Date: _____ 32 Name: _____

MPM 2DW – *Exam Review Quiz #3 (Polynomials/Exponents/RVEs)*

1. Simplify.

a) $\left(\frac{2x^3y^{-2}}{3x^2y^4}\right)^{-1}$

$= \frac{3x^2y^4}{2x^3y^{-2}}$ ✓

$= \frac{3y^6}{2x}$ ✓

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b) $\frac{\left(3^{-2}+2^0\right)^{-1}}{3(2)^{-1}}$

$= \frac{\left(\frac{1}{9}+1\right)^{-1}}{3\left(\frac{1}{2}\right)}$ ✓

$= \left(\frac{10}{9}\right)^{-1} \div \frac{3}{2}$ ✓

$= \frac{9}{10} \times \frac{2}{3} = \frac{3}{5}$ ✓

c) $\frac{(2)^{n+1}\times(4)^{n+2}}{(8)^{n-1}}$

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

$= \frac{2^{n+1}\times 2^{2n+4}}{2^{3n-3}}$ ✓

$= \frac{2^{3n+5}}{2^{3n-3}} = 2^8 = 256$ ✓

2. Factor completely.

a) $3x^2+3x-18$

$= 3(x^2+x-6)$ ✓

$= 3(x+3)(x-2)$ ✓

b) $2xy+8x-6y-24$

$= 2x(y+4)-6(y+4)$ ✓

$= (y+4)(2x-6)$ ✓

$= 2(y+4)(x-3)$ ✓

c) $9a^2-24a+7$

$= (3a-7)(3a-1)$ ✓ ✓

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d) $4x^2-16y^2$

$= 4(x^2-4y^2)$ ✓

$= 4(x-2y)(x+2y)$ ✓

e) $15-2x-x^2$

$= (5+x)(3-x)$ ✓

f) $25x^2-(x+2y)^2$

$= [5x+(x+2y)][5x-(x+2y)]$ ✓

$= (6x+2y)(4x-2y)$ ✓

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

$= 4(3x+y)(2x-y)$ ✓

3. Simplify.

a) $\frac{2x^2+7x-4}{x^2+x-12} \div \frac{4x-2}{3x^2-9x}$

$= \frac{(2x-1)(x+4)}{(x+4)(x-3)} \div \frac{2(2x-1)}{3x(x-3)}$ ✓

$= \frac{(2x-1)(x+4)}{(x+4)(x-3)} \times \frac{3x(x-3)}{2(2x-1)}$ ✓

$= \frac{3x}{2}$ ✓

$x \neq -4, 3, 0, \frac{1}{2}$ ✓

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b) $\frac{7}{3x^2}+\frac{3x+1}{4x^3}-\frac{5}{12x}$

$= \frac{28x}{12x^3} + \frac{9x+3}{12x^3} - \frac{5x^2}{12x^3}$ ✓

$= \frac{28x+9x+3-5x^2}{12x^3}$ ✓

$= \frac{-5x^2+37x+3}{12x^3}$ ✓

$x \neq 0$ ✓