

WS10.01 Lesson Study: A Form of Professional Development

Diagnostics Test on Simplifying Rational Algebraic Expressions

1. Simplify the following fractions where possible:

(i) $\frac{2+x}{2x}$

(ii) $\frac{a+ab}{a}$

(iii) $\frac{18x^2y}{27xy^3}$

(iv) $\frac{2(a-b)}{c+2}$

(v) $\frac{5-r}{5r}$

(vi) $\frac{y+yr}{r+1}$

2. Apply your knowledge of factorising to simplify the following fractions where possible:

(i) $\frac{b^2-9}{b+3}$

(ii) $\frac{b^2+9}{b+3}$

(iii) $\frac{16-4a^2}{4a+8}$

3. Apply your knowledge of factorising to simplify the following fractions where possible:

(i) $\frac{x^2+3x+2}{x+2}$

(ii) $\frac{x^2-3x+2}{x+1}$

(iii) $\frac{x^2(x-3)+4(3-x)}{x^2-x-6}$

4. Simplify:

(i) $\frac{2pq}{p+2q} \times \frac{2p^2-8q^2}{4p-8q}$

(ii) $\frac{x^2-4x+4}{3x+3} \times \frac{1-x^2}{4-2x}$

5. Simplify:

(i) $\frac{3y^2}{z^2} \div \frac{6z^3}{y^2} \times \frac{18z^4}{y^3}$

(ii) $\frac{p^2-4p-21}{p^2-9} \div \frac{p-7}{3-p}$

(iii) $\frac{r^2+5r+6}{3r+9} \div \frac{4-r^2}{4-2r}$