$$

Note: Leave the negative in the denominator

$$= \frac{-(x-6)}{2x}$$

$$f) \frac{4x^2-32x}{x^2-5x-24} \quad \begin{array}{l} \text{hpv} \\ x=0 \\ x=-3 \end{array}$$

$$= \frac{4x(x-8)}{(x-8)(x+3)}$$

$$= \frac{4x}{x+3}$$

$$g) \frac{3x^2-10x-8}{(x+4)(x+2)} \quad \begin{array}{l} \text{hpv} \\ x=4 \\ x=-4 \end{array}$$

$$= \frac{3x^2-10x-8}{(x+4)(x+2)}$$

$$= \frac{3x+2}{x+4}$$

$$\begin{array}{l} 3x^2-10x-8 \\ = 3x^2+12x+24x-8 \\ = 3x(x+4)+2(x+4) \\ = (x+4)(3x+2) \\ 3x+2=0 \\ 3x=-2 \\ x=-\frac{2}{3} \end{array}$$