

Do Now: From Friday's sheet on Complex Fractions:

$$3. \frac{a - \frac{3}{a}}{a + \frac{1}{a}}$$

$$\frac{5a - 3}{3a + 1} \quad a \neq 0, -\frac{1}{3}$$

$$4. \frac{\frac{2x^2 - 1}{2x^2} - \frac{2}{2x^2}}{\frac{3}{x} - \frac{1}{x}}$$

$$\frac{x^2 - 4x}{6x - 2}$$

$$\frac{x(x-4)}{2(3x-1)} \quad x \neq 0, \frac{1}{3}$$

Classwork:

$$9. \frac{x^{-1}}{x^{-1} - y^{-1}} = \frac{\frac{xy}{x}}{\frac{1}{x} - \frac{1}{y}}$$

$$\frac{y}{(y-x)} \quad \begin{matrix} x, y \neq 0 \\ y \neq x \end{matrix}$$

$$11. \frac{a^{-2} - 1}{1 + a^{-1}} = \frac{\frac{1}{a^2} - 1}{a^2 + \frac{1}{a}}$$

$$\frac{1 - a^2}{a^2 + a}$$

$$\frac{(1-a)\cancel{1+a}}{a\cancel{1+a}}$$

$$\frac{1-a}{a} \quad a \neq 0, -1$$

$$\begin{aligned} * 2x^{-1} &= \frac{2}{x} * \\ (2x)^{-1} &= \frac{1}{2x} \end{aligned}$$

$$15. \frac{2x^{-1} - 2}{\frac{1-x}{x}}$$

$$16. \frac{4u^{-1} + (uv)^{-1}}{v^{-1} - 5}$$

$$* \frac{\frac{2}{x} - 2x}{\frac{1-x}{x}}$$

$$\cancel{uv} \frac{\frac{4}{x} + \frac{1}{uv}}{\cancel{uv} \frac{1}{v} - 5uv}$$

$$\frac{2 - 2x}{1 - x}$$

$$\frac{4v + 1}{u - 5uv}$$

$$\frac{2(1-x)}{1-x}$$

$$2 \quad x \neq 0, 1$$

$$\frac{4v + 1}{u(1 - 5v)}$$

$$\begin{aligned} u, v &\neq 0 \\ v &\neq \frac{1}{5} \end{aligned}$$

$$\begin{aligned} 1 - 5v &= 0 \\ 1 &= 5v \\ \frac{1}{5} &= v \end{aligned}$$