

p. 128

$$8c) \frac{3x+2}{4x^2-1} + \frac{2x-5}{4x^2+4x+1}$$

$$\begin{aligned} &= \frac{3x+2}{(2x-1)(2x+1)} + \frac{2x-5}{(2x+1)^2} \\ &= \frac{(3x+2)(2x+1)}{(2x-1)(2x+1)^2} + \frac{(2x-5)(2x-1)}{(2x-1)(2x+1)^2} \\ &= \frac{6x^2+7x+2}{(2x-1)(2x+1)^2} + \frac{4x^2-12x+5}{(2x-1)(2x+1)^2} \\ &= \frac{10x^2-5x+7}{(2x-1)(2x+1)^2} \end{aligned} \quad *$$

$$2x-5 \overbrace{(2x-1)}$$

$$R: x \neq \frac{1}{2}, -\frac{1}{2}$$

p. 128

$$9a) \frac{2x^2}{3y^2} \times \frac{3y}{5} - \frac{2y}{3x}$$

$$= \frac{1x^2 \cdot 3}{y \cdot 5} - \frac{2y}{3x}$$

$$= \frac{3x^2}{5y} - \frac{2y}{3x} \quad LCD = 15xy$$

$$= \frac{3x^2(3x) - 2y(5y)}{15xy}$$

$$= \frac{9x^3 - 10y^2}{15xy}$$

$$R: x \neq 0, y \neq 0$$

p. 128

$$\begin{aligned}
 9c) \quad & \frac{p+1}{p^2+2p-35} + \frac{p^2+p-12}{p^2+2p-24} \times \frac{p^2-4p-12}{p^2+2p-15} \\
 & = \frac{p+1}{(p+7)(p-5)} + \frac{(p-3)(p+4)}{(p-6)(p+4)} \times \frac{(p-6)(p+2)}{(p-3)(p+5)} \\
 & = \frac{p+1}{(p+7)(p-5)} + \frac{p+2}{p+5} \\
 & = \frac{(p+1)(p+5) + (p+2)(p+7)(p-5)}{(p+7)(p-5)(p+5)} \\
 & = \frac{p^2+6p+5 + (p+2)(p^2+2p-35)}{(p+7)(p-5)(p+5)} \\
 & = \frac{p^2+6p+5 + p^3+2p^2-35p+2p^2+4p-70}{(p+7)(p-5)(p+5)} \\
 & = \frac{p^3+5p^2-27p-65}{(p+7)(p-5)(p+5)} \quad R: p \neq \pm 5, -7, 1, -4, 3
 \end{aligned}$$

It's time to...

9ac  
8c

Today's Homework Practice includes:  
pp. 132-133 #1, 4ac, 6cfg, 7, 8, 9ab, 10bde,  
12ac, 13bc, 14cd, 15ce

MCR 3UI Whiteboard Review for Unit 1 Test

Date: Feb. 16/17

1. Simplify.  $(3x-2) + (2x^2-5x+8)$

$$\begin{aligned}
 & = \underline{3x} - \underline{2} + \underline{2x^2} - \underline{5x} + \underline{8} \\
 & = 2x^2 - 2x + 6
 \end{aligned}$$

2. Simplify  $(3x^2 - 5)^2 - (2x^2 + 5x - 4)$

$$\begin{aligned}
 &= 9x^4 - \underline{30x^2} + \underline{25} - \underline{2x^2} - \underline{5x} + \underline{4} \\
 &= 9x^4 - 32x^2 - 5x + 29
 \end{aligned}$$

3. Determine if the following polynomials are equivalent.

Note: What are the two methods? Do they always work?

$$y_1 = 3(x^2 - 4x + 2) \quad y_2 = -2(x^2 + 4x - 8) + 5(x^2 + 1) - (4x + 15)$$

$$\begin{aligned}
 y_1 &= 3x^2 - 12x + 6 \\
 y_2 &= \underline{-2x^2} - \underline{8x} + \underline{16} + \underline{5x^2} + \underline{5} - \underline{4x} - \underline{15} \\
 &= -7x^2 - 12x + 6
 \end{aligned}$$

$$\therefore y_1 \neq y_2$$

$\therefore$  they are not equivalent

4. Simplify each of the following.

$$a) 3xy^2 \times (-2x^2y^3)$$

$$= -6x^{1+2}y^{2+3}$$

$$= -6x^3y^5$$

$$b) \frac{3x^2y \times (+5xy^4)}{-2x^4y^3}$$

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

$$= 5x^{2+1-4}y^{1+4-3}$$

$$= 5x^{-1}y^2$$

$$= \frac{5y^2}{x}$$

R:  $x \neq 0, y \neq 0$

5. Factor each polynomial completely.

$$a) 4x^4 - 16$$

$$= 4(x^4 - 4)$$

$$= 4(x^2 - 2)(x^2 + 2)$$

$$b) ab + b^2 + 6a + 6b$$

$$= b(a+b) + 6(a+b)$$

$$= (a+b)(b+6)$$

$$c) 6x^2 + 5x - 4$$

$$= (2x-1)(3x+4)$$

$$\begin{array}{cc|cc} 1 & 6 & 1 & 4 \\ 2 & 3 & 2 & 2 \end{array}$$

$$\begin{array}{cc|cc} 2 & 2 & 2 & 4 \\ 3 & 2 & 3 & 4 \\ \hline 1 & 2 & 1 & 4 \\ 6 & 2 & 6 & 4 \end{array} \quad \begin{array}{l} (2x-1) \\ (3x+4) \\ 8-3=5 \end{array}$$

$$d) y^2 + 9 - 6y - x^2$$

$$= y^2 - 6y + 9 - x^2$$

$$= (y-3)^2 - x^2$$

$$= (y-3-x)(y-3+x)$$

6. Simplify. 
$$\frac{3n^3 - 3n^2}{8n^3 - 12n^2 + 4n}$$

$$= \frac{3n^2(n-1)}{4n(2n^2-3n+1)}$$

$$= \frac{3n^2(n-1)}{4n(2n-1)(n-1)}$$

$$= \frac{3n^2}{4n(2n-1)} \quad R: n = \frac{1}{2}, 1, 0$$

7. Simplify.

$$\frac{x^2 - 4}{(x+6)^2} \times \frac{x^2 + 9x + 18}{4 - 2x}$$

$$= \frac{(x-2)(x+2)}{(x+6)(x+6)} \times \frac{(x+6)(x+3)}{-2(x-2)}$$

$$= \frac{(x+2)(x+3)}{-2(x+6)} \quad R: x \neq -6, 2$$

8. Simplify.

$$\frac{3x^2}{x} + \frac{y}{2xy} - \frac{-2y^2}{x^2}$$

9. Simplify.

$$\frac{5m-n}{2m+n} - \frac{4m^2-4mn+n^2}{4m^2-n^2} \div \frac{6m^2-mn-n^2}{3m+15n}$$